CHICAGO

ETHZ Departement Architektur Gastdozentur Mike Guyer / Annette Gigon

Seminarreise vom 20.03.2009 - 27.03.2009

Chicago

20. März bis 27. März 2009

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Herzlichen Dank an die Professur Tönnesmann für die Weiterverwendung von Bildern und Texten aus ihrem Reader der Seminarreise nach Chicago im Mai 2006.

Programm

20. März bis 27. März 2009

Freitag 20. März 09

12.25 Uhr	Abflug Zürich Kloten
18.20 Uhr	Ankunft Chicago O'Hare
	Transfer, Bezug Hostel

Samstag 21. März 09

walking tour Loop
The Rookery
Auditorium Building
Monadnock Building
Reliance Building
Carson Pirie Scott
Chicago Tribune Tower

12.00 Uhr	Mitagessen, 7th floor
	Macy's

walking tour from Wrigley to IBM
Marina City
Milenium Park

gemeinsames Nachtessen

Sonntag 22.März 09

Hancock Tower
Lake Shore Drive
Lake Point Tower
Sears Tower

Robie House

Montag 23. März 09

9.00 Uhr	SOM Büroführung
10.15 Uhr	Trump Tower
12.45 Uhr	Marina City
14.00 Uhr	Aqua Tower
16.00 Uhr	Gang Studios Büroführung

Dienstag 24. März 09

Ausflug nach Racine/ Plano

11.00 Uhr	Johnson Wax Factory
15.00 Uhr	Farnsworth House

Mittwoch 25. März 09

Oak Park

10.00 Uhr	Home and Studio
14.00 Uhr	Unity Temple
16.00 Uhr	Charnley Persky House

Donnerstag 26.März 09

9.00 Uhr	Reliance Building
	The Rookery

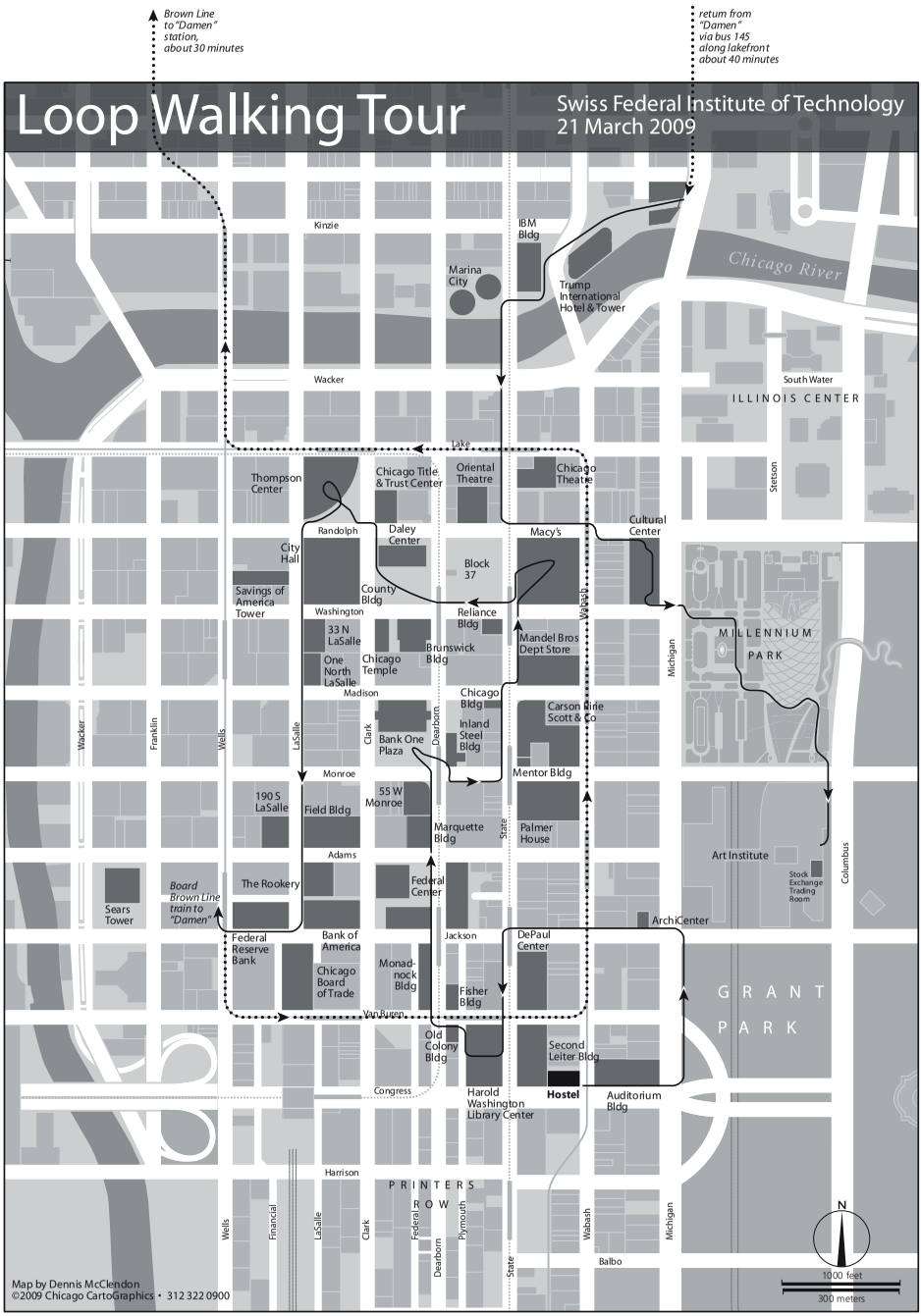
IIT, Illinois Institute of Technology

Restliche Zeit zur freien Verfügung

15.30 Uhr	Treffpunkt Hotel
20.20 Uhr	Abflug Chicago O'Hare

Freitag 27.März 09

16.00 Uhr	Ankunft Zürich Kloten


Brown Line to "Damen" station, about 30 minutes
return from "Damen" via bus 145 along lakefront about 40 minutes
Loop Walking Tour
Swiss Federal Institute of Technology
21 March 2009
Kinzie
IBM Bldg
Marina City
Chicago River
Trump International Hotel & Tower
Wacker
South Water
ILLINOIS CENTER
Lake
Thompson Center
Chicago Title & Trust Center
Oriental Theatre
Chicago Theatre
Stetson
Randolph
Daley Center
Macy's
Cultural Center
City Hall
Block 37
Savings of America Tower
County Bldg
Washington
Reliance Bldg
Wabash
33 N LaSalle
Mandel Bros Dept Store
MILLENNIUM PARK
One North LaSalle
Chicago Temple
Brunswick Bldg
Michigan
Madison
Chicago Bldg
Carson Pirie Scott & Co
Wacker
Franklin
Wells
LaSalle
Clark
Bank One Plaza
Dearborn
Inland Steel Bldg
Monroe
Mentor Bldg
190 S LaSalle
Field Bldg
55 W Monroe
Marquette Bldg
State
Palmer House
Adams
Art Institute
Stock Exchange Trading Room
Columbus
Board Brown Line train to "Damen"
The Rookery
Federal Center
Sears Tower
ArchiCenter
Federal Reserve Bank
Bank of America
Jackson
DePaul Center
Chicago Board of Trade
Monadnock Bldg
Fisher Bldg
GRANT PARK
Van Buren
Old Colony Bldg
Second Leiter Bldg
Congress
Harold Washington Library Center
Hostel
Auditorium Bldg
Harrison
PRINTERS ROW
Wells
Financial
LaSalle
Clark
Federal
Plymouth
Dearborn
State
Wabash
Michigan
Balbo
N
1000 feet
300 meters
Map by Dennis McClendon
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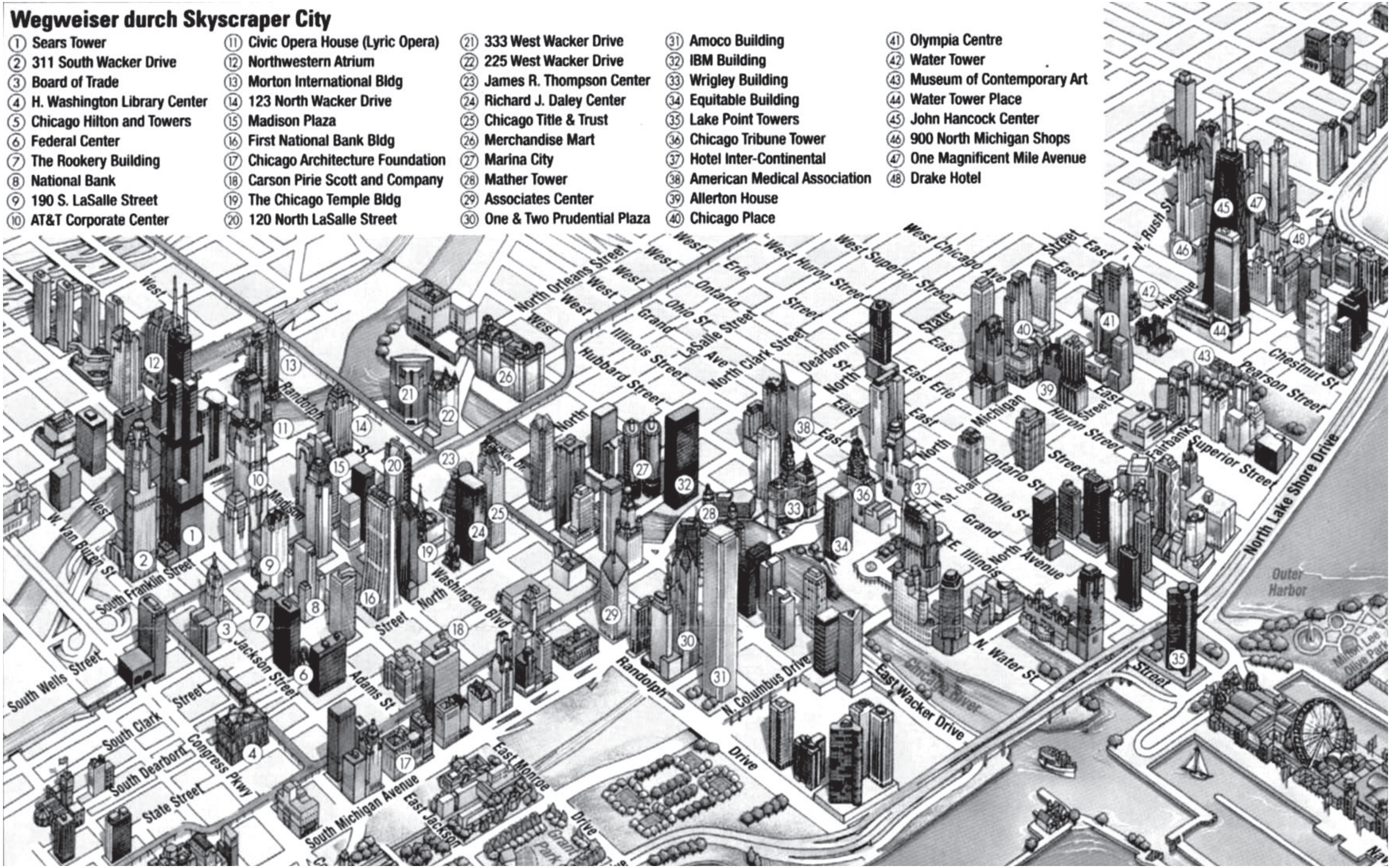


Wegweiser durch Skyscraper City
1 Sears Tower
2 311 South Wacker Drive
3 Board of Trade
4 H. Washington Library Center
5 Chicago Hilton and Towers
6 Federal Center
7 The Rookery Building
8 National Bank
9 190 S. LaSalle Street
10 AT&T Corporate Center
11 Civic Opera House (Lyric Opera)
12 Northwestern Atrium
13 Morton International Bldg
14 123 North Wacker Drive
15 Madison Plaza
16 First National Bank Bldg
17 Chicago Architecture Foundation
18 Carson Pirie Scott and Company
19 The Chicago Temple Bldg
20 120 North LaSalle Street
21 333 West Wacker Drive
22 225 West Wacker Drive
23 James R. Thompson Center
24 Richard J. Daley Center
25 Chicago Title & Trust
26 Merchandise Mart
27 Marina City
28 Mather Tower
29 Associates Center
30 One & Two Prudential Plaza
31 Amoco Building
32 IBM Building
33 Wrigley Building
34 Equitable Building
35 Lake Point Towers
36 Chicago Tribune Tower
37 Hotel Inter-Continental
38 American Medical Association
39 Allerton House
40 Chicago Place
41 Olympia Centre
42 Water Tower
43 Museum of Contemporary Art
44 Water Tower Place
45 John Hancock Center
46 900 North Michigan Shops
47 One Magnificent Mile Avenue
48 Drake Hotel
North Orleans Street
Hubbard Street
Illinois Street
West Chicago Ave
West Superior Street
West Huron Street
North Clark Street
Dearborn St
Chestnut St
Pearson Street
Superior Street
North Lake Shore Drive
Outer Harbor
South Franklin Street
W. Van Buren St
South Wells Street
South Clark
South Dearborn
Congress Pkwy
State Street
South Michigan Avenue
East Jackson
East Monroe
Jackson Street
Adams St
Washington Blvd
Randolph
N. Columbus Drive
East Wacker Drive
N. Water St

Located on the southwestern tip of Lake Michigan, Chicago became the main transshipment centre for the grain and livestock of the Midwest in the 19th century. In the 20th century it remained the leading transportation, commercial, and industrial centre of the north-central United States.
Until the 1830s a minor trading post at a swampy river mouth near the southwestern tip of Lake Michigan, Chicago made use of its strategic location as the interior land and water hub of the expanding United States to become the centre of one of the world's richest industrial and commercial complexes. It is the third most populous city and metropolitan area in the United States. Chicago's achievements are distinctly characteristic of the country as a whole, and its problems are the problems of the modern United States; in a sense it may be—as a series of observers has called it—the typical American city.
The relations between this youthful city and its rural environment are also noteworthy. Throughout its history, Chicago and the surrounding counties of what became its metropolitan area, now containing about two-thirds of the population of Illinois, have existed as almost a separate entity—politically, socially, and spiritually—from largely rural "Downstate" Illinois. The attitudes and lives of the early settlers in and around the burgeoning city, mainly from the Northeastern states or from Europe, were in contrast to those of Downstaters, many of whom came from Appalachian or Southern states. While Chicago was, for example, a major supplier of goods and manpower to the Union during the Civil War, in southern Illinois there was an unsuccessful but strong movement toward secession and alliance with the Confederacy. This alienation continues to plague the political and social life of both the city and the state.

The character of Chicago
A by-product of Chicago's growth on the raw frontier of U.S. industry was its reputation as a city in which "anything goes," a city whose name became an international byword for underworld violence during and after the Prohibition era of the 1920s and early 1930s. This sort of mayhem has long been overshadowed in Chicago as elsewhere in the United States by the random violence of daily urban life. Municipal corruption, another commodity on which Chicago was long thought to have cornered the market, is likewise not in fact a local monopoly, though Chicagoans perhaps have a higher tolerance for human frailty among politicians—politics in Chicago being to an extent an expensive form of public entertainment—than do the citizens of other municipalities.
However much Chicago's political and social life may have deserved the brickbats of its numerous critics, there is little disagreement that the city's physical presence is stunning. Chicago arose from the ashes of its Great Fire in 1871 to develop the skyscraper as well as many of the other major innovations of modern architecture. In the decades immediately following World War II, however, exigencies of the marketplace often conquered civic pride in maintaining the great landmarks of Chicago's past. There were exceptions—notably, the Auditorium Building and the Newberry Library—but these were preserved through limited, private initiative. More recently, public awareness and effective legislation have fostered increased conservation efforts. This factor and the desire for more land on which to build new structures have aided in the southward and westward expansion of Chicago's downtown into formerly blighted areas, so that the city's striking skyline, containing some of the world's tallest buildings, rises along a continually widening strip.
Behind this impressive facade lies a sprawling industrial city, its monotony accentuated by the flat Midwestern landscape and by a repetitive gridiron pattern of streets broken only by the radial avenues that cover old Indian trails to the northwest and southwest and the great freeways and railroad lines that for many years have made the city a major hub of commerce. The whole mass reaches out over the former prairie, spilling over city limits into an irregular and continuously expanding belt of suburbs and industrial satellites. The magnificent downtown lakeside strip nevertheless remains the focus of attention in the mind of resident, commuter, and visitor alike.

The city layout
Chicago meets its suburbs in a ragged pattern of boundaries on three sides, while on the east the lakefront curves from northwest to southeast. The area centring on the forks of the river was platted on a gridiron pattern in 1830 following specifications of the Northwest Ordinance of 1787. This plan was followed to some degree in the rest of the city, though it was broken often by radial avenues

(some following old Indian trails leading to the river mouth) and other features, such as the Burnham Plan of Chicago (1909), rail lines and yards, industrial sites, and parks.
Downtown Chicago has been known as the "Loop" since 1897, when several elevated lines were joined into an overhead loop of tracks encircling an area that covers some 35 blocks and receiving feeder lines from north, west, and south. The building boom that began in the mid-1950s extended the highly concentrated business district westward from the Loop and, from the 1970s, into the Near West Side beyond the river's south branch. Many new skyscrapers have radically altered the city's skyline. North Michigan Avenue, initially developed following completion of the Michigan Avenue Bridge in 1920, and adjacent Near North sites have experienced much high-rise commercial and residential building since the 1960s, the most notable being the 100-story John Hancock Center, the 74-story Water Tower Place, and the 66-story 900 North Michigan Building. All are multipurpose skyscrapers containing shopping facilities, restaurants, offices, and apartments; Water Tower Place and 900 North Michigan also include hotels. Other major downtown office buildings completed since 1970 include the 110-story, 1,450-foot (442 metres) Sears Tower—one of the world's tallest buildings—just west of the Loop, the 80-story Amoco Building east of the Loop, and the 65-story 311 South Wacker Building (at the time of its completion in 1990 the world's tallest concrete-framed building) just south of the Sears Tower. Also notable is the complex of office and apartment buildings and hotels on either side of the Chicago River east of Michigan Avenue. The downtown building boom was largely over by the mid-1990s, although there was still a considerable volume of office-building construction in suburban areas.
Grant Park in downtown Chicago, Lincoln Park on the North Side, and Jackson and Burnham parks on the South Side stretch for miles along the lakefront. The city has an extensive park system inland as well.
Principal industrial areas lie along the two branches of the Chicago River and in the Calumet region to the southeast, as well as along railroad lines and in satellite cities, such as Waukegan, Aurora, Joliet, and Chicago Heights in Illinois and the Gary–Hammond–East Chicago complex in Indiana, up to 40 miles from downtown Chicago. In south Chicago, along and near the Calumet River and along the lakefront in adjacent Indiana, are many oil refineries and iron and steel, chemical, and fabricating plants.

Industry
Chicago and its metropolitan area have remained the most important focus of economic activity in interior North America. Its economic base, with a balance between industry and commerce, is highly diversified. Nevertheless, the city has suffered, along with many other metropolitan areas of the Northeast and Middle West, from the shift in population and economic activity to the "Sun Belt" of the South and West and from foreign industrial competition.
Manufacturing provides about one-fourth of the region's employment; leading categories are steel, metal products, food products and confections, metal furniture, chemicals, soap, paint, machine tools, communications equipment and electronic goods, railroad equipment, surgical appliances, and scientific instruments.
Chicago's steel supply and its strategic situation as the major transportation node of the continent has enabled it to assume leadership in the manufacture of a wide variety of machinery and fabricated metal products, ranging from diesel-electric locomotives to printing presses, material-handling equipment, and earth-moving and agricultural machinery.
Chicago's printing establishments include several of the world's largest. Many nationally distributed magazines and mail-order catalogs, as well as a substantial proportion of the country's telephone directories, are produced in these plants. Enormous quantities of paper, much of it from Canada, reach Chicago by water. The city ranks second to New York City in the white-collar aspects of publishing, though it tends to specialize in such areas as educational materials, encyclopaedias, and professional and trade publications. It is also the home office of several major advertising and public-relations firms.
Situated between the agricultural Midwest and the urban-industrial Northeast, Chicago remains a leader in food processing, although by the early 1970s the Union Stock Yards had terminated all meat-processing activities.

Settlement and early activity

In 1673 the French explorers Louis Jolliet and Jacques Marquette followed an Indian portage to the mudflats over which a Y-shaped river flowed. It emptied into Lake Michigan, while its arms reached nearly to the drainage basin of the Mississippi River system, thus virtually linking two great North American waterways. The meaning of the Indian name for the region remains disputed—among the possibilities are skunk, wild onion, or powerful.

Trappers, traders, and adventurers used the area for portage and barter throughout the 18th century. The first known non-Indian settler was Jean Baptiste Point Sable (or Pointe du Sable), son of a wealthy French merchant who had moved to Haiti and married a black woman there. Sable settled in the Great Lakes area in the 1770s. In 1795 the United States obtained a six-mile-square area about the river mouth.

Fort Dearborn, built in 1803, was destroyed in 1812 and all but one of its military and civilian population were killed in an Indian raid. The fort was rebuilt in 1816 and was occupied until the 1830s. Outside its walls a cluster of traders' shacks and log cabins were built, but the settlement attracted little interest even after Illinois, with most of its population in the central and southern regions, became a state in 1818.

The opening of the Erie Canal in 1825, joining the Atlantic states and the Great Lakes, shifted the main axis of westward movement northward from the Ohio River route. Soon afterward, Chicago became the principal western terminus. The county of Cook located its seat at the small community, and the regional federal land office opened there. Numerous retail stores opened to outfit newcomers to the West, and the volume of animal pelts and products for Eastern markets increased. In 1837, the year Chicago became incorporated as a city, its population was about 4,200.

Chicago's geographic potentiality as a water gateway was fulfilled by completion in 1848 of the Illinois and Michigan Canal, linking the Great Lakes and Mississippi systems. A pair of railroad lines from the East tied into Chicago in 1852, and by 1856 it had become the nation's chief rail centre. A belt line connected the radiating trunk lines by 1856, and commuter service to outlying neighbourhoods and suburbs began.

Notable early buildings included those in Neoclassical and Greek Revival styles by John Mills Van Osdel, for example the first Chicago City Hall (1844; destr.). In 1848 the Illinois and Michigan Canal connected Chicago with steamboat navigation on the Illinois River and hence the Mississippi, and the first railway to the west was begun. In the next two decades the city's population increased from 30,000 to 300,000; more than half the newcomers were immigrants. Numerous suburban communities became established along the railways radiating from the city. Notable were those along the north lake shore and Riverside, designed by Frederick Law Olmsted and Calvert Vaux in 1869. In the same year Olmsted and Vaux laid out South Park (now Washington and Jackson parks).

Explosive economic growth

Industry followed the rails. By the late 1850s lake vessels carried iron ore from the Upper Michigan ranges to the blast furnaces of Chicago. Chicago became the nation's major lumber-distributing centre by the 1880s. The railroads brought farm produce from west and south, and Chicago's Board of Trade became the nerve centre of the commodities market. The railroads also hauled cattle, hogs, and sheep to Chicago for slaughtering and packing. The consolidated Union Stock Yards, largely bankrolled by nine railroads and the owners of several other Chicago stockyards, opened on Christmas Day 1865.

Chicago emerged as the major city of the Midwest. Its 1880 census reported more than 500,000 inhabitants, a 17-fold increase over 1850. Both Americans and northern European immigrants, drawn by Chicago's factories and carried by the rail network that was anchored in Chicago, continued to pour into the city.

Four square miles of Chicago, including the business district, were destroyed by fire on October 8–10, 1871. Starting in the southwest, fed by wooden buildings and pavements and favoured by a long dry spell, flames spread northeastward, leaping the Chicago River and dying out only when they reached Lake Michigan. About 250 lives were lost, some 90,000 people were made homeless, and almost $200,000,000 in property was destroyed.

The rebuilt city and its people

Much of the city's physical infrastructure remained, however, including its water-supply and sewage systems and transportation facilities. Chicago rebuilt rapidly in a similar pattern, although with buil

dings that were more modern and in conformance with new fire regulations. During the two decades following the fire the population grew to 1.1 million. This rapid growth and rebuilding programme provided ample opportunity for a large number of architects, many of whom achieved international reputations. In the 1880s the construction and engineering innovations in the development of high-rise buildings came to be associated with the Chicago school of architecture. Analogous to the introduction of the balloon frame (invented by Chicago carpenters in the 1930s using light milled pine lumber and factory-produced nails in a quick, efficient construction system based on walls as whole units rather than on a separate heavy braced frame), an iron and steel skeleton was first used in 1883–5 by William Le Baron Jenney (with the engineer George B. Whitney) in the Home Insurance Building (destr. 1931). Jenney's solution to the problem of height, using the skeletal metal frame clad with masonry, became the model for buildings in Chicago. The steel skeleton was used notably in the Reliance Building by D. H. Burnham & Co. (1889–95), designed by John Wellborn Root (1890) and Charles B. Atwood (1894–5). Louis Sullivan was another a leading designer of high-rise buildings, producing, with Dankmar Adler, the Auditorium Building (1886–9), a ten-storey block that at the time was the largest building in Chicago; it is now part of Roosevelt University. Frank Lloyd Wright, then working in Sullivan's practice, also collaborated on this project.

In the late 19th century Chicago's wealth was reflected in the generous contributions to the city's cultural life made by its business leaders and in the construction of many commercial buildings, including the Marshall Field Wholesale Store (1885–7; destr.) by H. H. Richardson, which was particularly influential; the Montgomery Ward (later Fair) Store (1891–2; destr.) by Jenney; and Sullivan's Schlesinger and Mayer Department Store (1898–1904; now Carson Pirie Scott & Co.), a steel structure noted for its cast-iron ornament. Such works became architectural landmarks. Further technical innovation was introduced in the 1890s by the firm of Holabird & Roche, who used portal wind bracing for the first time in the 17-storey Old Colony Building (1893–4; with the engineer Corydon T. Purdy). Around this time Frank Lloyd Wright was also undertaking commissions of his own in Chicago, including houses for Isidore Heller (1897–8) and Joseph Husser (1899), and, most notably, the Fred Robie House (1908–10), the last being one of the best-known examples of the style that came to be associated with the Prairie school. There were improvements to the city's infrastructure before the end of the 19th century: street railways were electrified after 1885, and elevated railways were built from 1893. The first multiple-unit electric trains operated on the South Side elevated line, and in 1897 the radiating lines were joined in a city-centre loop, which is the source of the name 'the Loop' for the city's commercial district.

The Lake Michigan shore became the centre for the homes and civic pursuits of Chicago's economic and social elite. Lake Shore Drive north of the Loop emerged as the mainline for society—the Gold Coast, it was soon nicknamed. Although blighted by the Illinois Central Railroad yards, the waterfront east of the Loop was nevertheless landscaped and named Grant Park.

Heavy industry, warehouses, and rail yards crowded the banks of the Chicago River. Industrial pockets also existed at Chicago's outskirts. At the far south, where the Calumet River meets Lake Michigan, steel mills drew a polyglot community of blue-collar workers and their families. The Union Stock Yards dominated another South Side area, Back-of-the-Yards, made infamous in Upton Sinclair's scathing novel of industrial oppression, The Jungle (1906). Public health and sanitary conditions were an outrage: until 1900 Lake Michigan both supplied fresh water to Chicago and received its untreated sewage, a condition probably responsible for the city's frequent epidemics.

Many of the working families arrived in the second great wave of European immigration: Russian Jews, Italians, Poles, Serbs, Croatians, Bohemians, and other groups from southern and eastern Europe. The 1890 and 1900 censuses showed that more than three-fourths of Chicago's population was made up of the foreign-born and their children.

The working districts were fertile ground for social action. The labour movement left the mark of its early attempts at industrial organizing: the Haymarket Riot of 1886, in which workers and lawmen alike died; and an 1894 strike against the Pullman Palace Car Company, led by pioneer organizer Eugene V. Debs and others. Social work was another influence: Jane Addams and her followers at Hull House, a West Side settlement, tried to improve the wretched conditions of housing and health there.

In 1889 Chicago annexed numerous inner suburbs, doubling its area and its population and surpassing Philadelphia as America's second most populous city. By 1900 it was a centre of nearly all parts of the U.S. economy as well as of social insurgency and reform, immigration, education, and even culture. Chicago also had developed a brawling spirit evident not only along the dingy streets of the immigrant ghettos but also in corporate boardrooms and in the most elegant brothel in the nation, which entertained royalty from abroad and millionaires from the newly sprawling suburbs.

This Chicago was particularly striking to writers and visitors. "I have struck a city—a real city—and they call it Chicago," wrote Rudyard Kipling. "The other places don't count." And, he continued, "Having seen it, I urgently desire never to see it again. It is inhabited by savages."

To commemorate the 400th anniversary of Christopher Columbus's discovery of America and to celebrate the city's rapid recovery from the fire, the World's Columbian Exposition was held (a year late) in 1893 in Jackson Park. The general site plan was initially drawn up by Burnham, later the director of construction, and John Wellborn Root, with Olmsted and Henry Codman (1867–93). Pavilions were designed by, among others, Adler & Sullivan, Jenney & Mundie, Richard Morris Hunt, Solon S. Beman and Henry Ives Cobb. The fair, which had record attendances, stimulated worldwide interest in comprehensive planning, not only of individual buildings but also of their spatial, functional and aesthetic interrelations, and furthered interest in the ideals of the City beautiful movement for the enhancement of the urban environment. Another effect of the Exposition was, however, its negative impact on developments in skyscraper technology in Chicago, since height limitations were imposed in the city. New York took over as the centre for innovations in high-rises.

Symbols of civic consolidation

As a direct result of the Exposition, Burnham and Edward H. Bennett (1874–1954) were commissioned (1906) by the City Club of Chicago to prepare a comprehensive plan for the city and its environs. Published in 1909, the Plan of Chicago was a prototype for comprehensive plans for many other cities, although, as in the plans of the City Beautiful Movement, the absence of skyscrapers, elevated railways and other features of the modern city was in many ways unrealistic. The Chicago Plan Commission, a forerunner of the American Planning Association and a quasi-official organization, was instrumental in spreading interest in urban planning. It conducted educational programmes, introduced planning into the American public school curriculum and promoted many of the outstanding infrastructure improvements in Chicago during the following 30 years. These included the almost continuous lake-front parks; the widening of arterial streets; numerous bridges across the Chicago River and its branches; the North Michigan Avenue boulevard development (which a century later became the axis for a new retail, hotel, office and residential area complementing the older Loop district); a new Union Station (1913–25) by Graham, Burnham & Co. (1913–17) and Graham, Anderson, Probst & White (after 1917); and an outer belt of forest areas, principally along the suburban corridors. In retrospect, the Burnham and Bennett plan had many shortcomings. It treated such social problems as poverty and housing very lightly, implying that physical improvements would stimulate the mitigation of social problems; this proved not to be the case.

Until 1939 the quasi-official Chicago Plan Commission promoted individual features of the plan, which, like Burnham's admonition, "Make no little plans," came to have a profound effect on Chicago.

The 20th century

Chicago's population growth was less spectacular in the 20th century, though industrial expansion associated with World Wars I and II and the postwar prosperity continued to attract newcomers. Most pronounced was the influx of blacks from the South seeking industrial employment. A building boom in the city and suburbs terminated abruptly following the stockmarket collapse of 1929, and during the next decade the population increased only slightly, to about 3,400,000 in 1940. Possibly contributing to this slowed growth were the worldwide notoriety of Chicago (only in part deserved) as the playground of underworld figures during the Prohibition era, the failure of several Chicago banks during the Great Depression of the 1930s, and the allegedly powerful grip of criminal syndicates on many aspects of economic and political life. In contrast, however, the suburban population increased rapidly during this period.

By the late 1930s it was realized that a continuous planning operation, with more official status, was needed to deal not only with the city's physical infrastructure but also with basic problems of economic and social welfare. The Chicago Plan Commission was reconstituted: it acquired a professional staff that prepared many studies and plans, some of which were implemented. One study indicated that a predominantly residential area of c. 37 sq. km, located primarily close to the central business district, was so blighted that complete demolition and rebuilding would be necessary before living conditions met acceptable standards. Another plan prepared in the 1930s was for a series of 'superhighways' designed to carry a high proportion of the city and suburban traffic, and for two rapid transit underground rail systems. The latter were built from 1943, and by the 1960s the superhighways were also in place, facilitating rapid expansion of the suburban areas. Suburban land-use patterns were transformed: vast areas were rapidly filled with single-family detached houses; huge, enclosed shopping malls offered effective competition to the older commercial areas within the city and inner suburbs; office and industrial parks induced relocation of businesses to the urban periphery and beyond. Decline of the city's tax base inevitably followed, at the same time that the increasing demands for social services and physical rehabilitation and maintenance accentuated the need for expenditure.

During the 1950s and 1960s huge clusters of high-rise blocks of flats were constructed in the older city areas, consisting of public housing for the poor (often from ethnic minorities) and privately built (but publicly assisted) housing for the wealthier population. A pioneering example was set by the pair of 24-storey apartment towers at 860 Lake Shore Drive, built in 1951 by Ludwig Mies van der rohe in glass and steel. Even these massive housing projects represented only a small part of the demand, however. Furthermore, many residents of the poorer areas were victims of social and economic problems. After inter-racial conflict erupted in many areas, notably in 1968, the courts ordered that concentrated public housing could no longer be built in areas in which a given ethnic minority predominated; public housing had to be on scattered sites.

Mies van der Rohe's career in Chicago was of seminal importance to the appearance of the city in the mid-20th century. He produced many low-rise buildings over a 20-year period for the Illinois Institute of Technology, and for other institutions, such as the School of Social Service Administration (1952–5) for the University of Chicago. From the 1960s skyscrapers increasingly characterized the centre of Chicago: about 75 were built in the 1970s and 1980s. Indeed two buildings by the practice of Skidmore, Owings & Merrill (SOM) are among the tallest in the world: working in association with the SOM practice, Bruce Graham (b 1925) built the multi-purpose John Hancock Center, standing at 344 m, in 1969, and five years later he worked with Fazlur Khan (1929–82) and SOM to produce the Sears Tower (443 m) using a tubular steel frame. A major figure of the late 20th century associated with Chicago was Helmut Jahn, whose buildings are characterized by a pastiche of historical and exotic styles. Examples of his skyscrapers include One South Wacker Drive (1984) and the Art-Deco style Northwestern Terminal Building (1987).

The multi-functional high-rise building became increasingly common in the 1980s, combining retail establishments, offices, shops, flats and sometimes hotels. Examples include the River City Building (1985) by Bertrand Goldberg (b 1913). Many were built in response to the 'Century 21' plan of the 1970s, developed by private venture capital in collaboration with public agencies. Several more were proposed in the early 1990s but were deferred because of the decline of the property market. Major additions to the metropolitan infrastructure proposed for construction before the end of the 20th century included additional express highways and rapid transit lines, another large airport, completion of a deep-tunnel sewerage system and additions to the park and forest systems.

Harold M. Meyer, Grove Art Online
Harold M. Meyer, Encyclopædia Britannica Online

John Zukowsky
Zum Internationalismus in der Chicagoer Architektur
Deutsch von Dagmar Tarck-Wagner

Weltweit wurde Chicago lange Zeit als Hauptstadt der amerikanischen Architektur bezeichnet. Die von der Chicagoer Schule entwickelten hohen Geschäftsgebäude und die Einfamilienhäuser im Prairie-Stil galten international als der amerikanische Beitrag zur Weltarchitektur schlechthin. Doch wurde die Architektur Chicagos allzu oft lediglich in einem regionalen oder nationalen Kontext gesehen. Unsere Ausstellung und dieses Buch zeigen deshalb einige der wesentlichen architektonischen Charakteristika der Stadt und ihre Entstehung aus einer erweiterten, internationaleren Perspektive.

Viele der Essays konzentrieren sich insbesondere auf den Austausch zwischen Chicago und Europa und auf den Einfluß, den diese Wechselbeziehungen auf die Stadtentwicklung in Amerika hatten. Aber vorab scheint ein kurzer Überblick über die Geschichte Chicagos angebracht.

Höchstwahrscheinlich leitet der Name Chicago sich von dem Fluß Checagou ab, den die eingeborenen Indianer nach den wilden Zwiebeln benannten, die auf dem Sumpfland zwischen den weiten Prärien und dem riesigen, später Lake Michigan genannten Binnensee wuchsen. Vor rund vierhundert Millionen Jahren war dieses Gebiet von einem Meer bedeckt, das eine Kalksteinschicht zurückließ, die heute als Niagara-Formation bekannt ist. Sie lieferte den Baumeistern der Stadt im 19. Jahrhundert reiche Vorräte an Baugestein und Mörtel.

Zwei Franzosen waren 1673 die ersten ausländischen Besucher Der jesuitische Missionar Jacques Marquette und sein Expeditionsgefährte Louis Jolliet suchten die Begegnung mit den in der Nähe lebenden Potawatomi-Indianern, da Jolliet erfahren hatte, daß sie den Franzosen hervorragende Pelzlieferanten sein könnten. Erst ein volles Jahrhundert später – 1772 – etablierte sich hier der aus Haiti stammende Jean Baptiste Pomt du Sable mit seinem Pelzhandel. Obwohl der Einfluß der sporadischen französischen Expeditionen im allgemeinen nur kurz anhielt, finden sich einige deutliche sprachliche Reminiszenzen in Ortsnamen wie Des Plaines, Joliet und La Salle, und architektonische in Rekonstruktionen wie dem Fort de Chartres aus den fünfziger Jahren und dem Cahokia Courthouse aus den sechziger Jahren des 18. Jahrhunderts (Abb. 2), die beide im Süden von Illinois stehen.[1]

Abb. 2 Cahokia, Illinois, Courthouse, um 1760-70

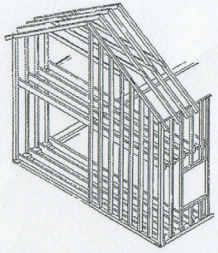


Abb. 4 Perspektivische Isometrie des Ballongerüsts aus Georg Woodward, Woodwards Country Homes, 1865

Erst nach dem Unabhängigkeitskrieg entwickelte sich im Anschluß an die Errichtung von Fort Dearborn am Chicago River im Jahre 1803 der nördliche Teil von Illinois. Dem Fort oblag die Überwachung der Westgrenze der neu gegründeten Vereinigten Staaten von Amerika insbesondere der Schutz der Flußwege, die die Großen Seen mit dem Mississippi-Tal verbinden. Die günstige Lage des Forts und damit der Stadt, die nach der Niederlage der Briten im Krieg von 1812 ringsum entstand, bestimmte Chicagos künftige Bedeutung als Verkehrsknotenpunkt.

Mit dem Nordwest-Erlaß von 1785 wurde das relativ flache Land der nordwestlich des Ohio River gelegenen Territorien in ein riesiges Schachbrett von viereckigen Parzellen eingeteilt. Entscheidend für das weitere Schicksal der Stadt wurde der Beschluß von 1830, Chicago zur nördlichen Endstation eines großen Kanals zu machen, der die Großen Seen mit dem Mississippi verbinden sollte. Man erstellte einen Stadtpan, und die Bundesregierung begann mit dem Bau eines Hafens, der 1833 fertiggestellt wurde. Im gleichen Jahr wurde die am Reißbrett entstandene Stadt als solche registriert, nachdem sich ihre Einwohnerzahl von 60 auf 150 erhöht hatte, die Zahl, die gesetzliche Voraussetzung für die Registrierung war. Als 1848 der Illinois-Michigan-Kanal fertiggestellt wurde, war die Bevölkerung auf 20000 angestiegen.[2]

Zum rapiden Wachstum der Stadt trug die Erfindung des *Ballongerüsts* (Abb. 4) entscheidend bei. Diese Methode – leichtgewichtiges Holz wurde nicht vernutet, sondern einfach zusammengenagelt – soll einen Witzbold zu dem Ausspruch verleitet haben, es sei nun ebenso leicht, ein Haus zu bauen wie einen Ballon aufzublasen. Dem Chicagoer George Snow wird das Verdienst zugeschrieben, diese Methode 1832 erfunden zu haben. Innerhalb kürzester Zeit wurden mittels dieser effektiven Technik Lagerhäuser Wohnhäuser, öffentliche Bauten und Kirchen errichtet.[3]

Verglichen mit der Schnelligkeit, mit der sich Chicago im Laufe der nächsten drei Jahrzehnte weiter entwickelte, war

das frühe Wachstum der Stadt noch gering. Bis 1870 war Chicago zu einem Handels- und Industriezentrum von rund 300000 Einwohnern geworden und wurde von der englischen Besucherin Sara Jane Lippincott als »lightning city« bezeichnet.[4] Chicagos gute Zugänglichkeit auf dem Wasserwege und seine nach 1860 zunehmende Bedeutung als Zentrum eines nationalen Eisenbahnnetzes beschleunigten sein ökonomisches Wachstum. Sägewerke und Fabriken für landwirtschaftliche Geräte (die McCormick Reaper Factory wurde 1847 gegründet) erlebten eine Hochblüte. Als man gegen Ende des Bürgerkriegs (1861-65) die Schlachthöfe dieser Gegend durch neun verschiedene Eisenbahnlinien miteinander verband, wurde Chicago für mehr als ein Jahrhundert zum weltwichtigsten Zentrum der fleischverarbeitenden Industrie. Als 1865 der Union Stockyard eröffnet wurde, präsentierte er sich mit Unterkünften, Hotels, Restaurants und einer Wechselstube als eine Stadt in der Stadt. Die Ställe boten 20000 Rindern, 75000 Schweinen und 20000 Schafen Platz. 1871 verarbeiteten die Fleischwarenhersteller mehr als 500000 Rinder und rund 2400000 Schweine, und die Einführung der Kühlwaggons im Jahre 1869 erleichterte den Transport der Fleischprodukte quer durch das Land (Abb. 3). Auf dem Höhepunkt der Produktionsleistung um die Mitte des Jahrhunderts wurden jährlich drei Millionen Rinder und sechs Millionen Schweine in die Schlachthöfe geschleust. Kein Wunder, daß sie zum Symbol für die Stadt wurden. Der Dichter Carl Sandburg verlieh Chicago die Beinamen »Porkopolis« und »Schweineschlachthaus der Welt«, und Upton Sindair prangerte 1906 in Der Sumpf die Arbeitsbedingungen in den Schlachthöfen an.[5]

In den Jahren nach dem Bürgerkrieg wuchs Chicagos Bedeutung als Handels- und Transportzentrum, da man daran ging, die beiden Küsten durch den Bau transkontinentaler Bahnstrecken zu verbinden. Als erste wurde 1869 die Union Pacific Railroad fertiggestellt. Noch stärker identifizierte sich Chicago mit dem Eisenbahnbau, als George M. Pullman 1879 südlich der City eine Eisenbahnfabrik und eine Modellstadt zur Unterbringung seiner Arbeiter baute (die nach ihm benannt wurde; siehe Schlereth, Abb. 2, 4, 6,8)[6] Über die neu entstandenen Eisenbahnlinien wurden nicht nur Waren und Vieh in die Stadt transportiert und Maschinen, Gebrauchsgegenstände und Nutzholz aus der Stadt herausbefördert, sondern vor allem gelangten auf diesem Wege Menschen nach Chicago, um dort zu leben und zu arbeiten. Die frühen Siedler kamen vorwiegend von der Ostküste und waren nordeuropäischer Abstammung. Viele Iren wanderten in den dreißiger Jahren des 19. Jahrhunderts nach Chicago aus, um am Illinois-Michigan-Kanal zu arbeiten. Als im Jahre 1846 die große Hungersnot in Irland ausbrach, kamen noch weitere Tausende, um beim Eisenbahnbau – vor allem an der Illinois Central – mitzuarbeiten.[7] Irische Einwanderer waren zwar auch im Baugewerbe tätig, doch die ersten professionellen Architekten in Chicago kamen aus Städten der Ostküstenstaaten. John M. Van Osdel, der erste Architekt der Stadt, kam 1837 aus Baltimore über New York nach Chicago. Aber erst nachdem Mitte des Jahrhunderts die Eisenbahnlinien fertig geworden waren, kamen zunehmend Architekten von der Ostküste und später aus Mitteleuropa, vor allem aus Deutschland.

Die gescheiterten Revolutionen von 1848, darauffolgende Unruhen und die Brachialmethoden des *eisernen* Bismarck, mit denen er 1866 die deutschen Kleinstaaten vereinigte, veranlaßte eine wachsende Anzahl von Deutschen nach Chicago auszuwandern, unter ihnen eine ganze Schar von Architekten und Angehörige verwandter Berufe: Ingenieure, Techniker, Hersteller von Zeichenmaterial, Graveure und Drucker. Augustus Bauer, einer der ersten deutschen Architekten, die in Chicago arbeiteten (Abb. 6), kam schon 1853; Eugen Dietzgen etablierte sich mit seiner Fabrik für Zeichenmaterial im Jahre 1891 Aus Deutschland eingewanderte Arbeiter trugen wesentlich zur Entstehung der Labor-Bewegung in Chicago bei und waren auch in die Haymarket-Affäre vom 4. Mai 1886 verwickelt. Chicago wurde in gewisser Hinsicht die Hauptstadt eines *kleinen* Deutschlands im mittleren Westen der USA, das sich von der Mitte des 19. Jahrhunderts bis zum Ersten Weltkrieg von Milwaukee über Indianapolis bis Cincinnati und St. Louis erstreckte. Im Jahre 1914 bildeten die Deutschen – bei einer Bevölkerungszahl von rund zweieinhalb Millionen – die größte ethnische Gruppe.[8]

Die Eisenbahnen brachten noch andere Profis aus dem Baugewerbe von der Ostküste nach Chicago, nämlich Bo-

denspekulanten. In vieler Hinsicht trugen sie ebenso wie Architekten, Ingenieure und Kapitalanleger zu dem erstaunlichen Wachstum der Stadt bei. Die Geschichte ihres Beitrags zur Entstehung Chicagos ist noch zu schreiben, jedenfalls prägten sie das Gesicht der Stadt vor und nach dem großen Brand von 1871 entscheidend mit.[9] Chicago verdankte seine Entwicklung nach dem Bürgerkrieg zu einem wesentlich größeren Teil der Eisenbahn als Schaluppen oder Dampfschiffen, wie es bei New York, Boston und vielleicht sogar San Francisco der Fall war, deren Wohlstand vor allem auf ihrer Bedeutung als Seehäfen basierte.[10]

Dann kam das große Feuer vom 8. bis 10. Oktober 1871 Die Stadt hatte schon früher Feuersbrünste erlebt, wie zum Beispiel am 27 Oktober 1839, als ein Feuer sich blitzschnell über die Holzbauten der Innenstadt ausbreitete. Doch keiner dieser vorangegangenen Brände richtete auch nur entfernt so großen Schaden an wie das Feuer von 1871 das ein Gebiet von fast 2000 Morgen verwüstete (Tafel 3)." Der Wiederaufbau lockte eine große Zahl von Architekten und Ingenieuren nach Chicago, in einer Zeit, als das Land einen Konjunkturrückgang erlebte.

Die unmittelbar nach dem Brand errichteten Geschäftshäuser ähnelten im wesentlichen den Vorgängerbauten. Viele Häuser, vor allem in der Lake Street, hatten Backstein- und Gußeisenfassaden, die sehr stark den niedergebrannten glichen (Abb. 5). In der Regel waren sie vier Stockwerke hoch, erbaut in einer Vielzahl verschiedener Stile, wie zum Beispiel spätviktorianische oder Ruskinsche Gotik, neogriechischer Stil oder romanischer Rundbogenstil. Das tief gesetzte Erdgeschoß und der erste Stock mit gleichermaßen großen Fenstern waren den Geschäftsräumen vorbehalten. Die Fenster in den oberen Stockwerken waren für gewöhnlich kleiner und deuteten auf Büros und andere Räumlichkeiten hin (Abb. 7; Tafel 8). Immerhin bewirkte das Feuer eine wesentliche Neuerung im Bauwesen: die Verwendung feuerfester Materialien. Auslöser für diese Entwicklung war die Erkenntnis, daß das von dem deutschen Einwanderer Otto Matz entworfene Nixon Building den Brand zum Teil unbeschadet überstanden hatte, weil die Bauteile mit Beton und Gipsmörtel überdeckt waren. George H. Johnson, Peter B. Wight und Sanford Loring

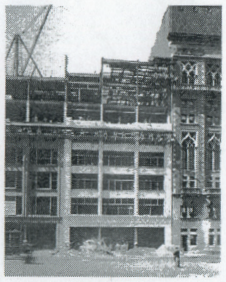


Abb. 8 Holabird and Roche, Gage Building, 18-22 South Michigan Avenue; Fassade von Louis H. Sullivan; während der Bauarbeiten, 11. August 1899 (verändert)

Abb. 9 Otto H. Matz, Criminal Courts Building, 54 West Hubbard Street, 1892

gehörten dann zu denen, die Feuerfestigkeitssysteme entwickelten und patentieren ließen:

Eiserne Bauteile wurden zum Beispiel mit Materialien wie Eichenholz oder Terracotta überzogen, um sie vor dem Schmelzen im Feuer zu bewahren. Die wirksamste dieser Techniken ließ Sanford Loring am 27 Oktober 1874 patentieren (siehe Larson).

Die Feuerfestmachung des Eisen- und Stahlgerüstes war eine der technischen Neuerungen – wie auch der von Elisha Otis entwickelte Personenaufzug mit Sicherheitssystem, der zum ersten Mal 1857 in New York in Betrieb genommen wurde –, die schließlich Ende der achtziger Jahre des 19. Jahrhunderts zur Errichtung der als *Wolkenkratzer* bezeichneten hohen Geschäftshäuser in Chicago führten.[12] Zu diesen Bauten, entworfen von Architekten der später so genannten Chicagoer Schule, gehörten sowohl die in Richardsonscher Romanik errichteten Bauwerke von John Wellborn Root, Solon Spencer Beman, Henry Ives Cobb und Otto Matz (Abb. 9), als auch die skelettartigen, funktional wirkenden Konstruktionen von Holabird and Roche (Abb. 8; Tafel 20; Kat. 62) und anderen. Viele dieser Gebäude wurden sowohl in Architekturbüchern des 20. Jahrhunderts – wie zum Beispiel Sigfried Giedions *Space, Time and Architecture* (1941), Carl W. Condits *The Rise of the Skyscraper* (1952) und *The Chicago School of Architecture* (1964) – als auch in Ausstellungen wie *100 Jahre Architektur in Chicago* im Jahre 1976 gebührend gewürdigt, da sie als Vorbilder gelten für die in den fünfziger und sechziger Jahren unseres Jahrhunderts errichteten modernen Bauten von Ludwig Mies van der Rohe, Skidmore, Owings, Merrill und Harry Weese. Neuere Untersuchungen, angeregt durch das Buch Chicago Architects und die 1976 von Stanley Tigerman und Stuart Cohen organisierte gleichnamige Ausstellung, setzten die Architektur Chicagos in einen erweiterten Zusammenhang, da sie die Beiträge der unbedeutenderen Architekten im Vergleich zu denen der großen Meister analysierten.[13]

Einer der Architekten, die das Bild amerikanischer Städte und insbesondere das von Chicago entscheidend mitprägten, war Louis H. Sullivan. Er wurde vor allem durch seine kunstvolle, eigenwillige Ornamentik bekannt (Tafeln 40,41 Kat. 113, 115-16, 157-64), der eine rationale Geometrie zu-

grunde lag, die sich, wie er sagte, in allen natürlichen Formen wiederfände. Ebenso bedeutend war seine *Dreiteilelehre*. Sie besagt, in knappen Worten ausgedrückt, daß man Wolkenkratzer, da sie im Wesen vertikal sind, nach dem Vorbild der Säule konzipieren sollte: mit deutlich ausgeprägter Basis, durchgehendem Schaft und einem abschließenden Kapitell.[14] Das Schiller Theater, das er 1891 gemeinsam mit Dankmar Adler entwarf, ist ein gutes Beispiel für die Umsetzung dieser theoretischen Konzeption (Abb. 10; Kat. 122-123).

Obwohl sich Sullivan bewußt darum bemühte, eine spezifisch amerikanische Architektur zu schaffen, wurzelt sein Gestaltungsdenken in Europa, vor allem im Rationalismus von Eugène-Emmanuel Viollet-le-Duc: Sullivan war einer der ersten Chicagoer Architekten, die an der Ecole des Beaux-Arts in Paris studierten. Vielleicht weil er ein so ausgeprägter Individualist und Exzentriker war, hatte Sullivan wenig Schüler. Doch fand er vor allem im Ausland insbesondere in Frankreich und Skandinavien noch zu seinen Lebzeiten Anerkennung.[15] Sein Meisterschüler Frank Lloyd Wright gilt vielen als der bedeutendste amerikanische Architekt überhaupt.

Wie Sullivan in seinen späteren Jahren, konzentrierte sich Wright auf die Planung kleinerer Bauten, vor allem privater Wohnhäuser Er und seine Schüler verbreiteten die Ideen der Prairie-Schule zum Entwurf von Wohnhäusern im ganzen Land. Charakteristisch für diesen Stil waren die großzügigen, offenen horizontalen Räume, zu denen Wright, wie es heißt, durch seine sanft hügelige heimatliche Landschaft in Wisconsin inspiriert wurde. Wie dem auch sei – Bauten von Wright entstanden sowohl in den Vorstädten von Chicago (Abb. 12; Tafeln 50 53; Kat. 73-83) als auch in ländlichen Gebieten.

Die europäischen und orientalischen Einflüsse auf die Prairie-Schule sind bekannt. Ebenfalls sehr gut dokumentiert ist der spätere Einfluß der Prairie-Schule auf die moderne Architektur in Holland und Deutschland, besonders nachdem 1910 in Berlin die berühmte Publikation von Wasmuth – Ausgeführte Bauten und Entwürfe von Frank Lloyd Wright – erschien, C. R. Ashbee 1911 eine verkürzte Fassung des Wasmuth-Buches unter dem Titel Frank Lloyd

Abb. 10 Adler and Sullivan, Schiller Theater, 64 West Rudolph Street, 1891-92, (abgerissen)

Wright: Ausgeführte Bauten herausgab und der Holländer H. T Wijdeveld 1925 in Wendingen einen Artikel über Wright veröffentlichte. Wright brachte den Prairie-Stil nach Asien, als er in den zwanziger Jahren in Japan arbeitete. In die südliche Hemisphäre gelangte der Stil durch seine Schüler Walter Burley Griffin und Marion Mahony Griffin, die nach Australien gingen (Kat. 184-85; siehe Van Zanten).

Während Wright die Vorstädte von Chicago prägte, gab Daniel H. Burnham – sogar mehr als Sullivan – der Stadt selbst ihr Gesicht. Er war es, der in Chicago eine Version dessen zu schaffen versuchte, was er für das Ideal städtischen Lebensraumes in Europa hielt. Nach dem Bürgerkrieg dominierten in der amerikanischen Architektur und in der Architekturausbildung die französischen Einflüsse, und Burnham inspirierte sich besonders an Paris. Zahllose Architekten aus Chicago und aus ganz Amerika studierten an der Ecole des Beaux-Arts und trugen ihre Gestaltungsprinzipien in die Architekturschule am Armour Institute of Technology und in die Architekturbüros der Stadt. Obwohl die erste Architekturschule in Illinois, in den siebziger Jahren des 19. Jahrhunderts von Nathan Clifford Ricker in ChampaignUrbana gegründet, sich im wesentlichen auf deutsche Lehrpläne stützte (siehe Geraniotis) [16], herrschte in Chicago der französische Einfluß vor, da er die meisten Architekten, unabhängig von ihrer ethnischen Abstammung, am stärksten ansprach. Ein frühes Beispiel dafür ist die Vorstadt Riverside, die 1868 von Olmsted, Vaux and Co. konzipiert wurde. Einer der Planer, William Le Baron Jenney, ließ sich durch die Pariser Schlafstadt Le Vesinet inspirieren, die Ende der sechziger Jahre des 19. Jahrhunderts entstanden war. Viele der von Potter Palmer in der gleichen Zeit initiierten Verschönerungen der State Street in Chicago – einige davon im Second Empire Stil – verglich man mit den Umgestaltungen, die Baron Georges Eugène Haussmann ein paar Jahre zuvor in Paris vorgenommen hatte,[7] In einer mit der von Haussmann vergleichbaren Größenordnung arbeitete der Chicagoer Architekt Daniel Bumham (siehe Draper).

Obwohl Burnhams Firmen Bumham and Root und D.H. Bumham and Co. auf aufwendige Geschäftsgebäude (Abb. 11 Tafel 59; Kat. 215, 226), Genossenschaftshochbauten

(Abb. 13-15; Tafel 54) und große Warenhäuser (Tafel 55; Kat. 219 24) spezialisiert waren, die sich zum Teil an Pariser Vorbildern orientierten, machte er sich seinen Namen vor allem durch die Koordination von Planungen großen Stils. Beginn dieser Karriere war die Übernahme der Bauleitung für die Weltausstellung im Jahre 1893. Die Ausstellung brachte Chicago internationales Renommee,und zwar nicht nur wegen der Beteiligung des Auslands (Abb. 16, 17), sondern vor allem, weil sie der Grund für die Entstehung einer ganzen Anzahl von wichtigen kulturellen und öffentlichen Einrichtungen war, die zum festen Bestandteil des Stadtbildes von Chicago wurden. Viele der wesentlichen Institutionen und Gebäude in den Bereichen Bildung und Kultur verdanken ihre Existenz zumindest teilweise der Weltausstellung: die Universität von Chicago, die 1891 begonnen wurde, das Gebäude des Art Institute of Chicago aus dem Jahre 1893 (Abb. 18), das ursprünglich als Tagungshalle für die Weltausstellung errichtet worden war, das Fine Arts Building der Ausstellung, das später zum Museum of Science and Industry umfunktioniert wurde, und der erste Abschnitt des Hochbahnsystems, das 1891 erbaut wurde, um das Ausstellungsgelände auf der South Side mit dem Geschäftszentrum zu verbinden. Alle diese Anlagen, wie unter anderem auch die 1904 bis 1905 von D.H. Burnham and Co. (Kat. 216-17) entworfene Orchestra Hall, der um 1907 auf dieses Gebäude aufgesetzte Cliff Dwellers Club (Kat. 218) und der in der Nähe gelegene University Club, der 1905 von Holabird and Roche (Tafel 38) errichtet wurde, machten die Stadt zu einem kulturellen Zentrum des Mittleren Westens.[18] Chicago setzte sich damit in eine Reihe mit den älteren und bekannteren Ostküstenstädten Boston und New York und erklärte sich zum amerikanischen Paris in der Prärie.

Burnham arbeitete weiterhin an zunehmend umfangreichen Projekten: 1902 in der MacMillan-Planungskommission für Washington D.C., 1905 am Projekt für das Behördenviertel in Cleveland und im gleichen Jahr gemeinsam mit Edward Bennett an der Planung für San Francisco. Gleichzeitig entwickelte er Entwürfe für Manila und Baguio auf den Philippinen und brachte damit die Idee des *City Beautiful Movement* nach Übersee. Dieses gesamte Entwurfswerk benutzte ein klassizierendes Vokabular mit im-

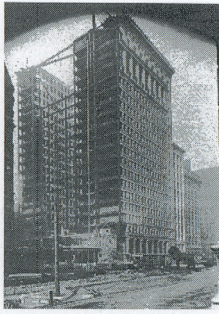


Abb. 3 D.H. Burnham and Co., Peoples Gas Company Building, 122 South Michigan Avenue, 1911

Abb. 18 Sheepley, Rutan and Coolidge, The Art Institute of Chicago, Ecke Michigan Avenue und Adams Street, 1891-93 (verändert)

Abb. 19 Ansicht von Chicago nach Norden mit Michigan Avenue und Brücke, um 1928

perialistischen Obertönen und nationalistischen Anklängen.[19] Burnhams *Paradestück* war jedoch der Chicago-Plan aus dem Jahre 1909 (Tafeln 74-78; Kat. 227-36), den er mit Edward H. Bennetts Unterstützung entwickelte und der in den zwanziger Jahren, erst nach seinem Tod, unter Bennetts Leitung teilweise ausgeführt wurde. Stärker als Sullivan oder Wright prägte Burnham das Bild der Stadt und lieferte das Vokabular für die Architektur Chicagos in den zwanziger Jahren. Die öffentliche Meinung assoziiert das Chicago dieser Zeit vor allem mit Gangstern und Flüsterkneipen. Doch wuchsen damals in der ganzen Stadt Kalk- und Backsteinwolkenkratzer empor, vor allem jenseits des kurz zuvor erweiterten Michigan-Boulevards, dicht bei der von Bennett entworfenen Michigan-Avenue-Brücke, die zwischen 1918 und 1920 erbaut worden war (Abb. 19).

Das architektonische Spektrum in der Zeit der Hochkonjunktur nach dem Ersten Weltkrieg und vor der Großen Depression der dreißiger Jahre umfaßt so wichtige Bauten wie das Wrigley Building aus dem Jahr 1921 das 1924 vergrößert wurde (siehe Chappell), das in den Jahren 1923 bis 1930 errichtete Handelszentrum – für beide Bauten zeichneten Graham, Anderson, Probst and White verantwortlich, eine von Burnhams Nachfolger-Firmen – und nicht zuletzt die von Holabird and Root entworfenen lokalen Wahrzeichen der amerikanischen Moderne: North Michigan Avenue 333 (1927-28), das Board ofTrade (1927-30) und das Palmolive (später Playboy) Building (1928-29; Abb. 20). Doch auch weniger bekannte, wenngleich sehr fähige Architekten wie Benjamin H. Marshall, Andrew Rebon, Frank A. McNally und James Edwin Quinn trugen mit ihren Bauten zum Stadtbild bei.[20] Ohne Zweifel angereizt durch das von europäischen Architekten gezeichnete Bild von Chicago [21] kamen weiterhin Einwanderer aus Mitteleuropa in die Stadt. Andere, wie zum Beispiel Richard Yoshijiro Mine (Tafel 92), kamen aus so weit entfernten Ländern wie Japan, um hier zu studieren und zu arbeiten, da Chicago einen unbestritten erstrangigen architektonischen Ruf genoß.[22]

Obwohl die Depression, die auf den Börsenkrach vom 29. Oktober 1929 folgte, die architektonische Arbeit in Amerika und anderen Ländern erheblich einschränkte, wurde der

Austausch zwischen Europa und Chicago fortgeführt. Er zeigt sich deutlich in Bauten für die Ausstellung *Century of Progress* in den Jahren 1933-34 (Abb. 21 22) – den von schwedischen, italienischen und tschechoslowakischen Architekten entworfenen Länderpavillons und in den hauptsächlich von Architekten aus Chicago konzipierten europäischen Phantasiedörfern – sowie in zahllosen, niemals realisierten Projekten. In den späten dreißiger Jahren erreichte der internationale Austausch neue Dimensionen, als aus Deutschland und anderen mitteleuropäischen Ländern Architekten nach Amerika auswanderten, die auf der Flucht vor den Nazis waren unter ihnen Mies van der Rohe. Doch ist das eine andere Geschichte.[23]

Es sei hier bei der Feststellung belassen, daß von Mitte des 19. Jahrhunderts bis in die dreißiger Jahre unseres Jahrhunderts ein unablässiger Austausch architektonischer Strömungen zwischen Chicago und vielen Ländern der Welt, vor allem Mitteleuropa, im Gange war. Unabhängig davon, ob sie in Amerika oder Europa studiert hatten, schöpften die Chicagoer Architekten ungeniert aus der Schatzkiste europäischer Architektur und schufen zugleich eine ausgeprägt amerikanische Architektur die in vielen Teilen der Welt ihre Zeichen setzte. Die Ausstellung und die Beiträge im vorliegenden Band untersuchen diese internationalen Zusammenhänge, unterziehen die Werke einiger der bedeutendsten Architekten Chicagos einer neuen, kritischen Beurteilung und lenken zudem das Augenmerk auf die Leistungen von weniger bekannten Architekten.

Das Buch beginnt mit einer Erörterung der geistigen Kräfte, die den spektakulären Wiederaufbau der Stadt nach dem großen Brand bewirkten. Die folgenden Essays sind teils nach chronologischen, teils nach thematischen Gesichtspunkten zu Kapiteln geordnet. Den Epilog schrieb der Architekt Stanley Tigerman, der das Ausstellungskonzept für Chicago erstellte.

Die Essays bieten unterschiedliche Annäherungen an die amerikanische Architektur, zeigen den aktuellen Forschungsstand zur gewachsenen Architektur

Chicagos unter Verwendung einer Vielzahl von Methodologien und Disziplinen, von traditionellen Struktur- und Stilanalysen bis zu großzügiger Einbeziehung von Sozial- und Kulturgeschichte. Daraus ergibt sich – wie wir hoffen – eine

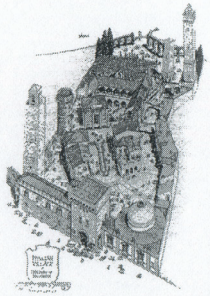


Abb. 22 Schmidt, Garden and Erikson, Italienisches Dorf, Austellung Century of Progress, 1933 (abgerissen); gezeichnet von Valo Faro

wohl abgerundete, wenn auch keineswegs erschöpfende Untersuchung der architektonischen Leistung, die das flache Seengebiet in den fünfzig Jahren zwischen dem großen Brand von 1871 und dem internationalen Wettbewerb für den Chicago Tribune Tower im Jahre 1922 zur Metropolis der Mittelweststaaten Amerikas werden ließ.

Gerald R. Larson
Der Eisenskelettbau
Entwicklungen in Europa und den Vereinigten Staaten
Deutsch von Wolfgang Himmelberg

Im Jahre 1985 jährte sich zum hundertsten Mal die Fertigstellung des Home Insurance Building in Chicago, das William Le Baron Jenney Anfang 1884 entworfen hatte (Abb. 1). Bis vor kurzem wurde dieses Gebäude fast einhellig als erster Wolkenkratzer überhaupt betrachtet, das heißt als das erste hoch aufragende Bürogebäude, dessen Böden und Wände vollständig von einem Gerüst aus Eisenpfeilern und -balken gehalten wurden. Diese langgehegte Auffassung scheint jedoch nicht den Tatsachen zu entsprechen; immer deutlicher erweist sich, daß schon mindestens neunzig Jahre vor der Erbauung des Home Insurance Building das Konzept, mit Hilfe des Eisenskelettbaus ein vielstöckiges Gebäude zu errichten, angewandt wurde, und daß 1884 die Technik der Eisengerüstbauweise schon weiter fortgeschritten war als Jenneys vergleichsweise antiquierte Baukonstruktion aus eben diesem Jahr.[1]

Der früheste bekannte Entwurf für ein hoch aufragendes Bauwerk, das auf dem Prinzip der Eisenskelettkonstruktion beruhen und mit einem Aufzug versehen werden sollte, wurde 1832 von dem englischen Ingenieur Richard Trevithick vorgelegt. Zum Gedenken an die Regierungsreformen, die in diesem Jahr vom englischen Parlament verabschiedet worden waren, schlug er vor, einen etwa 305 Meter hohen Turm zu bauen, der vollständig aus Eisen konstruiert werden sollte (Abb. 2). Trevithick nutzte in seinem Entwurf geschickt die Dampftechnologie seiner Zeit, um die Besucher zur Spitze des Turms zu bringen. Ein zentraler hohler Zylinder von etwa drei Metern Durchmesser sollte den Turm in seiner gesamten Länge durchlaufen. Eine Kabine, die die Form eines Kolbens hatte und bis zu 25 Menschen aufnehmen konnte, sollte durch Änderung des Dampfdrucks im Zylinderraum unter dem Kolben mit einer sicheren und bequemen Geschwindigkeit gehoben und gesenkt werden. Leider starb Trevithick im April des Jahres 1833 und mit ihm seine Idee für diesen Turm.[2]

Tatsächlich hatte die Eisenrahmenbauweise für mehrstöckige Gebäude ihren Ursprung im Jahre 1792 in England (22 Jahre nach der erstmaligen Verwendung von Gußeisensäulen in englischen Kirchen), als William Strutt in Derby seine sechsstöckige Calico Mill errichtete.[3] 1844 hatte sich diese Bauweise in England so weit entwickelt, daß der Eisenrahmen in das Äußere eines Gebäudes einbezogen werden konnte und damit keine Notwendigkeit mehr für ein schweres Mauerwerk bestand; eben dies scheint bei der Feuerwehrwache, die in jenem Jahr im Royal Navy's Dockyard in Portsmouth gebaut wurde, der Fall gewesen zu sein. Das Eisenskelett wurde bis nach außen vorgezogen und blieb offen sichtbar, da die nicht tragenden Außenwände und die Fenster an der Innenseite der Struktur angebracht wurden.[4]

Abb. 1 William Le Baron Jenney, Home Insurance Building, Nordostecke La Salle und Adams Street, 1884 (abgerissen)

Ausgerechnet im selben Jahr wurden die Londoner Bauvorschriften revidiert, um den Brandschutz für den Gebäudebestand der Stadt zu erhöhen: Indirekt wurde damit die Verwendung freiliegender Eisenkonstruktionen verhindert.[5] Überdies gewann gerade zu dem Zeitpunkt, als man in England vor der Lösung der technischen Probleme des Eisenskelettbaus stand, die Bewegung gegen die Auswirkungen der industriellen Revolution an Stoßkraft. Der einflußreichste Anführer der Kampagne gegen die Verwendung von Eisen in der Architektur war zweifellos John Ruskin. Am deutlichsten äußerte er seine Ansicht in seinem Buch Die sieben Leuchter der Baukunst, das im Jahre 1849 erschien. In dem Kapitel *Der Leuchter der Wahrheit* verkündete er, »daß echte Architektur das Eisen als konstruktives Material nicht zuläßt, und daß solche Arbeiten wie die gußeisernen Bedachungen und Pfeiler unserer Bahnhofshallen und einiger unserer neuen Kirchen gar keine Architektur sind«.[6] Das Londoner Baugesetz von 1844 und die einflußreiche ästhetische Theorie von Kritikern wie Ruskin hatten zur Folge, daß das Eisenskelett in das Korsett des Mauerwerks zurückgezwungen wurde und in den Straßen Londons nicht zum Vorschein treten konnte.

Inzwischen hatte New York City – am 19. Juli 1845 – die zweite große Feuersbrunst innerhalb von zehn Jahren erlitten. Wenngleich London freiliegende Gußeisenkonstruktionen aufgrund hoher Brandgefahr gerade erst mit einem Bann belegt hatte, sah sich offensichtlich James Bogardus, ein innovationsfreudiger Fabrikant von Mahlmaschi-

nen für Getreide und Graphit, durch das Feuer von New York veranlaßt, im Sommer 1847 den Plan für ein neues, vierstöckiges Fabrikgebäude vorzulegen, dessen Äußeres vollständig aus Glas und »feuerfestem« Gußeisen bestehen sollte.[7] Bogardus, der über keine früheren Konstruktionserfahrungen verfügte, scheint sich auf einer Reise von 1836 bis 1840 durch England und den europäischen Kontinent mit dem Prinzip der Eisenkonstruktion vertraut gemacht zu haben. Zu jener Zeit wurden in England vorgefertigte Eisenbauteilsysteme entwickelt, die durchaus Gemeinsamkeiten mit denen aufweisen, die Bogardus schließlich im Mai 1850 patentieren ließ.[8] Gußeisen war zwar schon spätestens seit 1822 in amerikanischen Gebäuden verwendet worden, doch Bogardus führte in seinem System eine bedeutende Neuerung ein.[9] Er erfand eine Bolzenverbindung, die an die Stelle der bis dahin für amerikanische Eisenkonstruktionen gebräuchlichen Reibverbindungen trat und die der Träger-Stützen-Struktur genügend Festigkeit verlieh, um auf dia-gonale Versteifungsträger oder auf Mauerwerk verzichten zu können. Damit war eines der wichtigsten Hindernisse überwunden, das die Ausnutzung der Möglichkeiten des Stahlrahmens, hohe Gebäude zu tragen, bislang blockiert hatte.

Eine weitere Konsequenz der New Yorker Feuersbrunst von 1845 war die Neuorganisation der Feuerüberwachungsbezirke der Stadt, die die Errichtung mehrerer zusätzlicher Feuerwachttürme erforderlich machte. Gegen Ende des Jahres 1850 machte Bogardus den Vorschlag, daß diese Türme aus feuerfestem Gußeisen gefertigt werden könnten. Der Stadtrat gab ihm schließlich den Auftrag, an der 33rd Street in der Nähe der Ninth Avenue einen Prototyp zu bauen. Dieser Turm, Mitte August 1851 fertiggestellt, bestand aus einem zehnseitigen, offenen, geradlinigen Eisengestell, das in sechs Stufen zu einer Höhe von etwa 30 Metern aufgebaut wurde. Der Turm scheint der Vorläufer von Bogardus' bekanntem Vorschlag für den New Yorker Kristallpalast aus dem Jahr 1852 gewesen zu sein (Abb. 3), der einen ähnlichen Turm von etwa 90 Metern in dreizehn Stufen aufwies, der aus zwei niedrigeren, breiteren Türmen emporwuchs.[10] Zwar waren Bogardus' Eisentürme keineswegs die ersten, die entworfen oder gebaut wurden, sie brachten jedoch ihre typischen Konstruktionsmerkmale insofern stärker zum Ausdruck als ihre Vorgänger, als das Eisengerippe nicht von einer umschließenden Membran bedeckt wurde. Bogardus hatte mit diesen Strukturen bewußt das moderne Eisenskelett ins Leben gerufen, das er in einer Veröffentlichung von 1856 so beschrieb: »Auf diesen Pfeilern ruht eine weitere Reihe von Schwellen; und immer so fort, für jede beliebige Anzahl von Stockwerken... um einen Turm oder ein Gebäude zu errichten, das die Höhe eines jeden anderen Bauwerks der Welt um ein Vielfaches übertrifft...«.[11]

Der Turm, den Bogardus für die New Yorker Weltausstellung von 1852 vorgeschlagen hatte, weist eine erstaunliche Ähnlichkeit mit dem Aussichtsturm auf, den der englische Architekt C. Burton angeregt und in der Ausgabe der Zeitschrift Builder vom 1 Mai 1852 beschrieben hatte. Auf Weisung des House of Commons mußte Joseph Paxtons Kristallpalast im Londoner Hyde Park nach der Weltausstellung von 1851 abgerissen werden. Burton machte den Vorschlag, die Eisen- und Glasteile für ein Bauwerk von fünf konzentrischen Türmen wiederzuverwenden, von denen der größte eine Höhe von etwa 300 Metern erreichen sollte.[12]

Mittlerweile hatte das Jahr 1852 auch den Beginn des Zweiten Kaiserreichs in Frankreich bezeichnet. Unter der Herrschaft Napoleons III. wurden viele der bedeutendsten Bauten Frankreichs errichtet.[13] Frankreich war fest entschlossen, nicht hinter der englischen oder amerikanischen Weltausstellung zurückzustehen, und schrieb in diesem Jahr einen Entwurfswettbewerb für ein *Palais de l'Industrie* für die Weltausstellung aus, die 1855 stattfinden sollte. Das Projekt von Viel und Desjardin, das den ersten Preis erhielt, hätte das erste französische Bauwerk werden können, das auf einer freistehenden Eisenstruktur beruht und zugunsten von Glas- und Gußeisenwänden auf jegliches Außenmauerwerk verzichtet hätte.[14] Im endgültigen Entwurf mußten jedoch einige Kompromisse gemacht werden, um die Kosten für das Gebäude in Grenzen zu halten, und so wurde die Eisen- und Glasfassade durch kostengünstigeres Mauerwerk ersetzt. Frankreichs *Palais de l'Industrie* war in seiner Struktur und Konstruktion weit kühner als Paxtons Kristallpalast. Es überspannte mit seiner Schmiedeeisenkonstruktion 48 Meter, während Paxtons

Bau mit seiner Holzkonstruktion nur über eine Spannweite von 22 Metern verfügte. Nichtsdestoweniger war die Eisenstruktur des *Palais de l'Industrie* noch mit Mauerwerk ummantelt, wenn auch das Mauerwerk nicht dazu diente, Teile der Eisenkonstruktion zu tragen.[15]

Gegen Ende des Jahres 1853, während über die Änderungen an dem Entwurf von Viel und Desjardin beraten wurde, entwarf Victor Baltard das erste wirklich freistehende Eisenbauwerk Frankreichs, die Markthallen von Paris, *Les Halles*. Schon früher hatte Baltard ein Gebäude aus Stein für die Hallen konzipiert, mit dessen Bau übrigens 1851 begonnen worden war. Offensichtlich unter dem Druck der öffentlichen Meinung ließ Napoleon III. die Bauarbeiten im Juni 1853 stoppen und bald darauf das fast fertiggestellte Gebäude wieder abreißen. Baron Georges-Engene Haussmann, dem neu ernannten Präfekten des Seine-Departements, gegenüber erklärte er, daß er für die Markthallen Glas- und Eisendächer wünsche. Haussmann wies Baltard dementsprechend an, »Eisen, Eisen und nichts als Eisen« zu verwenden. Ein Wettbewerb für einen neuen Entwurf wurde ausgeschrieben, und Baltards Konstruktion aus Eisen und Glas wurde ausgewählt. In diesem Entwurf wurden die Säulen an den Außenseiten frei gelassen und über bogenförmige Kopfstreben mit den eisernen Dachträgern verbunden, wodurch die Stabi-lität der Konstruktion der Hallen von Stützmauern unabhängig wurde.[16]

Der kaiserliche Erlaß, der *Les Halles* betraf, wirkte sich jedoch kaum auf die Tyrannei aus, die die französische Mauerwerktradition die fünfziger Jahre des 19. Jahrhunderts hindurch ausübte, obschon die französischen Kommentatoren – im Gegensatz zu ihren englischen Kollegen – sich zu Fürsprechern der Verarbeitung von Eisen machten, insbesondere wenn es um visionäre Entwürfe ging. Einer der ersten dieser Fürsprecher war der Architekt Louis-Auguste Boileau, der seinen ersten Aufsatz über die Verwendung von Eisen, *Nouvelle architecturale forme*, 1853 veröffentlichte. Zwei Jahre später setzte er seine Theorie mit seinem Entwurf für die Kirche Samt-Eugène in Paris in die Praxis um. Zwar mit einem unabhängigen Eisenrahmen konstruiert, war das Gebäude aber noch immer von nichttragendem Mauerwerk umschlossen, das um die äußeren Eisensäulen herumgebaut wurde – eine Technik, die sich allmählich in ganz Frankreich durchsetzte.[17] Obwohl Boileau sein Gebäude in traditionelles Mauerwerk *verpackt* hatte, wurde er von vielen Kritikern angegriffen, vor allem von Eugène-Emmanuel Viollet-le-Duc, der sich damals im Gegensatz zu Bogardus und Boileau gegen die Verwendung von freiliegendem Eisen in öffentlichen Gebäuden wandte. Neben verschiedenen Argumenten eher philosophischer Art machte er geltend, daß Temperaturschwankungen einen »Hagel von Bolzenköpfen und im Regen einen Rostschauer« bewirken könnten.[18]

Während Viollet-le-Duc seine Einwände gegen Boileaus Eisenkonstruktion erhob, unternahm Bogardus den letzten Schritt, um den mehrstöckigen Eisenrahmen ganz vom stützenden Mauerwerk zu trennen. 1855 entwarf und baute er einen Schrotturm für die McCullough Shot and Lead Company in New York City, bei dem es sich um das erste vielstöckige Eisenbauwerk handelte, das eine Mauerwerkumfassung trug. Bogardus entwarf ein leichtgebautes, achtseitiges Eisenskelett von acht Stockwerken mit einer Höhe von 53,30 Metern. Auf jeder Ebene wurden dreißig Zentimeter dicke Ziegelwände auf die Träger gebaut, um das Innere des Turms zu umschließen. Damit wurde nicht nur das Gewicht, das die Fundamente tragen mußten, beträchtlich reduziert, auch die Bewegungsfreiheit der Fabrikarbeiter wurde größer, da im Erdgeschoß auf jegliche Mauern verzichtet werden konnte. Diese Lösung war so erfolgreich, daß innerhalb eines Jahres eine weitere Schrotfirma, Tatham & Brothers, Bogardus den Auftrag gab, einen ähnlichen, aber noch höheren (66 Meter) Turm zu bauen.[19] Bogardus kommt also das Verdienst zu, nicht nur die zwei ersten Eisenskelettbauten errichtet zu haben, die auch ihre Wände trugen, er war auch der erste, der die Anwendungsmöglichkeiten der Eisen- und Mauerwerkkonstruktion erkannte und erforschte, und zwar noch bevor Viollet-le-Duc schließlich seine Meinung zur Verwendung von Eisen in der Architektur von Grund auf änderte.

Bald schon folgte auf Bogardus' Schrottürme das erste bekannte mehrstöckige Gebäude, das vollständig von einem starren Eisenskelett getragen wurde und ganz ohne Mauerwerk oder diagonale Versteifungsträger auskam. 1858 entwarf der englische Architekt Godfrey Greene das Bootslager auf der Marinewerft in Sheerness, einer der letzten

Beiträge Englands zur Evolution des Eisenrahmens. Greenes vierstöckiger bewegungsresistenter Rahmen kam zustande, indem die Schmiedeeisenträger längs ihrer ganzen Tiefe an die Gußeisensäulen genietet wurden. Um das vierstöckige Skelett zu umschließen, nahm Greene jedoch anstelle des traditionellen Mauerwerks einander abwechselnde Bänder aus Glas und Wellblech.20 Damit fiel die Ehre, das erste mehrstöckige Gebäude errichtet zu haben, das von einem Eisenrahmen getragen wurde, auf den eine Mauerwerkeinfassung gestellt wurde, an Daniel Badger, den Hauptkonkurrenten Bogardus'

Im Jahre 1856 hatte Badger sein expandierendes Bauunternehmen unter dem Namen *Architectural Iron Works of New York* eintragen lassen; er ernannte George H. Johnson, einen jungen Konstrukteur, der 1852 aus England eingewandert war, zum Konstruktionsleiter der neu eingerichteten Architekturabteilung. Die Gründung des neuen Unternehmens dürfte damit zusammengehangen haben, daß Badger den ersten Auftrag für einen großen, vielstöckigen Gebäudekomplex erhielt: die Ladenfronten des seinerzeit führenden Einkaufszentrums von Chicago, des Häuserblocks an der Lake Street zwischen Wabash Avenue und State Street (siehe Harns, Abb. 4) Die Gußeisenfassaden des Komplexes zu beiden Seiten der Straße waren von ‚John M. Van Osdel, dem bedeutendsten Architekten Chicagos, im venezianischen Renaissancestil entworfen worden (Abb. 4). Der Umfang und die Komplexität dieses Unterfangens stellten eine große Herausforderung dar, und Badger schickte Johnson nach Chicago, um die Bauarbeiten zu überwachen.[21]

Im Jahre 1859 ließen Badger und William S. Simpson ein Eisensystem für die Konstruktion von Getreidespeichern patentieren, womit sie auf die zunehmende Zahl von Bränden in solchen Gebäuden reagierten. Dieses System bestand aus zylindrischen Silos, die aus zusammengenieteten Gußeisenplatten gefertigt und von einem mehrstöckigen Eisenskelett getragen wurden. Ein Jahr darauf entwarf Johnson für die U. 5. Warehousing Company den ersten Getreidespeicher der nach diesem System gebaut wurde (Abb. 5). Der siebenstöckige Speicher, der auf dem Atlantic Dock in South Brooklyn errichtet wurde, war sowohl innen als auch außen vollständig in Eisen gerahmt. Das eiserne Äußere war – ähnlich wie bei den Schrottürmen, die Bogardus fünf Jahre zuvor gebaut hatte – zum großen Teil mit Ziegelwänden umschlossen. [22]

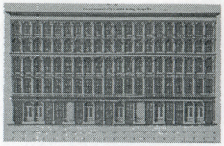


Abb. 4 Daniel Badger und Jhon M. Van Osdel, Lloyd and Jones Building, Lake Street, um 1860 (abgerissen)

Zu der Zeit, als der Bürgerkrieg ausbrach, glitzerten in vielen größeren amerikanischen Städten fünfstöckige, mit leuchtenden Farben gestrichene Fassaden aus Gußeisen und Glas. Gelegentlich – wie zum Beispiel in A. T Stewarts neuem Warenhaus in New York City, das John Kellum 1859 entworfen hatte [23] – wurden diese Fassaden durch komplette Eisenskelette gestützt, eine Technik, die sich in den fünfziger Jahren des 19. Jahrhunderts im Anschluß an Bogardus und Badger entwickelt hatte. Der amerikanische Eisenskelettbau hatte also seinen Ursprung in New York City – etwa dreißig Jahre bevor er zum ersten Mal in Chicago verwendet wurde. Bogardus und Badger hatten auch gezeigt, wie die offenen Flächen des äußeren Rahmenwerks mit Mauerwerk oder Glas geschlossen werden konnten. Zusammen mit einer weiteren technischen Neuheit aus New York, dem Sicherheitsaufzug von Otis, der der Öffentlichkeit zum ersten Mal bei der Weltausstellung 1853 vorgestellt wurde, konnte New York somit zu Beginn des amerikanischen Bürgerkriegs alle technischen Voraussetzungen vorweisen, die für die Entwicklung des Wolkenkratzers notwendig waren.

Der Bürgerkrieg verhinderte in den Vereinigten Staaten dann weitere Großversuche mit dem Eisenskelett. In den folgenden dreißig Jahren gingen die entscheidenden Impulse im Bereich der Eisenkonstruktion von Frankreich aus.[24] In den frühen sechziger Jahren des 19. Jahrhunderts erschien eine neue Generation französischer Konstrukteure auf dem Plan, die das Eisenskelett unbedingt in das Äußere eines Gebäudes vordringen lassen wollten, obwohl die Pariser Bauvorschriften nicht nur für Hauswände, die zur Straße hin lagen, eine Stärke von fünfzig Zentimetern vorschrieben, sondern darüber hinaus die Verwendung von Eisenteilen in solchen Mauern untersagten.[25] Angekündigt wurde die zunehmende Verwendung von Eisen in einer 1863 veröffentlichten Illustration von Viollet-le-Duc, der sich inzwischen zu einem entschiedenen Anhänger der Eisenskelettbauweise gewandelt hatte und bald deren wichtigster Fürsprecher wurde. Der Atlas, der gleichzeitig mit dem ersten Band seiner *Entretiens sur l'architec-*

ture erschien, enthielt eine farbige Ansicht (Abb. 6) eines Entwurfs für ein Appartementhaus, bei dem die Außenwände der Stockwerke über dem Erdgeschoß mit seiner gußeisernen Ladenfront den diagonal verstrebten Eisenrahmen offen dem Blick darboten. Das Eisengerüst, das an die traditionelle europäische Fachwerkbauweise erinnerte, war mit einer Füllung aus vielfarbigen Terrakottaziegeln eingefaßt eine Wiederaufnahme der Technik, die zuvor Bogardus in seinen Schrottürmen und Badger in seinen Getreidespeichern angewandt hatten.[26]

Die Pläne Napoleons III. und Haussmanns zur Umgestaltung von Paris, die um 1860 schon weit fortgeschritten waren, ließen ein empfängliches Klima für die Erforschung revolutionärer Techniken und Materialien entstehen. Zusammen mit dem Fahrstuhl stellte das Eisenskelett ein hervorragendes Potential für die städtebauliche Renaissance von Paris dar, und diese beiden Entwicklungen führten bald auch zu einem der frühesten visionären Entwürfe für einen Wolkenkratzer 1865 veröffentlichte der französische Ingenieur Henri-Jules Bone einen Plan für einen ganzen Stadtteil aus elfstöckigen, mit Aufzügen versehenen Gebäuden, die er *Aerodômes* nannte (Abb. 8). Diese Gebäude bestanden aus zehn Eisenskelettgeschossen mit Steinverblendung über einem Erdgeschoß aus Mauerwerk (Abb. 7)[27] Mit ihrer übertriebenen Höhe, ihren Aufzügen und feuerfesten Eisenskeletten verdienen Bories *Aerodômes* – zwanzig Jahre vor der Erbauung des Home Insurance Building mit vollem Recht die Bezeichnung Wolkenkratzer.

Im selben Jahr wurde das erste französische Gebäude mit einem selbsttragenden, mehrstöckigen Eisenrahmen errichtet, nämlich Prefontaines sechsstöckiges Lagerhaus für die Saint-Ouen-Eisenbahn- und Dockgesellschaft. Mit Ausnahme der konventionellen Südfassade aus Mauerwerk wurde das gesamte Gebäude von einem Guß- und Schmiedeeisenskelett getragen, das an den Außenseiten sichtbar blieb, da die Mauern an der Innenseite des Gerüsts hochgezogen wurden.[28] Es ist unklar ob die Wand selbsttragend oder Stockwerk für Stockwerk als Füllung in den Rahmen gebaut war; jedenfalls war es den Franzosen nur fünf Jahre nach Badgers erstem Getreidespeicher gelungen, den Eisenrahmen in das Äußere eines mehrstöckigen Gebäudes vordringen zu lassen.

Im Jahre 1867, als die Welt erneut anläßlich einer Weltausstellung in Paris zusammentraf, wurden zahlreiche, unter dem Namen *Pan de fer* bekanntgewordene Eisen- und Terrakottakonstruktionssysteme projektiert, um feuersichere Wohnungen bauen zu können, wie sie in Paris gefordert wurden.[29] Der außerordentlich große Bevölkerungszuwachs der Stadt zeigte sich zur gleichen Zeit auch im Aufkommen des Kauffhauses mit einem umfassenden Warensortiment, als dessen erstes Beispiel im allgemeinen das neue Warenhaus *Les Magasins-Réunis* von 1867 betrachtet wird. Mit großer Wahrscheinlichkeit sahen sich die *Grands Magasins du Bon Marché* durch diesen Schritt der Konkurrenz veranlaßt, Louis-Auguste Boileau, dem Architekten der Kirche Saint-Eugène, den Auftrag für ein neues, zeitgemäßes Gebäude aus Eisen und Glas zu geben. Boileaus Sohn, Louis-Charles, machte 1869 den Vorschlag, das gesamte Warenhaus einzig auf der Basis eines Eisenskeletts zu errichten. Dieser revolutionäre Gedanke wurde mit der Begründung verworfen, ein solches Gebäude könne nicht stabil genug sein, und deshalb schrieb der endgültige Entwurf Außensäulen aus Stein vor.[30]

Bis 1869 waren zwar die technischen Vorausse-zungen für ein selbsttragendes mehrstöckiges Eisenskelett durchaus gegeben, doch wie bereits beim Lagerhaus für Saint-Ouen ließen die strengen Bestimmungen der Pariser Bauvorschriften eine solche Konstruktion nicht zu. In jenem Jahr entwarf der Architekt Jules Saulnier ein dreistöckiges Fabrikgebäude, das an die Stelle des Fachwerkbaus der Schokoladenfabrik Menier treten sollte, der 1840 in der Nähe des Dorfs Noisiel über die Marne gebaut worden war. Unter Beibehaltung zweier Mauerwerkpfeiler im Fluß, die aus dem Jahr 1157 stammten, entwarfen Saulnier und der Ingenieur Moisant ein dreistöckiges Eisenskelett, dessen Träger weit auskragten. Das Eisenskelett wurde durch sich überkreuzende Diagonalstreben stabilisiert, die an den Außenflächen sichtbar blieben. Die Felder wurden mit farbigen Terrakottaziegeln ausgefüllt, eine Technik, die deutlich an Viol-let-le-Ducs Entwurf von 1863 erinnert [31]

Tatsächlich sollte es Viollet-le-Duc 1872 mit der Veröffentlichung des zweiten Bandes seiner *Entretiens sur l'architecture* gelingen, die Aufmerksamkeit der französischen

Architekten auf das offen sichtbare Eisenskelett zu lenken. Jetzt, neun Jahre nach der Veröffentlichung seines zwar hochinteressanten, jedoch damals unkommentiert gebliebenen Entwurfs für die Pan-de-fer-Bauweise im Atlas, gab er der sich in Frankreich entwickelten Technik des verkleideten Eisenskeletts eine theoretische und technische Grundlage:

»Für einen Architekten dürfte die Vorstellung nicht abwegig sein, ein großes Gebäude zu errichten, dessen Gerüst ganz aus Eisen besteht, und dieses Gerüst zu verkleiden – es mit einem Schutzmantel aus Stein zu versehen. «[32]

Seine Aufforderung konnte jedoch nicht in Frankreich verwirklicht werden, denn am 28. Januar des Jahres 1871 marschierten die Preußen in Paris ein und setzten dem Zweiten Kaiserreich ein Ende. Der Friedensvertrag wurde am 10. Mai 1871 geschlossen, nur fünf Monate vor dem Brand von Chicago, der die Architekten und Bauunternehmer dieser Stadt vor das Problem stellte, das Eisenskelett feuersicher zu machen.

Es war George H. Johnson, der frühere Chefkonstrukteur Daniel Badgers und Architekt des Getreidespeichers der U. 5. Warehousing Company von 1860, der die französische Technik der feuersicheren Eisenbauweise in Chicago einführte. Nach dem Ende des amerikanischen Bürgerkriegs hatte sich Johnson wieder seinen früheren Bemühungen um feuersichere Getreidespeicher zugewandt. Am 7 März 1869 ließ er ein System für die Errichtung feuersicherer Getreidesilos auf der Grundlage hohler Tonziegelblöcke patentieren. Sein großes Interesse an feuersicheren Konstruktionssystemen ließ ihn Anfang 1871 eine Reise nach Frankreich unternehmen, wo er sich über die neuesten Entwicklungen auf dem Gebiet der feuersicheren Deckenkonstruktion informierte. Die neuen Erkenntnisse brachte er schließlich in seine Erfahrungen mit der Verarbeitung von Ton ein und ließ zusammen mit Balthazar Kreischer am 2. März 1871 ein Hohlziegel-Deckensystem patentieren, das aus einem einteiligen Deckengewölbe bestand, das den Raum zwischen eisernen U-Trägern überspannte.[33]

Es läßt sich nicht genau feststellen, ob Johnson kurz vor oder unmittelbar nach dem Brand, der vom 8. bis zum 10. Oktober 1871 in Chicago wütete, von New York dorthin reiste, um sein Hohlziegelwand- und deckensystem vorzuführen. Den ersten Auftrag gab ihm der Chicagoer Architekt John M. Van Osdel, für den Johnson schon vierzehn Jahre zuvor bei der Errichtung der Gußeisenfassaden an der Lake Street gearbeitet hatte. Er beauftragte ihn mit den Brandschutzmaßnahmen für das Kendall Building, North Dearborn Street 40. Van Osdel hatte bereits Anfang 1871 also vor der Feuersbrunst, mit der Planung dieses Gebäudes begonnen. Ursprünglich war es als das anspruchvollste und mit sechs Stockwerken höchste Gebäude von Chicago geplant worden (Abb. 9) Zweifellos waren die Höhe und die Bauweise nach den Vorstellungen des Hauptpächters ausgerichtet, der New Yorker Equitable Life Assurance Company.[34]

Equitable war im Mai 1870 in ein nagelneues Gebäude in New York City umgezogen. Ursprünglich war dieses Gebäude 1867 von Arthur D. Gilman und Edward H. Kendall entworfen worden; vollendet wurde es von George B. Post, einem jungen Ingenieur und Architekten, der von Equitable engagiert worden war, um die Kosten für das Gebäude in Grenzen zu halten. Dieses Gebäude markierte den Beginn des Baubooms, der in den Vereinigten Staaten mit dem Ende des Bürgerkriegs einsetzte und der zu einer Wiederbelebung der Entwicklung des amerikanischen Wolkenkratzers führte, die 1861 unterbrochen worden war Die Architekturhistoriker stimmen heute weitgehend darin überein, daß das Equitable Building der erste Wolkenkratzer Amerikas war, denn obwohl es nur fünf Stockwerke umfaßte, betrug seine Gesamthöhe 40 Meter. Es war damit mehr als doppelt so hoch wie irgendein vergleichbares Bauwerk. Dies war das Ergebnis der Entscheidung Henry B. Hydes, des Vizepräsidenten von Equitable, die Anwendungsmöglichkeiten des Fahrstuhls auszuforschen und die Deckenhöhe in jedem Stockwerk im Vergleich zu herkömmlichen, nur mit Treppen ausgestatteten Häusern beinahe zu verdoppeln.[35]

Chicago erlebte ebenfalls einen Nachkriegsbauboom, was das Vorhaben der Equitable Company erklärt, ein noch höheres Gebäude mit sechs Stockwerken, eins mehr als in ihrem New Yorker Haus, in Chicago zu errichten. Das Kendall Building in Chicago, das Van Osdel vor dem großen Brand entworfen hatte, war der nächste logische Schritt in der Evolution des Wolkenkratzers, die mit dem Equitable

Building begonnen hatte. Dieses Gebäude zeigt, daß schon vor der Feuersbrunst vom Oktober in Chicago die Gegebenheiten für die Konstruktion von Wolkenkratzern ebenso vorhanden waren wie in New York.[36]

Leider vereitelte die Brandkatastrophe, daß Chicago in der nächsten Phase dieser Evolution in Konkurrenz zu New York treten konnte. Als das Feuer ausbrach, waren die Fundamente des Kendall Building bereits gelegt, und die unteren Wände waren im Bau. Die Baumaßnahmen wurden nach dem Brand wieder aufgenommen, doch aufgrund der Probleme, mit denen die frühen Personenaufzüge zu kämpfen hatten, sowie der Tatsache, daß die Feuerwehr von Chicago sich außerstande sah, Brände in den oberen Stockwerken eines hohen Gebäudes zu bekämpfen, wurde der Entschluß gefaßt, statt der ursprünglich vorgesehenen sechs nur fünf Stockwerke zu bauen.[37] Das Großfeuer von 1871 bedeutete also für Chicago nicht – wie die meisten Historiker bislang behaupteten – den Ausgangspunkt für die Entwicklung des Wolkenkratzers, sondern es vereitelte im Gegenteil die Ausführung des ersten geplanten Wolkenkratzers in dieser Stadt und warf sie im Wettrennen mit New York um neun Jahre zurück. Während Chicago um seinen Wiederaufbau rang, wurden in New York die Bemühungen, immer höhere Gebäude zu konstruieren, fortgeführt. 1872 entwarf zum Beispiel George B. Post das Western Union Telegraph Building (70 Meter), und 1873 entwarf Richard Morris Hunt das New York Tribune Building (79 Meter).

Das oberste Gebot bei der Konstruktion des Kendall Building war jetzt nicht mehr größtmögliche Höhe, sondern größtmöglicher Feuerschutz. Die fünf Stockwerke bestanden aus Außenwänden aus Mauerwerk, die ein Gestell aus gußeisernen Säulen und schmiedeeisernen Tragbalken und Querträgern umschlossen und stützten, das wiederum Johnsons Flachgewölbe aus Hohlziegeln trug. Bis heute ist es nicht gelungen, genau zu ermitteln, wo Johnson eine solche große Menge an Tonziegeln herstellen lassen konnte. Die Anhaltspunkte sprechen dafür, daß sie von der Chicago Terra Cotta Company geliefert wurden, die dem Architekten Sanford Loring gehörte. Dieses Unternehmen hatte kurz zuvor die neuesten Entwicklungen in der Terrakottaproduktion aus England übernommen und war zum wichtigsten Hersteller dieses Werkstoffs in den Vereinigten Staaten geworden.[38]

Unglücklicherweise bereiteten der Börsenkrach vom September 1873 und die darauf folgende wirtschaftliche Depression den Wiederaufbauanstrengungen in Chicago wie auch den Baumaßnahmen in ganz Amerika ein jähes Ende. Johnsons Hohlziegel-Deckensystem, das für den hastigen Wiederaufbau Chicagos zu teuer war, wurde nie wirklich akzeptiert, und der wirtschaftliche Zusammenbruch zwang ihn Anfang 1874, sich nach New York zurückzuziehen. Überdies sahen sich die Versicherungsgesellschaften, die nach der Brandkatastrophe nicht nur Millionen für Schadensersatzforderungen hatten auszahlen müssen, sondern auch eine beträchtliche Summe als Darlehen für den Wiederaufbau der Stadt gegeben hatten, vor das Problem gestellt, daß nach dem Börsenkrach von 1873 die Rückzahlungsversäumnisse in alarmierendem Maße zunahmen. Dies führte schliesslich dazu, daß die Versicherungsgesellschaften in den Besitz zahlreicher Grundstücke und Immobilien kamen, die vor allem im Geschäftsbezirk Chicagos gelegen waren. Unterdessen bestanden die gefährlichen baulichen Gegebenheiten, die die rapide Verbreitung des Großfeuers im Geschäftsbezirk und auf der Near North Side begünstigt hatten, auf der South Side fort. Dieser Bezirk war 1871 verschont geblieben, doch stand ihm ein ähnliches Schicksal bevor. Am ,4. Juli 1874 brannte ein Gelände von neunzehn Hektar, das von der Clark Street, Polk Street, Michigan Avenue und Van Buren Street begrenzt wurde, mit einer Intensität, die der der Feuersbrunst von 1871 in nichts nachstand. Zwar konnte das Feuer gestoppt werden, als es den neu errichteten Geschäftsbezirk zu erreichen drohte, doch die Versicherungsgesellschaften erkannten, daß sich der Grundbesitz, der in ihre Hände gefallen war, in potentieller Gefahr befand. Noch in der Nacht, die auf dieses zweite Feuer folgte, trafen die Vertreter des National Board of Underwriters, des Verbands der Feuerversicherungsgeber, zusammen und verlangten unter Androhung der Annullierung sämtlicher bestehender Feuerversicherungspolicen vom Rat der Stadt Chicago Sofortmaßnahmen hinsichtlich der Bauvorschriften und der Organisation und Ausstattung der städtischen Feuerwehr.[39]

Der Eisenskelettbau

Entwicklungen in Europa und den Vereinigten Staaten

Der Brand von 1874 hatte diejenigen in ihren Zweifeln bekräftigt, die der Feuerfestigkeit des Gußeisens mißtrauten. Eine der neuen Vorschriften, die die Versicherungsgesellschaften forderten, war das Verbot von Gußeisensäulen, die sie durch schweres Holzfachwerk ersetzt wissen wollten. Diese Forderung stellte eine ernste Bedrohung für den gesamten Baueisenmarkt dar und so sah sich N. E. Bouton, der Inhaber der Union Foundry in Chicago, genötigt, aktiv in die Entwicklung eines Feuerbeständigkeitssystems für die Eisenskelettbauweise einzugreifen. Im August 1874, nur zwei Wochen nach dem zweiten Brand, stellte Bouton seine Fabrik und seine Gußeisensäulen zur Verfügung, um ein Feuerschutzsystem für diese Säulen auf der Grundlage von Holz testen zu lassen, das zwei Architekten aus Chicago, Peter B. Wight und William Drake, in kürzester Zeit entwickelt hatten. Binnen eines Monats unterwarfen sie ihre Konstruktion (Abb. 10) einem kontrollierten Testfeuer. Obgleich dieser Versuch keine überzeugenden Ergebnisse brachte, ließen Drake und Wight ihre Erfindung am 8. September 1874 patentieren.[40]

Unterdessen ignorierte der Stadtrat von Chicago weiterhin die Drohungen der Versicherungsgesellschaften, und am 1 Oktober 1874 forderte der nationale Feuerversicherungsverband seine Mitglieder formell dazu auf, alle laufenden Versicherungspolicen, die Grund- und Hausvermögen im Stadtgebiet von Chicago deckten, zu annullieren. Am 8. Oktober, nur eine Woche nachdem man damit begonnen hatte, diese Policen zurückzuziehen (und symbolträchtig am dritten Jahrestag der Brandkatastrophe von 1871), führten Wight und Drake in Boultons Eisengießerei einen erfolgreichen Versuch durch. Nichtsdestoweniger kam die holzummantelte Eisensäule nie zur praktischen Anwendung. Ein Teil des Testbrennofens war mit Tonhohlziegeln aus Lorings Chicago Terra Cotta Company gebaut worden. Bis auf ein wesentliches Merkmal glichen diese Ziegel den Wandeinheiten, die Johnson entwickelt hatte. Sie waren aus porösem Terrakotta hergestellt, einem neuen Material, das Loring erst kurz zuvor als leichten Ersatzwerkstoff für Johnsons Feuerton entwickelt hatte, um dessen Patent umgehen zu können. Wight erkannte, daß die Isoliereigenschaften der porösen Terrakotta diesem Material große Vorteile gegenüber dem Hartholz verschafften,

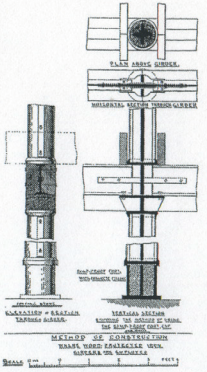
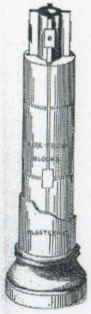


Abb. 10/11 William H. Drake und Peter B. Wight, Entwurf für feuerfeste holz- und terracottaummantelte Eisensäulen, 1874; aus Brickbilder 6. August, 1897



und er stellte sein System schnell auf das neue Material um (Abb.11). Letzten Endes brachten Wight und Loring ein englisches Material und eine französische Theorie zusammen, um ein amerikanisches Problem zu lösen.[41]

Wie bereits angeführt wurde, hatten Bogardus und Badger in den fünfziger Jahren des 19. Jahrhunderts das Eisenskelett in New York entwickelt. Was der universellen Verbreitung des New Yorker Eisenskeletts entgegenstand, war die mangelnde Widerstandsfähigkeit des Eisens gegen die Feuershitze. Der Ruhm, den Chicago für sich beanspruchen kann, liegt in der Lösung dieses Problems, und nicht in der Entwicklung des Eisenskeletts als solchem. Das eigentlich Neue am Eisenskelett-Wolkenkratzer von Chicago war, daß der äußere Mauerwerkmantel, insbesondere die Feuerschutzbedeckung der Säule, vollständig vom Eisenskelett getragen wurde, das damit das Mauerwerk von jeder tragenden Funktion befreite. Da es sich bei Wights Säule um das erste gelungene Beispiel für eine Mauerwerkverkleidung handelte, die mechanisch an einer Eisensäule befestigt wurde, kann man durchaus sagen, daß das Chicagoer Eisenskelett als das Ergebnis der Arbeiten von Peter B. Wight und Sanford Loring im Jahre 1874 seine Geburtsstunde hatte. In den nächsten sechs Jahren starteten Wight und Loring eine Werbe- und Informationskampagne, mit der sie schließlich die amerikanischen Bauunternehmer von der Brauchbarkeit ihres Systems überzeugen konnten. Unterdessen wurde die Eisenbauweise weiterentwickelt, und als sich 1880 die wirtschaftliche Lage wieder erholt hatte, war sie so weit fortgeschritten, daß Wights System problemlos angewandt werden konnte. Dies war zum großen Teil das Verdienst eines einzigen Mannes, und wieder einmal war dieser Mann kein Amerikaner, sondern ein Franzose.1875 trat Gustave Eiffel auf der internationalen Szene auf. In diesem Jahr wurden ihm zwei große, bedeutende Aufträge aus dem Ausland zugesprochen: ein neuer Bahnhof für Pest in Ungarn und die Maria-Pia-Brücke über den Fluß Douro bei Oporto in Portugal.[42] Im Jahr darauf begann Eiffel, eine Serie von schmiedeeisernen, mehrstöckigen und mit Oberlicht versehenen Atriumhäusern für Paris zu entwerfen.[43] Eiffel reagierte auf die Neufassung des Pariser Baugesetzes, das seit 1878 die Anwendung der sichtbaren Eisenskelettkonstruk-

tion gestattete, mit seinem Meisterstück, dem Erweiterungsbau zu den *Grands Magasins du Bon Marché*. Das freistehende Schmiedeeisenskelett, das er zusammen mit Louis-Charles Boileau entworfen hatte, erhob sich an verschiedenen Stellen über fünf Stockwerke durch das Kauffhaus.

Diese Neufassung des Pariser Baugesetzes war auch eine Bestätigung des Lebenswerks von Viollet-le-Duc, der den Kampf für das sichtbare Eisenskelett angeführt hatte und noch kurz vor seinem Tod – er starb am 17 September 1879 – die Anerkennung seiner Ideen erleben durfte. Das ästhetische Potential hierfür, wie er es sechzehn Jahre zuvor dargestellt hatte, wurde von den Pariser Architekten schnell erkannt. Eines der bemerkenswertesten Bauwerke nach der Revision des Baugesetzes war Paul Sedilles 1881 entworfenes neues Kaufhaus für die *Magasins du Printemps*, deren altes Gebäude im März 1881 abgebrannt war. Ein knapp zwanzig Meter hohes zentrales Atrium war von einem siebenstöckigen, freistehenden Schmiedeeisenskelett umgeben, das an den Innenseiten graublau gestrichen war [45]

Auch in den Vereinigten Staaten spielte das Kaufhaus eine Vorreiterrolle in der Entwicklung des Eisenskeletts, und wenn die amerikanische Konstruktion auch technisch nicht so weit fortgeschritten war wie die französische, so war sie dieser aber in Größe und Raumwirkung zumindest ebenbürtig, wenn nicht sogar überlegen. 1877 ließ der Textilienkaufmann John Shillito aus Cincinnati das damals größte amerikanische Kaufhaus bauen (Abb. 12). Der Architekt, James McLaughlin, strebte für die sieben Stockwerke dieses Gebäudes eine größtmögliche visuelle und räumliche Offenheit an. Es gab keine tragenden Innenwände, die die riesigen Geschosse in kleinere Räume unterteilt hätten: Die Konstruktion bestand aus einem Eisenskelett mit Außenpfeilern aus Mauerwerk (Abb. 13). Dieser Raumeffekt wurde durch das Atrium im Zentrum des Gebäudes noch gesteigert, das einen Durchmesser von achtzehn Metern hatte und sich über die Gesamthöhe von 36 Metern bis zur Kuppel aus Eisen und Glas erstreckte. Es war jedoch das Äußere dieses Baus, das im folgenden Jahrzehnt auf die Architektur Chicagos einen nachhaltigen Einfluß ausüben sollte. McLaughlin entwarf eine ungekünstelte,

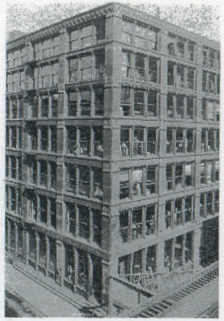


Abb. 14. William Le Baron Jenney. Erstes Leiter Building, 208 West Monroe Street, 1879 (abgerissen); die obersten zwei Stockwerke wurden 1888 hinzugefügt

schmucklose Fassade aus einem geradlinigen, sich ständig wiederholenden Gitterwerk aus roten Preßziegeln, das in einem dreiteiligen Schema angeordnet war· eine zweistöckige Basis, ein dreistöckiger Schaft und ein Kapitell, das das oberste Stockwerk und die Balustrade umfaßte.[46] Shillitos Kaufhaus wurde am 1 September 1878 eröffnet. Kaum ein Jahr später engagierten seine Hauptkonkurrenten in Chicago, Marshall Field und Levi Leiter, William Le Baron Jenney für ein kleines, fünfstöckiges Kaufhaus an der Nordwestecke von Wells und Monroe Street (Abb. 14).[47] Bei Jenneys Aufrissen für das – wie es heute genannt wird – erste Leiter Building (das übereinstimmend als das erste Gebäude der Chicagoer Schule betrachtet wird) handelt es sich um eine fast originalgetreue Kopie des Entwurfs von McLaughlin.[48] Die wirkliche Bedeutung des Gebäudes von Jenney liegt jedoch darin, daß er die Skelettkonstruktion des Shillito-Gebäudes um einen Schritt nach vorn brachte, indem er bei der Straßenfront an der Wells Street die französische Technik anwandte, auf der Innenseite der Mauerwerkpfeiler Eisenpilaster anzubringen, um die hölzernen Deckenträger zu stützen. Dadurch wurden die Mauerwerkpfeiler von jeder deckentragenden Funktion befreit, so daß sie im Querschnitt reduziert werden konnten. Dies wiederum gestattete größtmögliche Fensterflächen und dementsprechend viel Tageslicht. Dennoch war diese Konstruktion vom Eisenskelett im eigentlichen Sinne, wie es die Franzosen seinerzeit bauten, noch weit entfernt, da die Mauerwerkpfeiler noch immer die eisernen Brüstungsbalken trugen. Überdies waren die Mauerwerkpfeiler an der Monroe Street nicht mit Eisenpilastern versehen, trugen also immer noch einen Teil der Decke.

Ein Vergleich zwischen Eiffels Eisenskelettkonstruktion für das Bon-Marché-Gebäude von 1878 und Jenneys vergleichsweise primitivem Eisenskelettversuch von 1879 zeigt den großen Vorsprung der Franzosen gegenüber dem, was in Chicago vor sich ging, und ermöglicht eine kritische Einschätzung des Konstruktionssystems, das Jenney 1884 für das Home Insurance Building verwendete (Abb. 15). Die einzige Abweichung von der Standardbauweise der frühen achtziger Jahre des 19. Jahrhunderts fand sich beim Home Insurance Building in den zwei Stra-

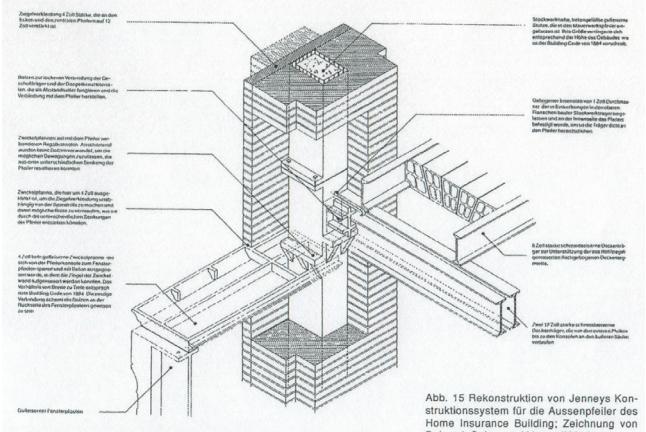


Abb. 15 Rekonstruktion von Jenneys Konstruktionssystem für die Aussenpfeiler des Home Insurance Building; Zeichnung von Deborah Cohen und Maxwell Meriman

ßenfassaden. Die zwei hinteren tragenden Brandmauern, die sich über die gesamte Höhe des Gebäudes und des inneren Eisengerüsts erstreckten, waren typisch für ihre Zeit. Die ersten zwei Stockwerke der Straßenfront bestanden sogar aus steinsichtigen Granitpfeilern. Auf diesen Pfeilern standen geschoßhohe, hohle, rechteckige Gußeisensäulen, die jeweils mit Hilfe von Bolzen aufeinandergesetzt waren, um die oberen sieben Stockwerke und das Dach zu stützen. Die Säulen waren mit Beton gefüllt und mit Ziegeln umgeben, die damals bis zu dreißig Zentimeter stark waren und somit in den Außenpfeilern des Gebäudes einen massiven Querschnitt bewirkten (Abb. 16).[49]
Um die Fenster und die gemauerten Bogenzwickel zwischen den Pfeilern zu stützen, spannten sich gußeiserne Stürze in Form von zehn Zentimeter tiefen Kassetten, die ebenso wie die Säulen mit Beton gefüllt waren, jeweils von einer Säulenkonsole zu einem gußeisernen Mittelpfosten. Bei den gußeisernen Fensterstürzen handelte es sich nicht um durchlaufende Balken. Sie bestanden vielmehr aus zwei Hälften, die sich über den Mittelpfosten trafen. Die

Abb. 16 Home Insurance Building, während der Abbrucharbeiten 1931

Stürze waren offensichtlich weder mit den Säulenträgern noch mit den Mittelpfosten verbolzt, sie ruhten vielmehr einfach auf den tragenden Oberflächen, das heißt sie lagerten auf der gestützten Mauerwerkkniewand, die in den Mauerwerkpfeiler eingebunden wurde, um die Eisenarmierung seitlich an ihrem Platz zu halten. Wenn auch die eisernen Fensterstürze das Gewicht der gemauerten Bogenzwickel an die eisernen Mittelpfosten und Säulen weitergaben, so war doch die Konstruktion, die sich damit ergab, noch weit entfernt von einem starren, selbsttragenden Eisenskelett, das auf jedem Geschoß seine Mauerwerkverkleidung selbständig trug, wiewohl gerade dies später als kennzeichnend für das Home Insurance Building angeführt worden ist.[50]
Alle bekannten Anhaltspunkte lassen darauf schließen, daß Jenneys Eisenskelett nicht völlig selbständig und vom Mauerwerk unabhängig war. Zunächst einmal verwies er ursprünglich nicht auf die bloße Verkleidungsfunktion des Mauerwerks, sondern sprach immer davon, daß er die Eisensäulen in die Mauerwerkpfeiler einbettete, um deren Durchmesser zu reduzieren und damit möglichst viel Tageslicht zu gewinnen.[51] Zweitens waren die Sturzbalken nicht mit Bolzen an den Säulen befestigt, die Stabilität der Binder wurde also durch die Bogenzwickel aus Mauerwerk erreicht. Drittens stützte die Eisensäule an keiner Stelle die äußere Ziegelverblendung der Pfeiler, so daß diese durchgängig von den Granitpfeilern im Sockelgeschoß getragen wurde. Und schließlich hätte das Eisenskelett mit seinen locker verbolzten und verklammerten Verbindungen ohne die Stabilität der zwei hinteren Trennwände und der Mauerwerkpfeiler keinen Windbelastungen standhalten können.
Die historische Bedeutung des Home Insurance Building liegt darin, daß in diesem Gebäude zum ersten Mal seit Badgers Getreidespeichern von 1860 und 1862 in den Vereinigten Staaten an der Außenfassade eines mehrstöckigen Gebäudes extensiv Eisen angewandt wurde, um einen Teil der Mauerwerkeinfassung zu tragen.[52] Verglichen jedoch mit Eiffels festen Nietverbindungen oder mit Sedilles siebenstöckigem Schmiedeeisenrahmen im *Magasin du Printemps*, der drei Jahre vorher konstruiert worden war, macht Jenneys schwachverbolzter, achtstöckiger Rahmen

aus mauerwerkverstärkten Gußeisensäulen einen fast schon anachronistischen Eindruck. Es kann daher nicht überraschen, daß in den zweieinhalb Jahren, die auf Jenneys Darstellung seines Konstruktionssystems bei der Tagung der Architects International Association im Oktober 1885 folgten, das Home Insurance Building und die Einsatzmöglichkeiten seines *revolutionären* Systems in den amerikanischen Fachzeitschriften und einschlägigen Tagungsberichten gar nicht erwähnt wurde.[53] Warum war offensichtlich niemand in Chicago an der Auswertung der Möglichkeiten dieses Systems interessiert.[54] Diese Frage führt zu einer anderen, nämlich der nach den Gründen für den nächsten Schritt in der Entwicklung des Eisenskeletts, der schließlich die endgültige Lösung dieses technischen Problems brachte.

Am 22. Mai 1888, drei Jahre nach der Fertigstellung des Home Insurance Building, wurde dem Architekten Leroy E. Buffington aus Minneapolis ein Patent für ein selbsttragendes Schmiedeeisenskelettsystem gewährt, das für die Konstruktion hoher Gebäude gedacht war (Abb. 17).[55] Zwei Monate vorher hatte er in der Märzausgabe des North western Architect einen Aufsatz veröffentlicht, in dem er die beinahe unbegrenzte Höhe rühmte, die mit seinem System erreicht werden könne.[56] In keinem der frühen Zeitschriftenartikel, die sich mit Buffingtons System befaßten, wurde das Home Insurance Building auch nur erwähnt, und dies aus gutem Grund, denn Buffingtons System wich in einem entscheidenden Punkt von Jenneys Konstruktion ab. Im Unterschied zu Jenney verwendete Buffington in seinem starren System (in dem dem Mauerwerk keinerlei tragende Funktion zukam) zusammengesetzte Säulen aus Schmiedeeisen (nicht aus Gußeisen), die sowohl an die Deckenträger genietet (nicht verbolzt) waren als auch an die eisernen Auflagerwinkel, die auf jedem Stockwerk den leichten Mauerwerk- und Glasmantel des Gebäudes trugen. Mit Hilfe dieses revolutionären Systems konnte er seinen *Wolkenkratzer* entwerfen, einen 28stöckigen Büroturm (Abb. 18), der die Höhe der Bürogebäude, die es damals gab, um mehr als das Doppelte übertroffen hätte. Der Entwurf wurde 1888 in der Juliausgabe des Inland Architect veröffentlicht.[57]

Auch wenn Buffington dieses System nie in einem Gebäude anwandte, waren sein Patent und sein Projekt von großer historischer Bedeutung, da sich hier der eigentliche Beginn des Interesses an der Eisenskelettbauweise und deren Entwicklung in Amerika manifestierte. Denn obschon sein Entwurf – insbesondere an der Ostküste – auf Spott stieß, regte er doch eine Reihe von Architekten und Ingenieuren dazu an, sich mit der abschließenden Lösung der Probleme zu befassen, die das Eisenskelett noch aufwarf.[58] Vom Home Insurance Building gingen seinerzeit vergleichbare Anregungen oder Einflüsse nicht aus.

Wie schon Johnson sich für seine feuersicheren Deckenkonstruktionen an französische Vorbilder angelehnt hatte, so ging mit großer Wahrscheinlichkeit auch Buffingtons Idee für sein Schmiedeeisenskelett auf die in technischer Hinsicht weiter fortgeschrittenen Eisenkonstruktionen zurück, die – beispielhaft von Eiffel in seinen vernieteten Eisenkonstruktionen – in Frankreich errichtet wurden. Im Frühjahr 1885, als das Home Insurance Building seiner Fertigstellung entgegensah, wurde Eiffels Technologie buchstäblich in die Vereinigten Staaten importiert, als nämlich die Freiheitsstatue, die in Frankreich gefertigt worden war, über den Atlantischen Ozean verschifft wurde. Die Statue kam am 17 Juni 1885 in New York an. Eiffel hatte das 29 Meter hohe vernietete Schmiedeeisenskelett entworfen, das Auguste Bartholdis verkupferte Statue trug und von ihr umhüllt wurde. Mit der Montage des diagonal verstrebten Turms wurde im Frühjahr 1886 begonnen, und die feierliche Einweihung fand am 28. Oktober 1886 statt.[59] Man hat angenommen, daß Buffington, als er Anfang 1886 mit der Arbeit an seinem Eisensystem begann, sich von der Konstruktionsbeschreibung des Home Insurance Building anregen ließ, die Jenney 1885 in der Dezemberausgabe des Inland Architect veröffentlicht hatte.[60] Während Buffington sein Patent entwarf und ausarbeitete – also vom Winter 1886 bis zum 14. November 1887 als er seine Patentanmeldung einreichte –, war jedoch die Freiheitsstatue bereits im Bau und Gegenstand von Zeitungsberichten. Wichtiger noch: In den Vereinigten Staaten erschienen in dieser Zeit die ersten Artikel über Eiffels Entwurf für den über 300 Meter hohen Turm (der am 12. Juni 1886 offiziell angenommen wurde). Buffington wandte in seinem endgültigen Entwurf vernietete Schmie-

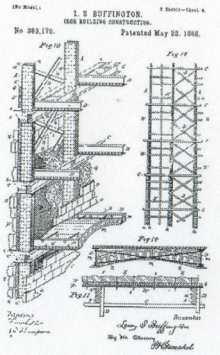


Abb. 17 Leroy S. Buffington, Patent für eine Eisenskelettkonstruktion, 1888; aus Art Bulletin 26, März 1944

Die Architekten dieses Landes und dieser Generation stehen nun vor etwas ganz Neuem – nämlich der Evolution und Integration sozialer Verhältnisse und ihrer ganz besonderen Gruppierung, die die Errichtung grosser Bürogebäude erforderlich macht.

Ich habe nicht vor, über die sozialen Verhältnisse zu diskutieren; ich nehme sie als Tatsache hin und sage schon gleich jetzt, dass der Entwurf des grossen Bürogebäudes von Anfang an als ein Problem erkannt und gewürdigt werden muss, das zu lösen ist – als ein lebenswichtiges Problem, das nach einer echten Lösung drängt.
Wir wollen die Verhältnisse auf die einfachste Art betrachten; es handelt sich dabei, kurz gesagt, um folgendes: Büros sind notwendig für die Erledigung der Verwaltungsarbeiten; die Erfindung und Vervollkommnung des Expresslifts macht die Vertikalbeförderung, die einst schwierig und mühsam war, jetzt leicht und bequem; die Entwicklung der Stahlproduktion hat den Weg zu sicheren, standfesten, wirtschaftlichen Konstruktionen geebnet, die eine beträchtliche Höhe erreichen; das ständige Anwachsen der Bevölkerung, die Anhäufung in den Zentren und die Erhöhung des Grundstückswertes bedingen eine Erhöhung der Stockwerkszahl; dadurch, dass mit Erfolg immer mehr Stockwerke aufeinandergesetzt werden, wird der Grundstückswert beeinflusst usw. – so dass nun, durch Aktion und Reaktion, Interaktion und Interreaktion, diese Form des hohen Gebäudes zustande kam, das man das »moderne Bürogebäude« nennt. Es kam als Antwort auf eine Forderung; in im fand ein neuer sozialer Stand Wohnsitz und Bezeichnung. Bis hierher ist alles materialistisch, eine Zurschaustellung von Kraft, Entschlossenheit, Verstand im reinen Sinn des Wortes. Es ist das gemeinsame Produkt des Theoretikers, des Ingenieurs, des Baumeisters.
Das Problem ist dieses: Wie sollen wir diesem sterilen, groben, rohen, brutalen Haufen, dieser starren, widerspenstigen Fratze ewigen Kampfes die Anmut jener höheren Formen der Empfindung und Kultur geben, die sich über die niedrigen und primitiven Leidenschaften erheben? Wie sollen wir aus der schwindelnden Höhe dieses so andersartigen, unheimlichen, modernen Hauses die frohe Botschaft des Gefühls, der Schönheit – den Kult eines höheren Lebens verkündigen?

Das ist das Problem; und wir müssen seine Lösung in einem seiner eigenen Evolution analogen Prozess suchen – das heisst, in einer Fortsetzung dieses Prozesses –, indem wir nämlich Schritt für Schritt von allgemeinen zu besonderen Aspekten, von allgemeinen zu besonderen Erwägungen übergehen.
Meiner Überzeugung nach gehört es zum Wesen eines jeden Problems, dass es seine Lösung in sich selber trägt und sie andeutet. Ich glaube daran, dass dies ein Naturgesetz ist. Wir wollen daher sorgfältig die Elemente und diese Andeutung – das heisst das Wesen – des Problems untersuchen.
Allgemein gesprochen, handelt es sich um folgende, in der Praxis vorhandene Verhältnisse:
Gebraucht werden

1. ein Untergrundgeschoss zur Aufnahme von Boilern, Maschinen der verschiedensten Art, z. B. der Anlage für Strom, Heizung, Beleuchtung;
2. ein Erdgeschoss für Läden, Banken oder andere Etablissements, die eine grosse Fläche, viel Raum und viel Licht erfordern und leicht zugänglich sein müssen;
3. eine zweite Etage, die leicht über Treppen zu erreichen ist – im allgemeinen mit grossen Unterteilungen, entsprechend weitläufig angelegter Struktur, ausgedehnten Glasflächen und breiten Fensteröffnungen;
4. darüber eine unbestimmte Anzahl aufeinander geschichteter Bürogeschosse, eine Etage wie die andere, ein Büro wie das andere – jedes Büro eine Wabe in einem Bienenstock, nur eine Zelle und nichts weiter;
5. ein letztes auf alle diese vorgenannten aufgesetztes Stockwerk, das in bezug auf organische Zweckmässigkeit der Struktur rein physiologischer Art ist: das Dachgeschoss. Hier vollendet sich der Kreislauf und macht seine grosse Wendung abwärts. Der Raum ist angefüllt mit Behältern, Rohren, Ventilen, Rädern und sonstigen mechanischen Dingen, die eine Ergänzung der im Keller befindlichen Kraftanlage darstellen. Zuletzt – oder vielmehr zuerst – muss im Erdgeschoss noch ein gemeinsamer Haupteingang für alle Kunden bzw. im Hause Beschäftigten vorgesehen werden.

Dieses Programm gilt im wesentlichen für jedes grosse Bürogebäude des Landes. Was die notwendige Einrichtung von Lichthöfen anlangt, so

gehört diese nicht zum eigentlichen Problem, und ich halte es nicht für erforderlich, sie hier zu berücksichtigen. Solche Dinge – wie z. B. auch die Einrichtung von Aufzügen – gehören zur wirtschaftlichen Seite des Gebäudes, und ich setze voraus, dass die Erwägungen und Entscheidungen hierbei vom pekuniären und vom Zweckmässigkeitsstandpunkt aus getroffen werden. Nur in seltenen Fällen hat der Grundriss oder die Etagenanordnung des grossen Bürogebäudes ästhetische Bedeutung – so z. B., wenn der Lichthof ausserhalb angelegt wird oder aber im Innern ein sehr charakteristisches Merkmal bilden soll.

Da ich hier nicht nach einer individuellen oder speziellen Lösung, sondern nach einem echten normalen Typ forsche, muss die Aufmerksamkeit sich auf solche Verhältnisse beschränken, die im allgemeinen auf sämtliche grossen Bürogebäude zutreffend sind; jede nur zufällige Variation beeinträchtigt die Klarheit der Untersuchung und muss deshalb unbeachtet bleiben.

Die horizontalen und vertikalen Abmessungen des Einzelbüros sind selbstverständlich so berechnet, dass sich in der Praxis ein Raum von ausreichender Fläche und Höhe ergibt; die Grösse des Standard-Büroraums bestimmt natürlich die Standardabmessungen der Struktur und ungefähr auch die Grösse der Fensteröffnungen. Diese strukturellen Dimensionen hinwiederum bilden die echte Basis für die künstlerische Gestaltung des Äusseren. Es versteht sich von selbst, dass die Flächen und Öffnungen im ersten (dem merkantilen) Stockwerk unbedingt grösser sein müssen als diejenigen in allen übrigen; Flächen und Öffnungen des zweiten (des quasi-merkantilen) Stockwerkes sind auf ähnliche Weise zu planen; im Dachgeschoss sind Flächen und Öffnungen von keinerlei Bedeutung – die Fenster haben keinen tatsächlichen Wert, da das Licht von oben einfallen kann; eine Zelleneinteilung der Strukturfläche ist hier nicht erforderlich.

Daraus folgt ganz unbedingt und einfach, dass wir, um – unseren natürlichen Instinkten folgend und ohne Gedanken an Bücher, Regeln, frühere Beispiele oder sonstiges Bildungsgepäck – zu einem spontanen und vernünftigen Resultat zu gelangen, das Äussere unseres grossen Bürogebäudes wie folgt entwerfen müssen:

Dem Erdgeschoss geben wir einen Haupteingang, der den Blick auf sich zieht, und den Rest des Stockwerks statten wir mehr oder weniger grosszügig aus – entsprechend den praktischen Notwendigkeiten, aber so, dass alles weit und frei wirkt. Die zweite Etage wird ähnlich, aber im allgemeinen etwas weniger grosszügig geplant. Die Anlage der übrigen Stockwerke richtet sich nach der einzelnen »Zelle«, für die ein Fenster mit Pfeiler, Sims und Sturz vorgesehen wird; ein Raum soll wie der andere aussehen, weil einer genau so ist wie der andere. Zuletzt kommen wir zum Dachgeschoss, das, da es nicht in Bürozellen unterteilt wird und keine besonderen Vorrichtungen für Beleuchtung erfordert, uns die Möglichkeit gibt, durch breit angelegtes Mauerwerk von beherrschendem, wuchtigem Charakter deutlich zu machen, dass die Reihe von Büroetagen hier endgültig abgeschlossen wird.

Das Resultat mag dürftig und die Art seiner Darlegung herzlos und pessimistisch erscheinen – aber nichtsdestoweniger haben wir eine charakteristische Stufe erreicht, die das vorgestellte düstere Gebäude der Theoretiker-Ingenieur-Baumeister-Kombination überragt. Denn nun spürt man in der unmittelbar getroffenen Entscheidung definitiv die Hand des Architekten, und der durch und durch gesunde, logische und klare Ausdruck der Verhältnisse wird sichtbar.

Wenn ich sage »die Hand des Architekten«, so denke ich nicht unbedingt an einen ausgelernten und erfahrenen Architekten; ich denke dabei an einen Mann mit einer starken natürlichen Liebe zu Gebäuden – und mit einem Talent, ihnen die seiner unverkünstelten Natur direkt und einfach erscheinende Gestalt zu geben. Er wird einen neuen Pfad austreten, der vom Problem zur Lösung führt, und dabei wird er eine beneidenswerte Logik entwickeln. Wenn er die Gabe der Detailformung, ein Gefühl für die Form als solche und auch Neigung dafür besitzt, so wird sein Ergebnis nicht nur einfache, gerade Natürlichkeit, sondern darüber hinaus auch den Charme der Empfindung zum Ausdruck bringen.

Nichtsdestoweniger sind bis hierher die Resultate nur Stückwerk und Versuche; wenn sie auch verhältnismässig echt sind, so sind sie doch nur oberflächlich. Unser Instinkt hat zweifellos recht, aber wir müssen eine bessere Rechtfertigung, eine genauere Bestätigung für ihn finden.

Wir haben nun bei der Untersuchung unseres Problems verschiedene Fragen geprüft: 1. Die soziale Grundlage der Notwendigkeit grosser Bürogebäude; 2. die eigentliche materielle Befriedigung

dieses Bedürfnisses; 3. sind wir von der eigentlichen Planung, Konstruktion und Anlage zur elementaren Architektur als dem direkten Ergebnis vernünftigen, gesunden Bauens übergegangen; 4. von der elementaren Architektur sind wir mit Hilfe der Empfindung zu den Anfängen echten architektonischen Ausdrucks gelangt.

Aber wenn auch an unserem Gebäude alles dieses in beträchtlichem Masse erkennbar ist, so sind wir doch noch weit entfernt von der richtigen Lösung des Problems, die ich mir zur Aufgabe gemacht habe. Wir müssen jetzt auf die befehlende Stimme der Emotion horchen.

Sie fragt uns: Welches ist das Hauptmerkmal des grossen Bürogebäudes? Und wir antworten sofort: Es ist sehr hoch. Und diese seine Höhe ist, vom Künstler aus gesehen, sein erregendes Merkmal. Sie ist der mächtig schwingende, aufrufende Orgelton. Und das Gebäude hinwiederum muss den Dominantakkord dieses Tones, der die Vorstellung reizt, zum Ausdruck bringen. Es muss hoch sein – jeder Zoll an ihm muss hoch sein. Die Kraft und Gewalt der Höhe müssen in ihm sein – der Glanz und der Stolz der Begeisterung. Bis ins kleinste muss es stolz und jubelnd sein, muss sich emporrecken in reinem Frohlocken darüber, dass es vom Boden bis zum höchsten Punkt eine Einheit bildet, in der keine einzige Linie von der Richtung abweicht – dass es die frische unerwartete, ausdrucksvolle Überwindung der nüchternsten, finstersten, abstossendsten Verhältnisse darstellt.

Der Mann, der in diesem Geist und im Gefühl der Verantwortung seiner Generation gegenüber plant und entwirft, darf kein Feigling, kein Bücherwurm, kein Dilettant sein. Er muss leben im vollsten Sinn – aus seinem Leben und für sein Leben. Er muss sofort, von Inspiration erfüllt, erkennen, dass das Problem des grossen Bürogebäudes eine der wunderbarsten, herrlichsten Gelegenheiten ist, die der Herr der Natur in Seiner Güte dem stolzen Menschengeist jemals dargeboten hat.

Dass dies nicht erkannt, vielmehr glattweg geleugnet wurde, ist ein Beweis menschlicher Verkehrtheit, der uns zu denken geben muss.

Nun ein Weiteres: Wir wollen die Frage auf der Ebene ruhiger, philosophischer Betrachtung erwägen. Wir wollen eine umfassende, abschliessende Lösung finden – das Problem wirklich auflösen.

Gewisse Kritiker – und zwar sehr scharfsinnige – haben die Theorie aufgestellt, dass der echte Prototyp des grossen Bürogebäudes die klassische Säule, bestehend aus Basis, Schaft und Kapitell, sei. Demnach wäre also die geformte Basis typisch für die unteren Stockwerke unseres Gebäudes, der glatte oder kannelierte Schaft stellte die monotone, durchgehende Reihe der Büroetagen und das Kapitell die vollendende Kraft und die Üppigkeit des obersten Geschosses dar.

Andere Theoretiker, die einen mystischen Symbolismus vertreten, führen die vielen Dreiheiten in Natur und Kunst sowie die Schönheit und Endgültigkeit einer solchen Dreiheit in der Einheit an. Sie berufen sich auf die Schönheit der Primzahlen, das Geheimnisvolle der Zahl Drei, die Schönheit überhaupt aller Dinge, die in drei Stufen unterteilt sind – z. B. des Tages, der aus Morgen, Mittag und Abend besteht, und des Körpers, der sich aus Gliedern, Rumpf und Kopf zusammensetzt. So, sagen sie, sollte auch das Gebäude vertikal in drei Teile unterteilt sein – wie die zuvor angeführten Dinge, aber aus anderen Motiven heraus.

Andere – reine Intellektualisten – meinen, dass ein solcher Plan wie ein logischer Beweis aufgebaut sein und aus Einleitung, Mitte und Schluss bestehen müsse, und jeder Teil müsse deutlich erkennbar sein: Wieder also, wie weiter oben, ein in vertikaler Richtung dreigeteiltes Gebäude.

Noch andere, die ihre Beispiele und Beweise im Reich der Natur suchen, behaupten, dass ein solcher Entwurf vor allem organisch sein müsse. Sie führen eine geeignete Pflanze an, deren Blätter sich gebündelt auf den Boden breiten und deren langer, anmutiger Stengel die prächtige einzelne Blüte trägt. Sie weisen besonders auf die Föhre hin, auf ihre mächtigen Wurzeln, ihren geschmeidigen durchgehenden Stamm und die büschelige Krone hoch oben in der Luft. So, sagen sie, solle das grosse Bürogebäude entworfen sein: wieder vertikal in drei Teile geteilt.

Andere schliesslich, die mehr Wert auf die Kraft der Einheit als auf die Schönheit der Dreiheit legen, sagen, dass ein solcher Plan auf einen Schlag entworfen werden müsse – in der Art etwa, in der ein Hufschmied oder der gewaltige Jupiter selbst arbeite; oder aber er müsse, wie Minerva, voll ausgebildet den Gedanken entspringen. Sie akzeptieren die Dreiteilung als zulässig und willkommen, aber nicht als wesentlich. Für sie bedeutet sie eine Unterteilung ihrer Einheit: die Einheit

entsteht nicht aus dem Zusammenschluss der drei, die von ihnen ohne Murren geduldet werden, sofern die Unterteilung der Einheit die Einheit selbst nicht stört.

Alle diese Kritiker und Theoretiker sind jedoch positiv und einhellig der Meinung, dass das grosse Bürogebäude nicht zu einer Bühne für die Zurschaustellung architektonischen Könnens im wissenschaftlichen Sinn werden darf; dass zuviel Wissen hier ebenso gefährlich und abstossend ist wie halbes Wissen; dass ein Mischmasch widerlich ist; dass ein sechzehnstöckiges Gebäude nicht aus sechzehn separaten, voneinander unterschiedenen und unzusammenhängenden Bauwerken bestehen darf, die aufeinandergetürmt werden, bis der oberste Stock erreicht ist.

Diese letzte Torheit würde ich überhaupt nicht erwähnen, wenn es nicht eine Tatsache wäre, dass neun von zehn Gebäuden in genau dieser Weise entworfen werden – und zwar nicht von Unwissenden, sondern von Ausgebildeten. Es scheint wirklich, als sei der »trainierte« Architekt, sobald er diesem Problem gegenübersteht, bei jedem – oder mindestens jedem dritten – Stockwerk von panischer Angst befallen, dass er »schlecht in Form« sei; dass er für sein Bauwerk nicht genügend Schmuck von diesem, oder einem anderen »korrekten« Gebäude aus irgendeinem anderen Land oder irgendeiner anderen Zeit geborgt habe; dass er nicht weitschweifig genug sei in der Ausstellung seiner Ware; kurz: dass er einen Mangel an Wendigkeit zeige. Es scheint über seine Kräfte zu gehen, den Griff der verkrampften, unruhigen Hand zu lockern, seine Nerven zu beruhigen, seine Gedanken abzukühlen, ruhig und natürlich zu überlegen; er lebt in einem schrecklichen Wachtraum, der von den zerstückelten Gliedmassen der Architektur erfüllt ist: wirklich kein sehr anregendes Schauspiel.

Was die zuvor erwähnten ernsthaften Ansichten scharfsinniger und verständiger Kritiker anlangt, so werde ich mich – wenn auch mit Bedauern – zum Zwecke dieser Demonstration von ihnen absetzen, denn ich halte sie für sekundär und unwesentlich, den innersten Kern der ganzen Angelegenheit, nämlich die echte und unerschütterliche Philosophie der Baukunst, nicht betreffend.

Diese Ansicht will ich nun belegen, denn sie trägt zur Lösung des Problems eine abschliessende und umfassende Formel bei.

Jedes Ding in der Natur hat eine Gestalt, dass heisst eine Form, eine äussere Erscheinung, durch die wir wissen, was es bedeutet, und die es von uns selbst und von allen anderen Dingen unterscheidet.

In der Natur bringen diese Formen das innere Leben, den eingeborenen Wert der Geschöpfe oder der Pflanzen, die sie darstellen, zum Ausdruck; sie sind so charakteristisch und so unverkennbar, dass wir ganz einfach sagen, es sei »natürlich«, dass sie so sind. Und doch: im Augenblick, in dem wir unter die Oberfläche dringen, im Augenblick, in dem wir durch das ruhige Spiegelbild unseres Ichs und der Wolken hoch über uns in die klare, strömende, unermessliche Tiefe der Natur schauen – wie bestürzend ist diese Stille, wie unbegreiflich der Fluss des Lebens, wie erschütternd das Geheimnis!

Unaufhörlich nimmt das Wesen der Dinge in der Materie der Dinge Gestalt an, und diesen wunderbaren Vorgang nennen wir Geburt und Wachstum. Und wenn nach einer Weile Geist und Materie gemeinsam dahinschwinden, so nennen wir's Verwelken und Tod. Diese beiden Ereignisse erscheinen als zusammenhängend und ineinandergreifend, sie sind eins wie die Seifenblase und ihr Schillern – schweben wie sie in sanft sich bewegender Luft. Diese Luft ist wunderbar über alles Begreifen hinaus.

Dem, der auf dem Ufer der Dinge steht und unverwandt und voll Liebe dorthin blickt, wo die Sonne scheint und wo, wie wir glücklich empfinden, das Leben ist, füllt sich das Herz beständig mit Freude über die Schönheit und die Ungezwungenheit, mit der das Leben seine Formen sucht und findet – in vollkommener Übereinstimmung mit den Bedürfnissen. Immer scheint es, als seien Leben und Form ganz und gar eins und unzertrennlich, so vollendet ist die Erfüllung.

Ob wir an den im Flug gleitenden Adler, die geöffnete Apfelblüte, das schwer sich abmühende Zugpferd, den majestätischen Schwan, die weit ihre Äste breitende Eiche, den Grund des sich windenden Stroms, die ziehenden Wolken oder die über allem strahlende Sonne denken: immer folgt die Form der Funktion – und das ist das Gesetz. Wo die Funktion sich nicht ändert, ändert sich auch die Form nicht. Die Granitfelsen und die träumenden Hügel bleiben immer dieselben; der Blitz springt ins Leben, nimmt Gestalt an und stirbt in einem Augenblick. Es ist das Gesetz aller organischen und anorganischen, aller physischen und metaphysischen, aller menschlichen und übermensch

lichen Dinge, aller echten Manifestationen des Kopfes, des Herzens und der Seele, dass das Leben in seinem Ausdruck erkennbar ist, dass die Form immer der Funktion folgt. Das ist Gesetz.
Dürfen wir also dieses Gesetz täglich in unserer Kunst übertreten? Sind wir so dekadent, so töricht, so ungeheuer kurzsichtig, dass wir diese so einfache Wahrheit nicht erkennen? Ist diese Wahrheit so durchsichtig, dass wir durch sie hindurchsehen, ohne sie wahrzunehmen? Ist sie wirklich etwas so Wunderbares – oder aber ist sie so abgedroschen, so alltäglich und uns so nahe, dass wir einfach nicht einsehen können, dass Gestalt, Form und Äusseres des grossen Bürogebäudes nach Art aller Dinge sich den Funktionen dieses Gebäudes anpassen müssen – dass, wo die Funktion sich nicht ändert, die Form sich nicht ändern darf?
Zeigt dies nicht klar und deutlich und endgültig, dass eine oder zwei der untersten Etagen einen besonderen Charakter, entsprechend den besonderen Bedürfnissen, zum Ausdruck bringen müssen? Dass die Reihen der eigentlichen Büros, die die gleiche unveränderte Funktion haben, die gleiche unveränderte Form behalten müssen? Dass für die Funktion der obersten Etage, die spezifischen und abschliessenden Charakter hat, in Bezug auf Kraft, Bedeutung, Endgültigkeit der geeignete Ausdruck gefunden werden muss? Hieraus ergibt sich ganz natürlich, ganz spontan und unbeabsichtigt die dreiteilige Form – nicht aus irgendeiner Theorie, einem Symbol oder einer Logik.
Und so findet der Entwurf des grossen Bürogebäudes seinen Platz neben allen anderen Entwürfen, die entstanden, sobald die Architektur – immer einmal im Verlauf langer Zeiträume – eine lebendige Kunst war. Als Beispiel haben wir den griechischen Tempel, den gotischen Dom und die mittelalterliche Burg.
Wenn ursprünglicher Instinkt und ursprüngliche Empfindsamkeit unsere geliebte Kunst beherrschen werden; wenn es erkanntes und anerkanntes Gesetz sein wird, dass die Form stets der Funktion folgt; wenn unsere Architekten aufhören werden, prahlerisch zu streiten und kindisch sich zu zanken, indes ihre Hände von Systemen ausländischer Schulen gefesselt sind; wenn zutiefst empfunden und freudig anerkannt wird, dass dieses Gesetz sonnige grüne Felder erschliesst und uns Freiheit schenkt – dass die Schönheit und Herrlichkeit des Gesetzes selbst, wie sie in der Natur in Erscheinung treten, jeden vernünftigen und empfindenden Menschen davon abhält, in Zügellosigkeit zu verfallen; wenn offensichtlich wird, dass wir eine fremde Sprache mit amerikanischem Akzent sprechen, während doch jeder Architekt im Lande unter dem günstigen Einfluss dieses Gesetzes auf die einfachste, bescheidenste und natürlichste Art aussprechen könnte, was er sagen möchte – während er doch wirklich und ganz gewiss seine eigene charakteristische Individualität entwickeln und die Kunst der Architektur zu einer lebendigen Sprache machen könnte, zu einer natürlichen Form der Äusserung, durch die ihm Erleichterung verschafft und den Kunstschätzen seines Landes ein neuer Schatz hinzugefügt würde; wenn wir wissen und fühlen werden, dass die Natur unser Freund und nicht unser unerbittlicher Feind ist, dass ein Nachmittag auf dem Land, eine Stunde am Meeresufer, die freie Aussicht auf einen einzigen Tag – seine Morgendämmerung, seinen Mittag und sein Abendlicht – uns soviel Rhythmus, Tiefe und Ewigkeit für die grosse Kunst der Architektur schenkt – etwas, das so tief und wahr ist, dass alle einengenden Formalitäten, alle starren Richtlinien, alle erstickenden Fesseln der Schule es nicht in uns abzutöten vermögen –, dann darf gesagt werden, dass wir uns auf dem richtigen Weg zu einer natürlichen und befriedigenden Kunst befinden, zu einer Architektur, die binnen kurzem zur schönen Kunst im wahren und besten Sinn des Wortes werden wird, zu einer Kunst, die leben wird, weil sie eine Kunst des Volkes, eine Kunst für das Volk und durch das Volk ist.

Sherman, Paul: Louis H. Sullivan. Ein amerikanischer Architekt und Denker, Berlin u. a. 1963, S. 144-149.

The cardboard house needs an antidote. The antidote is far more important than the house. As antidote – and as practical example, too. Of the working out of an ideal of organic simplicity that has taken place here on American soil, step by step, under conditions that are your own – could I do better than to take apart for your benefit the buildings I have tried to build, to show you how they were, long ago, dedicated to the ideal of organic simplicity? It seems to me that while another might do better than that, I certainly could not – for that is, truest and best, what I know about the subject. What a man does, that he has.

When, „in the cause of architecture," in 1893, I first began to build the houses, sometimes referred to by the thoughtless as „The New School of the Middle West" (some advertiser's slogan comes along to label everything in this our busy woman's country), the only way to simplify the awful building in vogue at the time was to conceive a finer entity – a better building – and get it built. The buildings standing then were all tall and all tight. Chimneys were lean and taller still, sooty fingers threatening the sky. And beside them, sticking up by way of dormers through the cruelly sharp, saw-tooth roofs, were the attics for „help" to swelter in. Dormers were elaborate devices, cunning little buildings complete in themselves, stuck to the main roof slopes to let „help" poke heads out of the attic for air.

Invariably the damp sticky clay of the prairie was dug out for a basement under the whole house, and the rubble-stone walls of this dank basement always stuck up above the ground a foot or more and blinked, with half-windows. So the universal „cellar" showed itself as a bank of some kind of masonry running around the whole house, for the house to sit up on – like a chair. The lean, upper house walls of the usual two floors above this stone or brick basement were wood, set on top of this masonry-chair, clapboarded and painted, or else shingled and stained, preferably shingled and mixed, up and down, all together with moldings crosswise. These overdressed wood house walls had, cut in them – or cut out of them, to be precise – big holes for the big cat and little holes for the little cat to get in and out or for ulterior purposes of light and air. The house walls were becorniced or bracketed up at the top into the tall, purposely profusely complicated roof, dormers plus. The whole roof, as well as the roof as a whole, was scalloped and ridged and tipped and swanked and gabled to madness before they would allow it to be either shingled or slated. The whole exterior was bedeviled – that is to say, mixed to puzzle-pieces, with corner-boards, panel-boards, window-frames, cornerblocks, plinth-blocks, rosettes, fantails, ingenious and jigger work in general. This was the only way they seemed to have, then, of „putting on style." The scroll-saw and turning-lathe were at the moment the honest means of this fashionable mongering by the wood-butcher and to this entirely „moral" end. Unless the householder of the period were poor indeed, usually an ingenious corner-tower on his house eventuated into a candle-snuffer dome, a spire, an inverted rutabaga or radish or onion or – what is your favorite vegetable? Always elaborate bay-windows and fancy porches played „ring around a rosy" on this „imaginative" corner feature. And all this the building of the period could do equally well in brick or stone. It was an impartial society. All material looked pretty much alike in that day.

Simplicity was as far from all this scrap pile as the pandemonium of the barnyard is far from music. But it was easy for the architect. All he had to do was call: „Boy, take down No. 37, and put a bay-window on it for the lady!"

So – the first thing to do was to get rid of the attic and, therefore, of the dormer and of the useless „heights" below it. And next, get rid of the unwholesome basement, entirelyyes, absolutely – in any house built on the prairie. Instead of lean, brick chimneys, bristling up from steep roofs to hint at „judgment" everywhere, I could see necessity for one only, a broad generous one, or at most, for two, these kept low down on gently sloping roofs or perhaps flat roofs. The big fireplace below, inside, became now a place for a real fire, justified the great size of this chimney outside. A real fireplace at that time was extraordinary. There were then „mantels" instead. A mantel was a marble frame for a few coals, or a piece of wooden furniture with tiles stuck in it and a „grate," the whole set slam up against the wall. The „mantel" was an insult to comfort, but the integral fireplace became an important part of the building itself in the houses I was allowed to build out there on the prairie. It refreshed me to see the fire burning deep in the masonry of the house itself.

Taking a human being for my scale, I brought the whole house down in height to fit a normal man; believing in no other scale, I broadened the mass out, all I possibly could, as I brought it down into

spaciousness. It has been said that were I three inches taller (I am 5' 8½" tall), all my houses would have been quite different in proportion. Perhaps.

House walls were now to be started at the ground on a cement or stone water table that looked like a low platform under the building, which it usually was, but the house walls were stopped at the second story window-sill level, to let the rooms above come through in a continuous window-series, under the broad eaves of a gently sloping, overhanging roof. This made enclosing screens out of the lower walls as well as light screens out of the second story walls. Here was true enclosure of interior space. A new sense of building, it seems.

The climate, being what it was, a matter of violent extremes of heat and cold, damp and dry, dark and bright, I gave broad protecting roof-shelter to the whole, getting back to the original purpose of the „cornice." The undersides of the roof projections were flat and light in color to create a glow of reflected light that made the upper rooms not dark, but delightful. The overhangs had double value, shelter and preservation for the walls of the house as well as diffusion of reflected light for the upper story, through the „light screens" that took the place of the walls and were the windows.

At this time, a house to me was obvious primarily as interior space under fine shelter. I liked the sense of shelter in the „look of the building." I achieved it, I believe. I then went after the variegate bands of material in the old walls to eliminate odds and ends in favor of one material and a single surface from grade to eaves, or grade to second story sill-cope, treated as simple enclosing screens – or else made a plain screen band around the second story above the window-sills, turned up over on to the ceiling beneath the eaves. This screen band was of the same material as the under side of the eaves themselves, or what architects call the „soffit." The planes of the building parallel to the ground were all stressed, to grip the whole to earth. Sometimes it was possible to make the enclosing wall below this upper band of the second story, from the second story window-sill clear down to the ground, a heavy „wainscot" of fine masonry material resting on the cement or stone platform laid on the foundation. I liked that wainscot to be of masonry material when my clients felt they could afford it.

As a matter of form, too, I liked to see the projecting base, or water table, set out over the foundation walls themselves as a substantial preparation for the building. This was managed by setting the studs of the walls to the inside of the foundation walls, instead of to the outside. All door and window tops were now brought into line with each other with only comfortable head-clearance for the average human being. Eliminating the sufferers from the „attic" enabled the roofs to be low. The house began to associate with the ground and become natural to its prairie site. And would the young man in architecture ever believe that this was all „new" then? Not only new, but destructive heresy – or ridiculous eccentricity. So new that what little prospect I had of ever earning a livelihood by making houses was nearly wrecked. At first, „they" called the houses „dress-reform" houses, because society was just then excited about that particular „reform." This simplification looked like some kind of „reform" to them. Oh, they called them all sorts of names that cannot be repeated, but „they" never found a better term for the work unless it was „horizontal Gothic," „temperance architecture" (with a sneer), etc., etc. I don't know how I escaped the accusation of another „renaissance."

What I have just described was all on the outside of the house and was there chiefly because of what had happened inside. Dwellings of that period were „cut-up," advisedly and completely, with the grim determination that should go with any cutting process. The „interiors" consisted of boxes beside or inside other boxes, called rooms. All boxes inside a complicated boxing. Each domestic „function" was properly box to box. I could see little sense in this inhibition, this cellular sequestration that implied ancestors familiar with the cells of penal institutions, except for the privacy of bedrooms on the upper floor. They were perhaps all right as „sleeping boxes."

So I declared the whole lower floor as one room, cutting off the kitchen as a laboratory, putting servants' sleeping and living quarters next to it, semi-detached, on the ground floor, screening various portions in the big room, for certain domestic purposes – like dining or reading, or receiving a formal caller. There were no plans like these in existence at the time and my clients were pushed toward these ideas as helpful to a solution of the vexed servant-problem. Scores of doors disappeared and no end of partition. They liked it, both clients and servants. The house became more free as „space" and more livable, too. Interior spaciousness began to dawn.

Having got what windows and doors there were left

lined up and lowered to convenient human height, the ceilings of the rooms, too, could be brought over on to the walls, by way of the horizontal, broad bands of plaster on the walls above the windows, the plaster colored the same as the room ceilings. This would bring the ceiling-surface down to the very window tops. The ceilings thus expanded, by extending them downward as the wall band above the windows, gave a generous overhead to even small rooms. The sense of the whole was broadened and made plastic, too, by this expedient. The enclosing walls and ceilings were thus made to flow together.

Here entered the important element of plasticity – indispensable to successful use of the machine, the true expression of modernity. The outswinging windows were fought for because the casement window associated the house with out-of-doors – gave free openings, outward. In other words the so-called „casement" was simple and more human. In use and effect, more natural. If it had not existed I should have invented it. It was not used at that time in America, so I lost many clients because I insisted upon it when they wanted the „guillotine" or „doublehung" window then in use. The guillotine was not simple nor human. It was only expedient. I used it once in the Winslow House – my first house – and rejected it thereafterforever. Nor at that time did I entirely eliminate the wooden trim. I did make it „plastic," that is, light and continuously flowing instead of the heavy „cut and butt" of the usual carpenter work. No longer did the „trim," so called, look like carpenter work. The machine could do it perfectly well as I laid it out. It was all after „quiet."

This plastic trim, too, with its running „back-hand" enabled poor workmanship to be concealed. It was necessary with the field resources at hand at that time to conceal much. Machinery versus the union had already demoralized the workmen. The machine resources were so little understood that extensive drawings had to be made merely to show the „millman" what to leave off. But the „trim" finally became only a single, flat, narrow, horizontal wood band running around the room, one at the top of the windows and doors and another next to the floors, both connected with narrow, vertical, thin wood bands that were used to divide the wall surfaces of the whole room smoothly and flatly into folded color planes. The trim merely completed the window and door openings in this same plastic sense. When the interior had thus become wholly plastic, instead of structural, a new element, as I have said, had entered architecture. Strangely enough an element that had not existed in architectural history before. Not alone in the trim, but in numerous ways too tedious to describe in words, this revolutionary sense of the plastic whole, an instinct with me at first, began to work more and more intelligently and have fascinating, unforeseen consequences. Here was something that began to organize itself. When several houses had been finished and compared with the house of the period, there was very little of that house left standing. Nearly every one had stood the house of the period as long as he could stand it, judging by appreciation of the change. Now all this probably tedious description is intended to indicate directly in bare outline how thus early there was an ideal of organic simplicity put to work, with historical consequences, here in your own country. The main motives and indications were (and I enjoyed them all):

FIRST – To reduce the number of necessary parts of the house and the separate rooms to a minimum, and make all come together as enclosed space – so divided that light, air and vista permeated the whole with a sense of unity.

SECOND – To associate the building as a whole with its site by extension and emphasis of the planes parallel to the ground, but keeping the floors off the best part of the site, thus leaving that better part for use in connection with the life of the house. Extended level planes were found useful in this connection.

THIRD – To eliminate the room as a box and the house as another by making all walls enclosing screens-the ceilings and floors and enclosing screens to flow into each other as one large enclosure of space, with minor subdivisions only. Make all house proportions more liberally human, with less wasted space in structure, and structure more appropriate to material, and so the whole more livable. Liberal is the best word. Extended straight lines or streamlines were useful in this.

FOURTH – To get the unwholesome basement up out of the ground, entirely above it, as a low pedestal for the living portion of the home, making the foundation itself visible as a low masonry platform on which the building should stand.

FIFTH – To harmonize all necessary openings to „outside" or to „inside" with good human proportions and make them occur naturally-singly or as a series in the scheme of the whole building. Usually

they appeared as „light-screens" instead of walls, because all the „architecture" of the house was chiefly the way these openings came in such walls as were grouped about the rooms as enclosing screens. The room as such was now the essential architectural expression, and there were to be no holes cut in walls as holes are cut in a box, because this was not in keeping with the ideal of „plastic." Cutting holes was violent.

SIXTH – To eliminate combinations of different materials in favor of mono-material so far as possible; to use no ornament that did not come out of the nature of materials to make the whole building clearer and more expressive as a place to live in, and give the conception of the building appropriate revealing emphasis. Geometrical or straight-lines were natural to the machinery at work in the building trades then, so the interiors took on this character naturally.

SEVENTH – To incorporate all heating, lighting, plumbing so that these systems became constituent parts of the building itself. These service features became architectural and in this attempt the ideal of an organic architecture was at work.

EIGHTH – To incorporate as organic architecture-so far as possible-furnishings, making them all one with the building and designing them in simple terms for machine work. Again straight lines and rectilinear forms.

NINTH – Eliminate the decorator. Re was all curves and all efflorescence, if not all „period."

This was all rational enough so far as the thought of an organic architecture went. The particular forms this thought took in the feeling of it all could only be personal. There was nothing whatever at this time to help make them what they were. All seemed to be the most natural thing in the world and grew up out of the circumstances of the moment. Whatever they may be worth in the long run is all they are worth.

Now simplicity being the point in question in this early constructive effort, organic simplicity I soon found to be a matter of true coordination. And beauty I soon felt to be a matter of the sympathy with which such coordination was effected. Plainness was not necessarily simplicity. Crude furniture of the Roycroft-Stickley-Mission Style, which came along later, was offensively plain, plain as a barn door-but never was simple in any true sense. Nor, I found, were merely machinemade things in themselves simple. To think „in simple," is to deal in simples, and that means with an eye single to the altogether. This, I believe, is the secret of simplicity. Perhaps we may truly regard nothing at all as simple in itself. I believe that no one thing in itself is ever so, but must achieve simplicity (as an artist should use the term) as a perfectly realized part of some organic whole. Only as a feature or any part becomes an harmonious element in the harmonious whole does it arrive at the estate of simplicity. Any wild flower is truly simple, but double the same wild flower by cultivation, it ceases to be so. The scheme of the original is no longer clear. Clarity of design and perfect significance both are first essentials of the spontaneously born simplicity of the lilies of the field who neither toil nor spin, as contrasted with Solomon who had „toiled and spun" – that is to say, no doubt had put on himself and had put on his temple, properly „composed," everything in the category of good things but the cook-stove.

Five lines where three are enough is stupidity. Nine pounds where three are sufficient is stupidity. But to eliminate expressive words that intensity or vivify meaning in speaking or writing is not simplicity; nor is similar elimination in architecture simplicity – it, too, may be stupidity. In architecture, expressive changes of surface, emphasis of line and especially textures of material, may go to make facts eloquent, forms more significant. Elimination, therefore, may be just as meaningless as elaboration, perhaps more often is so. I offer any fool, for an example. To know what to leave out and what to put in, just where and just how – ah, that is to have been educated in knowledge of simplicity.

As for objects of art in the house even in that early day they were the „bête noir" of the new simplicity. If well chosen, well enough in the house, but only if each was properly digested by the whole. Antique or modern sculpture, paintings, pottery, might become objectives in the architectural scheme and I accepted them, aimed at them, and assimilated them. Such things may take their places as elements in the design of any house. They are then precious things, gracious and good to live with. But it is difficult to do this well. Better, if it may be done, to design all features together. At that time, too, I tried to make my clients see that furniture and furnishings, not built in as integral features of the building, should be designed as attributes of whatever furniture was built in and should be seen as minor parts of the building itself, even if deta

ched or kept aside to be employed on occasion. But when the building itself was finished, the old furniture the clients already possessed went in with them to await the time when the interior might be completed. Very few of the houses were, therefore, anything but painful to me after the clients moved in and, helplessly, dragged the horrors of the old order along after them.

But I soon found it difficult, anyway, to make some of the furniture in the „abstract"; that is, to design it as architecture and make it „human" at the same time – fit for human use. I have been black and blue in some spot, somewhere, almost all my life from too intimate contacts with my own furniture. Human beings must group, sit or recline – confound them – and they must dine, but dining is much easier to manage and always was a great artistic opportunity. Arrangements for the informality of sitting comfortably, singly or in groups, where it is desirable or natural to sit, and still to belong in disarray to the scheme as a whole – that is a matter difficult to accomplish. But it can be done now, and should be done, because only those attributes of human comfort and convenience, made to belong in this digested or integrated sense to the architecture of the home as a whole, should be there at all, in modern architecture. For that matter about four-fifths of the contents of nearly every home could be given away with good effect to that home. But the things given away might go on to poison some other home. So why not at once destroy undesirable things... make an end of them?

Here then, in foregoing outline, is the gist of America's contribution to modern American architecture as it was already under way in 1893. But the gospel of elimination is one never preached enough. No matter how much preached, simplicity is a spiritual ideal seldom organically reached. Nevertheless, by assuming the virtue by imitation – or by increasing structural makeshifts to get superficial simplicity – the effects may cultivate a taste that will demand the reality in course of time, but it may also destroy all hope of the real thing.

Standing here, with the perspective of long persistent effort in the direction of an organic architecture in view, I can again assure you out of this initial experience that repose is the reward of true simplicity and that organic simplicity is sure of repose. Repose is the highest quality in the art of architecture, next to integrity, and a reward for integrity. Simplicity may well be held to the fore as a spiritual ideal, but when actually achieved, as in the „lilies of the field," it is something thatcomes of itself, something spontaneously born out of the nature of the doing whatever it is that is to be done. Simplicity, too, is a reward for fine feeling and straight thinking in working a principle, well in hand, to a consistent end. Solomon knew nothing about it, for he was only wise. And this, I think, is what Jesus meant by the text we have chosen for this discourse – "Consider the lilies of the field," as contrasted, for beauty, with Solomon.

Now, a chair is a machine to sit in.
A home is a machine to live in.
The human body is a machine to be worked by will.
A tree is a machine to bear fruit.
A plant is a machine to bear flowers and seeds.
And, as I've admitted before somewhere, a heart is a suction pump. Does that idea thrill you?

Trite as it is, it may be as well to think it over because the least any of these things may be, is just that. All of them are that before they are anything else. And to violate that mechanical requirement in any of them is to finish before anything of higher purpose can happen. To ignore the fact is either sentimentality or the prevalent insanity. Let us acknowledge in this respect, that this matter of mechanics is just as true of the work of art as it is true of anything else. But, were we to stop with that trite acknowledgment, we should only be living in a low, rudimentary sense. This skeleton rudiment accepted, understood, is the first condition of any fruit or flower we may hope to get from ourselves. Let us continue to call this flower and fruit of ourselves, even in this machine age, art. Some architects, as we may see, now consciously acknowledge this „machine" rudiment. Some will eventually get to it by circuitous mental labor. Some are the thing itself without question and already in need of „treatment)' But „Americans" (I prefer to be more specific and say „Usonians") have been educated „blind" to the higher human uses of it all – while actually in sight of this higher human use all the while.

Therefore, now let the declaration that „all is machinery" stand nobly forth for what it is worth. But why not more profoundly declare that „form follows function" and let it go at that? Saying, „form follows function," is not only deeper, it is clearer, and it goes further in a more comprehensive way to say the thing to be said, because the implication of this

saying includes the heart of the whole matter. It may be that function follows form, as, or if, you prefer, but it is easier thinking with the first proposition just as it is easier to stand on your feet and nod your head than it would be to stand on your head and nod your feet. Let us not forget that the simplicity of the universe is very different from the simplicity of a machine.

New significance in architecture implies new materials qualifying form and textures, requires fresh feeling, which will eventually qualify both as „ornament." But „decoration" must be sent on its way or now be given the meaning that it has lost, if it is to stay. Since „decoration" became acknowledged as such, and ambitiously set up for itself as decoration, it has been a makeshift, in the light of this ideal of organic architecture. Any house decoration, as such, is an architectural makeshift, however well it may be done, unless the decoration, socalled, is part of the architect's design in both concept and execution.

Since architecture in the old sense died and decoration has had to shift for itself more and more, all so-called decoration is become ornamental, therefore no longer integral. There can be no true simplicity in either architecture or decoration under any such condition. Let decoration, therefore, die for architecture, and the decorator become an architect, but not an „interior architect."

Ornament can never be applied to architecture any more than architecture should ever be applied to decoration. All ornament, if not developed within the nature of architecture and as organic part of such expression, vitiates the whole fabric no matter how clever or beautiful it may be as something in itself.

Yes – for a century or more decoration has been setting up for itself, and in our prosperous country has come pretty near to doing very well, thank you. I think we may say that it is pretty much all we have now to show as domestic architecture, as domestic architecture still goes with us at the present time. But we may as well face it. The interior decorator thrives with us because we have no architecture. Any decorator is the natural enemy of organic simplicity in architecture. He, persuasive doctor-of-appearances that he must be when he becomes architectural substitute, will give you an imitation of anything, even an imitation of imitative simplicity. Just at the moment, he is expert in this imitation. France, the born decorator, is now engaged with Madame, owing to the good fortune of the French market, in selling us this ready-made or made-to-order simplicity. Yes, imitation simplicity is the latest addition to imported „stock." The decorators of America are now equipped to furnish especially this. Observe. And how very charming the suggestions conveyed by these imitations sometimes are!

Would you have again the general principles of the spiritual ideal of organic simplicity at work in our culture? If so, then let us reiterate: first, simplicity is constitutional order. And it is worthy of note in this connection that 9 x 9 equals 81 is just as simple as 2 + 2 equals 4. Nor is the obvious more simple necessarily than the occult. The obvious is obvious simply because it falls within our special horizon, is therefore easier for us to see; that is all. Yet all simplicity near or far has a countenance, a visage, that is characteristic. But this countenance is visible only to those who can grasp the whole and enjoy the significance of the minor part, as such, in relation to the whole when in flower. This is for the critics.

This characteristic visage may be simulated-the real complication glossed over, the internal conflict hidden by surface and belied by mass. The internal complication may be and usually is increased to create the semblance of and get credit for-simplicity. This is the simplicity-lie usually achieved by most of the „surface and mass" architects. This is for the young architect.

Truly ordered simplicity in the hands of the great artist may flower into a bewildering profusion, exquisitely exuberant, and render all more clear than ever. Good William Blake says exuberance is beauty, meaning that it is so in this very sense. This is for the modern artist with the machine in his hands. False simplicity – simplicity as an affectation, that is, simplicity constructed as a decorator's outside put upon a complicated, wasteful engineer's or carpenter's „structure," outside or inside – is not good enough simplicity. It cannot be simple at all. But that is what passes for simplicity, now that startling simplicity-effects are becoming the fashion. That kind of simplicity is violent. This is for „art and decoration." Soon we shall want simplicity inviolate. There is one way to get that simplicity. My guess is, there is only one way really to get it. And that way is, on principle, by way of construction developed as architecture. That is for us, one and all.

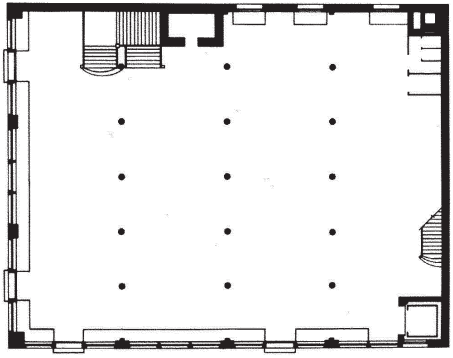
from MODERN ARCHITECTURE, 1931

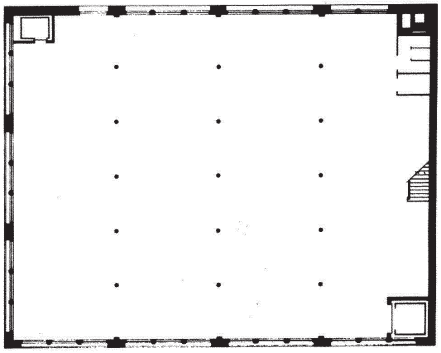
First Leiter Building
208 West Monroe St.

William le Baron Jenney
1879, abgerissen 1972

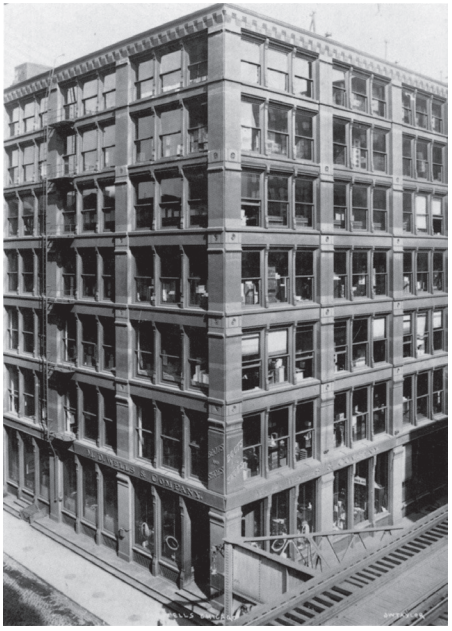
The citation by the Landmarks Commission reads: „In recognition of its contribution towards the development of skeleton construction. Cast iron pilasters continue as columns from foundation to roof, with widely spaced piers forming glass bays, which anticipate the steel cage of the Chicago School." The floor beams are carried by cast-iron columns set against the brick piers of the facade, and thus the piers, relieved of part of their usual load, could be made narrower than would otherwise have been possible. The mullions (the narrower vertical members separating the individual windows) are also of cast iron. The aim of the architect in all this was not so much to develop any new style or conception of architectural effect, but simply to get more light into the offices.

Chicago`s famous Buildings, p. 49





Grundriss OG



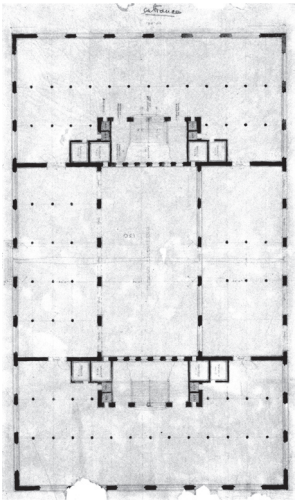
Eckansicht

Marshall Field Wholesale Store
350 W. art Center/33N. Dearborn

H.H. Richardson
1885

The Field Wholesale Store appeared to be a single huge block. Since the interior consisted of open loft spaces, Richardson maintained an uninterrupted rhythm of arcades along each side. Instead of historical detail, Richardson used the textured monochromatic surface of the granite and brownstone masonry to provide visual interest, supplemented only by a chamfer at the corners and an enriched terminal cornice. Simple though it appears, the Marshall Field Wholesale Store demonstrated clearly that a large commercial block could be expressed as a single integrated unit of great force and authority. No longer were meretricious historical ornament or a ponderous roof obligatory. Large-scale coherent forms, graced with plain walls, could be effective. Though structurally the Field building was conservative, with bearing walls and cast iron and wooden columns for internal supports, the visual expression was highly advanced and pointed in a new direction which many critics and architects, both in the United States and Europe, interpreted as being distinctly American.

A Concise History of American Architecture, p.169-70.



Grundriss OG

Eckansicht

The Rookery
209 S. La Salle St.

Daniel H. Burnham/John W. Root
1885-1888

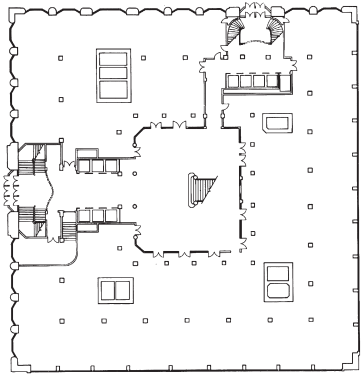
After the Fire of 1871 a temporary city hall stood at the southeast corner of La Salle and Adams Sts. The site and nearby stables attracted pigeons and these – together with roasting politicians – gave the building the name the Rookery (= Krähenhorst). When a new city hall was completed in 1885 and a group of investors acquired the lot, the name stayed with the new structure to be designed by Daniel Burnham and John Root.

More than two dozen Burnham & Root designs for commercial buildings were under construction in downtown Chicago in the 1880s and 1890s. Of these only the Rookery remains. To support the building on Chicago's notorious clay soils, Root utilized a rail-grillage foundation. The street facades are entirely load-bearing masonry construction, while the lower floors on the alleys are supported by cast-iron columns and wrought-iron beams. The floor system and the walls of the light well are supported by iron framing, allowing large expanses of glazing. The design took advantage of other innovations: fireproof clay tile, plate glass, improved mechanical systems, and that remarkable invention, the hydraulic passenger elevator.

The nearly square Rookery is organized around a central court surmounted by a skylight above the second story. A cast-iron oriel stair extends the height of the light well above. A walkway encircles the court at the mezzanine level, with grand stairways leading to that preeminent rental floor from two light-filled lobbies.

Eckansicht La Salle St./150 W.

Lobby



EG

The bold facades feature a red granite base, pressed brick facades, terra-cotta ornament, and turrets (= Türmchen). The light court is faced with lightcolored glazed brick and terra-cotta. All public spaces are clad in incised and gilded marble and copper-plated and Bower-Barff ironwork.

In 1905 Frank Lloyd Wright was commissioned to redesign the lobbies and light court, and he replaced Root's iron railings and terracotta cladding with those of his own more geometric design. Wright's former student William Drummond later altered the lobbies into onestory spaces and replaced the open-grille elevator cages with solid doors ornamented with rook motifs designed by Annette Byrne. During the following decades the skylight was covered over, the mosaic floor was removed, and the interior surfaces grew dim.

A comprehensive program completed in 1992 revitalized the offices and public spaces and restored the Rookery's historic features. The exterior was returned to its original ruddy hues, the public lobbies were re-created to approximate the 1907 renovation, and Drummond's elevator lobbies were retained. The skylight over the light court was reopened, with a second skylight added at the top of the light well. The court's 1905 marble and ironwork were restored. Because of this remarkable commitment to preservation, the Rookery offers a rare glimpse of downtown Chicago at the turn of the twentieth century.

- Deborah Slaton

AIA Guide to Chicago, p. 78-79

Auditorium Building
875 W. Lake St.

Dakmar Adler und Louis Sullivan
1887-1889

The Auditorium Building commission was the single most important factor in establishing the internationally recognized role of Dankmar Adler and Louis H. Sullivan in the evolution of modern architectural thought. Created to provide a permanent home for Chicago's operatic, symphonic, and other cultural events, the building was planned with large multiuse commercial components, a 400-room hotel, and rental offices in order to offset possible losses from the operation of the 4,300-seat theater. It was a civic achievement of enormous stature, made even more impressive by the modernist style of its design.

The composition of the street facades, suggesting the Romanesque character of H. H. Richardson's demolished Marshall Field Wholesale Store (1887), is a highly original expression of the building's bearing-wall construction: a rugged base of supporting rusticated granite contrasts with the smooth, machined Bedford limestone skin above. Except for the entrance, the theater was almost completely enclosed from the street by the hotel, which was located along the Michigan Ave. and Congress Pkwy. frontages, and by the office section along Wabash Ave. Rising above the tenstory block on Congress Pkwy. is an eight-story tower that originally housed additional offices, tanks for the hydraulic stage equipment and a rooftop observatory, initially the highest point in the city. Adler & Sullivan's own offices were behind the stone colonnade at what is now the sixteenth floor.

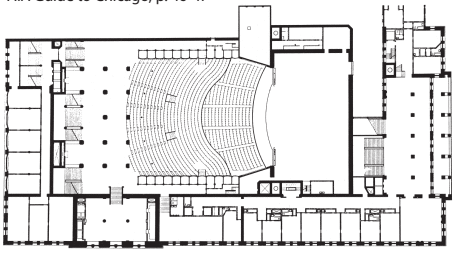
In contrast to the heavy treatment of the masonry exterior, the interiors are reflections of the light, modular, post-and-beam metal frame, and of the fireproof tile partitions, articulated by the creative manipulation of interior finishes in plaster, wood, cast iron, art glass, mosaic, and other materials. The primary space is the theater itself, enclosed within a fireproof brick shell. Its excellent acoustics and sight lines are testament to Adler's theater expertise and were given creative form through Sullivan's integral collaboration.

Other significant interior spaces can be seen by touring the facilities of Roosevelt University, which has owned the building since 1946. The former hotel lobby is entered on Michigan Ave., and its central grand staircase leads to the second-floor parlor. The finely restored Ladies' Parlor, now the Sullivan Room and usually closed, is partially visible through a door at the south end of the loggia. The barrel-vaulted tenth-floor hotel dining room is now the university's library. The restored southern alcove reflects its original appearance, while the main room's restoration awaits funding. One of Adler & Sullivan's finest interior spaces is the hotel's banquet hall/ballroom, built of lightweight plaster and birch paneling. Now the Rudolph Ganz Memorial Recital Hall (Room 745), it was an afterthought planned when the building was largely complete. The remarkable room spans forty feet over the theater's roof on twin bridge trusses bearing on the theater's perimeter masonry walls.

Eckansicht

Blick auf die Bühne

AIA Guide to Chicago, p. 46-47



Glessner House
1800 South Prarie Avenue

Henry Hobson Richardson
1887

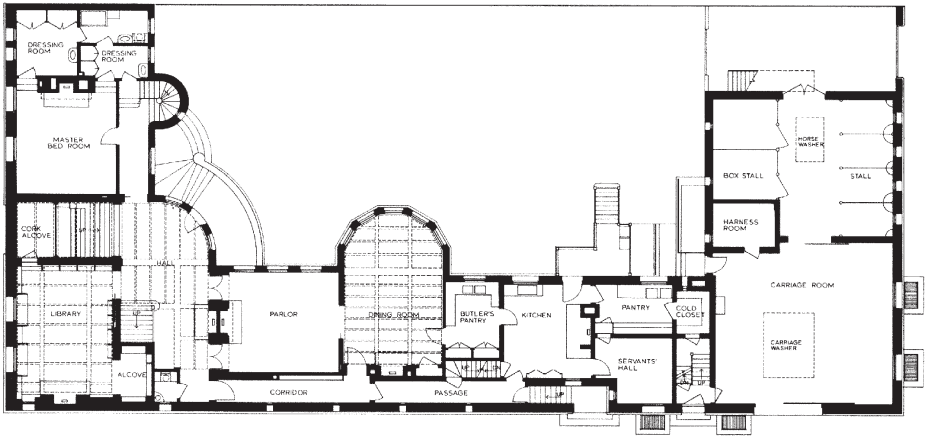
Two of Richardson's finest designs were realized in Chicago: the Marshall Field Wholesale Store and the John Glessner House, both finished in 1887. The firmer was razed in 1930 and the latter was saved from demolition in 1966 only by the concerted efforts of a group of private citizens led by several architects, including Harry Weese and Ben Weese of Chicago and Philip Johnson of New York. Thus the Glessner House has been not only a standing architectural treasure but an arena of the ongoing preservationist debate of the last two decades. Richardson's creative habits often favored the use of heavy rusticated masonry forms reminiscent of the Romanesque period. He employed this approach consciously and emphatically in the Glessner House, since his client desired a residence that conveyed an image of enduring strength. And so it does, with its expanse of powerful walls of layered ashlar, its massive arches, and its overall spareness of ornament.

In the interior, however, a contrasting warmth and intimacy appropriate to the privacy of its inhabitants are perceptible in generously scaled spaces dressed in rich dark woods. Richardson was not content to entrust the interior to assistants, but rather supervised it himself, he also actively persuaded the Glessners to share his taste for the Arts and Crafts movement, the influence of which is apparent in the decorative program of the house.

Following its rescue from destruction in 1966, the house became the property of the Chicago School of Architecture Foundation, later the Chicago Architecture Foundation, which still owns it and which has steadily pursued a program of preservation. Thirteen rooms have been restored to their original state, although one space on the second floor, a conference room, was remodeled in 1976 in the contemporary manner by Hammond, Beeby & Babka. The courtyard, which was once sloped to accommodate vehicular traffic, has been leveled, also in the 1970s, but plans for the restoration of the incline, as well as other components of the house and its dependencies, are on the drawing boards.

Chicago's famous buildings, p. 219-220

Eckansicht



Monadnock Building
53 W. Jackson Blvd.

Burnham & Root
1889-1891

The Monadnock Building was erected in two parts along Dearborn St. for Peter and Shepherd Brooks, Boston developers who commissioned many prominent Chicago buildings. The northern section was designed with exterior masonry walls; the southern addition has a steel frame clad in terracotta. At sixteen stories it was briefly the world's tallest office building.

The northern half has always been the subject of attention and wonder. It was constructed as a thick-walled brick tower, 66 feet wide, 200 feet long, and 200 feet high. The American Architect in 1892 described it as a chimney. Two cross walls divide the interior space into three fluelike cavities, the centers of which are open from street to roof. A freestanding staircase spirals down from the brilliance of the skylit sixteenth floor to the dark lobby cut lengthwise through the ground floor. Around this open stairwell a light structural grid sustains stacks of rental floors. From these extend the modular alcoves pushing through the facade to become bay windows.

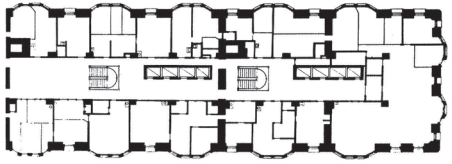
The thick, perforated exterior wall is an expansion of the series of thick wall slabs that Bumham & Root originally proposed to divide the building vertically, like bookends, into a series of steelframed cells. In the Rookery (1888) Bumham & Root themselves used two perforated masonry facade walls and four elevator and stair stacks to stabilize the iron skeleton. There is a nice play of hard and soft, enclosure and exposure in each of these designs. Steel and masonry are in balance. The old material has not yet been abandoned; the new material has not yet supervened.

It was not the Monadnock's remarkable constructive organization that contemporaries particularly remarked but, rather, the lack of exterior ornament. Burnham & Root shaped it as a single massive unit: a plinthlike base below a curved brick plane moving inward and upward, transformed into a subtle batter for fourteen floors before returning outward to overhang in a cavetto comice, giving the whole a shape suggestive of an Egyptian pylon. As the walls retreat, the window alcoves emerge as bays. Bevels (= abgeschrägte Kanten) at each corner expand and pace the rise of the facade.

The windows are not outlined with decoration but remain mere holes cut in this huge shape. Contemporary critics saw this as rational, honest, and exemplary of the starkness that a commercial building should accept; the Monadnock came to be cited as a model for steel-framed buildings of entirely different structure.

Grundriss EG

Grundriss OG



The Monadnock was exceptional. Its sense of upward thrust and the contrast of thick masonry and fragile steel look back to the traditional craft of building brick by brick and are appropriate to its fiercely archaic Egyptoid form.
- David Van Zanten

AIA Guide to Chicago, p. 63-64

The Charnley-Persky-House
1365 N. Astor St.

Louis Sullivan/Frank Lloyd Wright
1891, 1988 SOM Restoration

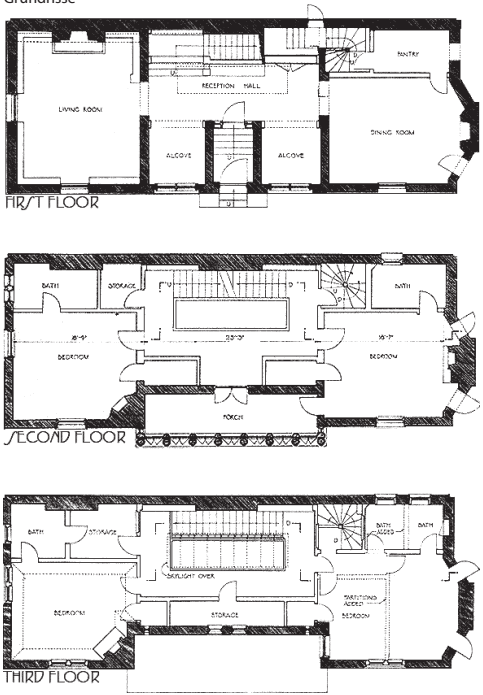
Has long been recognized internationally as a pivotal work of modern architecture and as evidence of the extraordinary collaborative creativity of Sullivan and Wright.

The house is also considered a turning point in the career of Frank Lloyd Wright, who separated from Sullivan and later became the progenitor of the Prairie style. The relatively unadorned exterior wall is of tawny Roman brick over a limestone basement, with a conspicuous second-floor wooden loggia adorned with Sullivanesque designs below and above. A row of columns supports its roof.

By contrast, the interior is centered about a two-story high skylit atrium that rises from the mosaic-tiled and oak-paneled entry. Throughout the house are ornamental carvings typical of the style of both architects, particularly on fireplace mantels, newel posts, and door panels, as well as the leaded-glass windows. The house was commissioned by lumber baron, James Charnley, whose family lived in it for only 10 years. Through the years it was occupied as a single-family home, until 1988 when the architectural firm of Skidmore, Owings & Merrill, purchased and restored it. In 1995 the house was acquired by philanthropist Seymour Persky, an active preservationist, who then donated it in an unprecedented act of generosity to the Society of Architectural Historians for their national headquarters, with the proviso that they move their headquarters from Philadelphia. In an interview in Preservation News, the magazine of the National Trust for Historic Preservation, Persky was asked, "Why Chicago?" "Because American architecture originated here, as did all the great architects," he replied. The landmark house, formerly known simply as the James Charnley House, was renamed in his honor. The goal of the SAH is to study and preserve the built environment throughout the world.

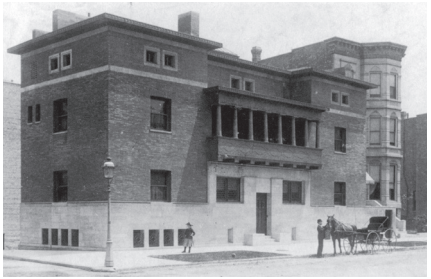
Chicago: In and around the Loop, p. 436-438

Grundrisse



Treppenauge

Eckansicht



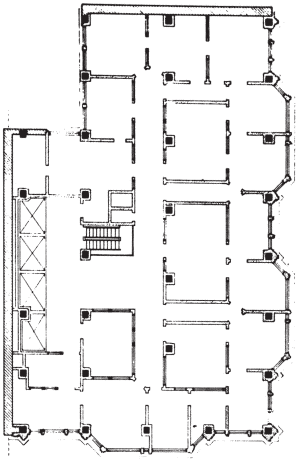
Reliance Building
32 N. State St.

Daniel H. Burnham/John W. Root
1891 / 1895

Its chief virtue is as clear support for the Chicago School's claim to be a precursor of modern architecture: it is very glassy. Designer Charles Atwood used glass at every opportunity. He folded the bay windows out from the frame to completely hide the columns, and he balanced huge picture windows with narrow ones of double-hung sashes in the fullest early example of the Chicago window. His achievement is all the more remarkable because his work had to use the foundations and base executed four years earlier according to John Root's plans. Root, Daniel Bumharn's original design partner, died in 1891, and his plans for the elevations are lost.
On the terra-cotta facades Atwood stressed the overriding continuity of the horizontal spandrels. This was a clear break with the prevailing tradition of letting vertical loadbearing piers carry down to the ground. At the corner, where the structural column could not be suppressed behind the glass, two bundled sets of colonnettes slide up the covering pier to dematerialize it, a technique used by Gothic stone masons for exactly the same purpose. This corner treatment makes an interesting comparison with those on tall buildings designed by Mies van der Rohe.
The Reliance Building is almost as weightless as it looks. The vertical loads are borne down to preexisting foundations by lightweight, open, trusswork columns. Constructing the frame out of factory-assembled two-story columns with staggered joints reduced the number of field connections and allowed the steel for the top ten stories to be erected in fifteen days. Structural engineer Edward C. Shankland relied for wind bracing on these tall, stiff columns rigidly coupled to extradeep girders. This method of construction was a significant departure from the heavier portal bracing derived from railroad viaducts. The Reliance's construction methods have much in common with more recent construction and windbracing techniques, such as those used in the Amoco Building (1974).
Predominantly glassy facades could be found before 1895 on, for example, the Crystal Palace in London (Joseph Paxton, 1851) and on Oriel Chambers in Liverpool (Peter Ellis Jr., 1864), but the promise of these early aesthetic speculations had to wait a generation for delivery. The perfection of the high-speed elevator made the Reliance Building's height possible; the explosive demand for modern office space in Chicago after the Fire of 1871 made it essential. Today the building exudes the logic of engineering under clear commercial pressure. Today the „Hotel Burnham".
- Anders Nereim

AIA Guide to Chicago, p. 54-55

Grundriss OG



Eckansicht State St./Washington Blvd.

Lift und Treppenhaus EG

Carson Pririe Scott & Co.
1 S. State St.

Louis Sullivan
1899

D.H.Burnham, Holabird & Root
Addition 1903-1906, 1961

One of the first large department stores to be erected entirely with fireproof steelframe construction, Carson Pirie Scott served American and European architects as a model for this modern building type. Designers perceived it as a representation of its architect's axiom Form follows function for in it Louis Henri Sullivan had ingeniously extended the technology of skyscraper construction to the department store. However, as he had in his office buildings, Sullivan took artistic license with the expression of practical forms and their functions.

On his skyscrapers, Sullivan modified the expression of the grid of steel construction by emphasizing the vertical dimension with unbroken lines of piers and recessed spandrels. The main portion of the Carson Pirie Scott Store comprises a corner entrance pavilion and tower, flanked by twelve-story elevations. In the tower Sullivan reproduced the skyscraper effect, but on the elevations he emphasized the horizontal dimension by using unbroken stringcourses to unite expanses of Chicago windows. Sullivan's emphasis on horizontality was initially determined by the lighting and spatial requirements of modern merchandising practices. Steel framing required minimal internal support, allowed the maximum amount of daylight for merchandise display, and increased open space for easy movement around display cases and between floors. This post-and-lintel construction is exhibited on the exterior as a thin white-tiled grid that frames recessed windows and defines layered floors. Its clearest expression is in the plate-glass show windows, which are as wide as the vertical supports allow.

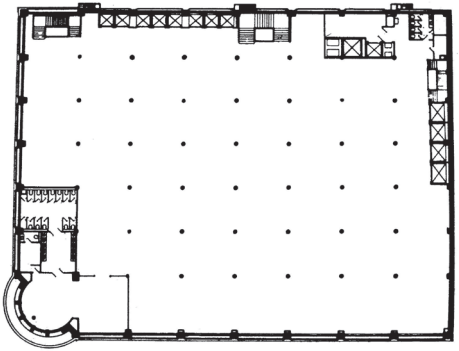
The base of ornamented display windows were to attract customers. Equally important, they served Sullivan's artistic purpose: to show the originality of his style of ornament close up. Sullivan used ornament as an artistic finish or, in his words, as „a garment of poetic imagery." He wrote extensively about architecture as a kind of poetic representation of nature capable of offsetting the materialist culture of an industrialized modern city. The intertwining geometric forms and botanical motifs (and his initials, LHS, above the corner entrance) are cast in iron and painted green over a red undercoat, emulating both oxidized bronze and dappled sunlit foliage. Sullivan's metaphor of the natural landscape is made manifest by strolling along the base and walking through the entrance. Together with the mahogany-paneled vestibule and foliate column capitals, the experience recalls a treelined forest walk.

Sullivan's store was built in two sections for the retail firm of Schlesinger & Mayer. The first section (1899), three bays wide on Madison St., has nine stories. The twelve-story corner section (1903) extended the frontage through the seven northernmost State St. bays. The building lease and business were sold to Carson Pirie Scott & Co. virtually upon completion. The building has twice been sympathetically extended southward and has been subjected to numerous external and internal alterations, including the unfortunate removal of original ornamentation in metal, wood, and mosaics. Major restoration work was done on the facades and the main entrance in 1978-1980.

- Lauren S. Weingarden

AIA Guide to Chicago, p. 56-57

Grundriss EG



Ansicht von 1925

The Chicago Tribune's One Hundred Thousand Dollar Architectural Competition, announced on June 10,1922, attained a three-fold objective:
It coincided with the seventy-fifth anniversary of The Chicago Tribune, coming as a fitting commemoration of threefourths of a century of amazing growth and brilliant achievement.
It had for its prime motive the enhancement of civic beauty; its avowed purpose was to secure for Chicago the most beautiful office building in the world.
It aimed to provide for the world's greatest newspaper a worthy structure, a home that would be an inspiration to its own workers as well as a model for generations of newspaper publishers.

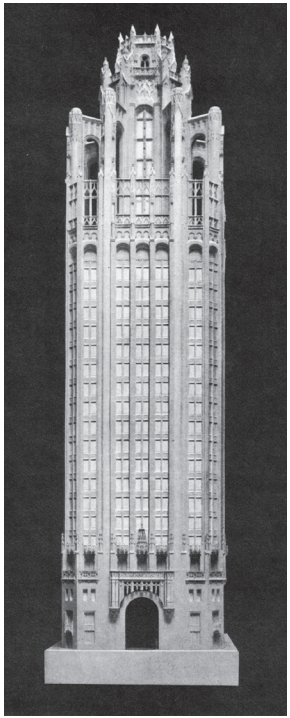
Diamond Jubilee
The Chicago Tribune made its initial appearance on June 10, 1847 – four hundred copies printed on a hand press in a single room in a building at Lake and La Salle Streets. Chicago was then a frontier town with a population of about 16'000. Out of the tiny hamlet settled on a swamp has come a roaring metropolis – fourth city of the world. The Chicago Tribune, truly part of Chicago and meshed with its destiny, has also grown; four major wars has it reported, – the Mexican, the Civil, the Spanish-American, the World War; it fought for Lincoln and still fights for what Lincoln fought for; it has covered nineteen presidential campaigns, the World's Fair; through strikes, panics, violent social and racial disturbances it has come – each day contributing no mean share to the political, social, and economic development of Chicago and the Middle West. Today The Tribune numbers in its employ over thirtyone hundred men and women, whose efforts, co-ordinated, produce over four million Tribunes every week.
With such a historic background, with such achievement to record, with such an organization for which to provide„headquarters" – it is little wonder that The Chicago Tribune did its utmost to make its new Administration Building one that would achieve in architectural expression what The Tribune had achieved as a living factor in the life of the community. The Tribune had helped materially in the building of a world-city in a new world; it would give to that city the ultimate in civic expression – the world's most beautiful office building.

When the Tribune Building, at Madison and Dearborn Sts., an eighteen story, $1,800,000 structure, was erected in 1902, it was considered adequate for The Tribune's mechanical and housing requirements for a long time to come. But in less than twenty years, because of tremendously increased circulation and amplified organization, it was outgrown. A new site was considered-one removed from the congested „Loop," yet centrally located. Chicago's downtown district had already spread to the south and west, but these expansions had meant merely the erection of office buildings and the resultant increase of business activity in the localities affected by the expansion. The development of North Michigan Avenue, however, promised just the proper co-ordination of effort between property owners and city officials to achieve a far greater measure of civic beauty.
At this time Michigan Avenue, which had come to be the main traffic artery to the north, wound a tortuous way over the river. Various measures were proposed and discussed and finally $13,000,000 was voted to straighten, widen and improve it.
In 1919 The Tribune purchased property which, with Michigan Avenue improvements completed, would number 431 to 439 North Michigan Avenue. On part of this property, The Tribune Plant

was erected, in 1920 – frankly a building built for the swift and efficient production of Tribunes. The Tribune Tower was to stand between The Plant and the Boulevard. This site is a most happy one for a building of great beauty. It will command a general view from all directions-it is the salient point of the potential wonder mile of North Michigan Avenue-place for the world's most beautiful office building!

Choosing the Winner
Announcement of The Tribune Tower Competition came on June 10, 1922. The date set for the closing of the contest was November 1, 1922. One month's grace was allowed for the arrival of drawings from distant points. By December 1, 1922, the final date, two hundred and four designs were received. Fifty-nine more designs were received after the competition closed.
The jury of award, comprising Alfred Granger of the American Institute of Architects and Capt. Joseph M. Patterson, Col. Robert R. McCormick, Edward S. Beck and Holmes Onderdonk of The Tribune,was assisted by an advisory committee, consisting of B. M. Winston, chairman; Alderman Dorsey Crowe, Alderman E. I. Frankhauser, Sheldon Clark, Harry A. Wheeler and Joy Morton.
By November 23, one week before the winners were to be announced, twelve designs had been selected by the advisory committee – any one of which, they reported, would be „a credit to Chicago, Michigan Avenue and The Tribune."
On November 29, with the jury of award and the advisory committee tentatively committed to a decision, design Number 187 was cleared through the customs from Finland. Jury and committee, hurriedly re-assembled, were so struck with the colossal beauty of the eleventh hour entry that they immediately included it in the designs to be considered in the final decision.
On December 3, 1922, the decision of the jury was announced as unanimously in favor of the following order of award:

Erster Preis: Hood und Howells



Zweiter Preis: Eliel Saarinen

Dritter Preis: Holabird & Roche

Design No. 69 by
J. M. HOWELLS & R. M. HOOD (New York)
First Prize: $50'000

Design No. 187 by
ELIEL SAARINEN (Helsingfors, Finland)
Second Prize: $20'000

Design Number 90 by
HOLABIRD & ROCHE (Chicago)
Third Prize ... $10'000

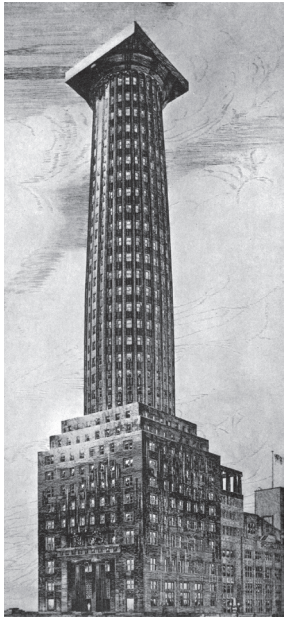
The remainder of the total of $100,000 goes in 2,000 allotments to the following ten American architects who were invited to enter the competition and who did enter:

Bliss & Faville, San Francisco
Bertram G. Goodhue, New York City
James Gamble Rogers, New York City
Benjamin Wistar Morris, New York City
John M. Howells/R. M. Hood, New York City
Holabird & Roche, Chicago
Jarvis Hunt, Chicago
D. H. Burnham & Co, Chicago
Schmidt, Garden & Martin, Chicago
Andrew Rebori, Chicago

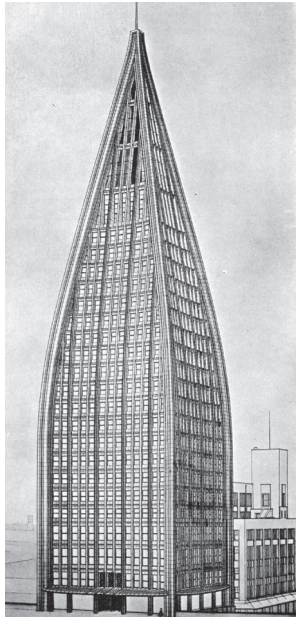
Twenty-three Countries Represented
The Tribune Tower Competition brought worldwide response because it was given worldwide publicity. Announcements appeared in metropolitan newspapers in the United States, in The Tribune's European Edition, in other newspapers throughout Europe, in architectural trade journals. From June, 1922, until January, 1923, a series of pages in Rotogravure and Coloroto was run in The Sunday Tribune, giving examples of architectural achievement through the ages. This attracted wide attention, and gave weekly evidence of The Tribune's high resolve.

Thus the artistic thought, the architectural ideas, of twenty-three countries were drawn into the competition. The architects of the world inadvertently formed a league, as it were, for new and bold treatment of the theme of the skyscraper – one that is to make architectural history for generations to come.

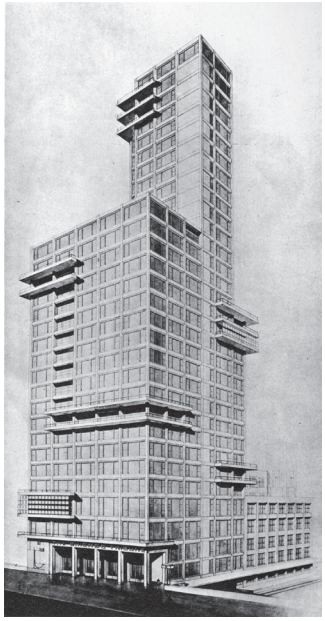
Adolf Loos



Bruno Taut

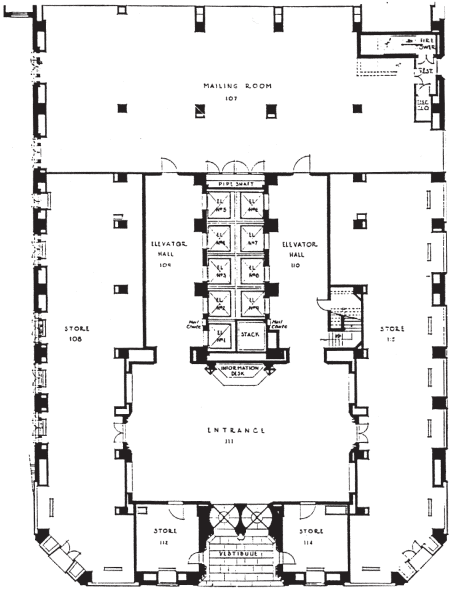


Walter Gropius, Adolf Meyer

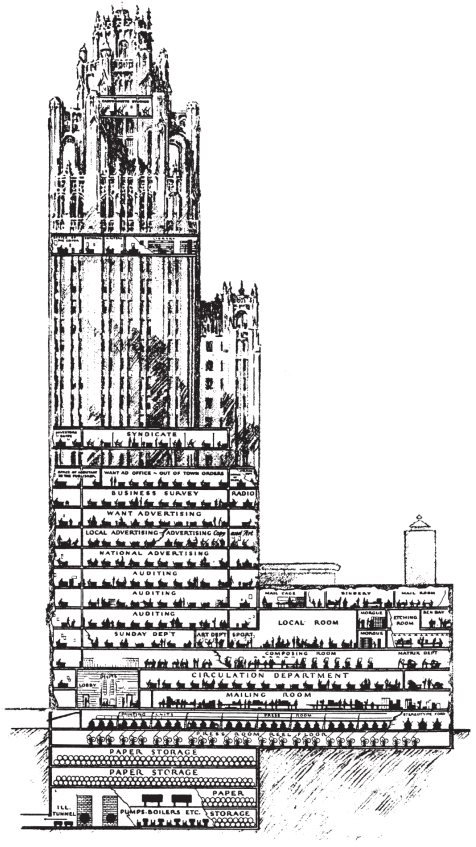


After the award, the Tribune received requests from all parts of the country for the exhibition of the original drawings entered in the contest. These requests were from art institutes, art associations, architectural schools, from all chapters of the American Institute of Architects, and from large universities and educational institutions of the country.
On January 1, 1923 The Tribune made an announcement stating that, „For the stimulation and encouragement of better designs in skyscraper architecture, its appreciation by the public, and the consequent achievement of beauty in big buildings, The Tribune will undertake a traveling exhibition of many of the drawings entered in the Competition. The importance of such an exhibit in furthering the advance of architecture, especially in the study of the skyscraper, cannot well be exaggerated. The designs in some instances have cost the architects competing from $1'000 to $10'000 each. With twenty-three countries represented, the exhibition will show the ideas of the great architects from all parts of the world."
The entire expense of the exhibition was borne by The Chicago Tribune. 135 perspective drawings were selected for the exhibition. All of them were framed and all were insured for a sum aggregating $150'000. To insure safety of the drawings and quick delivery, the designs were shipped only by express, making 27 stops and covering 7'500 miles, the shipment weighing 5'200 pounds.
It was decided that the first exhibit should be made at the University of Illinois. The Tribune, on December 8th and 11th, 1922 had received requests from the President of the University and from the head of the Department of Architecture – "We hope that it may be possible to have these drawings for exhibition at the University of Illinois in the near future. Our department is your department as we belong to this great state of Illinois and it would be a fine recognition of the University if these drawings were available for exhibition purposes here before they are sent out on any extended tour of exhibition."

Grundriss EG des ausgeführten Projekts



Schnitt durch das ausgeführte Projekt



The University of Illinois has the largest enrollment of any school of architecture in the country. The exhibition was received at the University with open arms. The installation of the exhibit at other art institutes and universities was more elaborate, but nowhere were the drawings received with more appreciation. Some of the professors and students spent their entire time studying the designs during the three days they were shown at the University.

Afterwards the drawings were exhibited at many of the principal universities and colleges in the country. Everywhere the students at these institutes and universities greatly appreciated the opportunity to study the drawings. The architectural student sees much more in a drawing than the layman and the impression created by the exhibition of all the best drawings submitted in one of the great competitions of architectural history will be lasting. Many students stated that they had learned more architecture in three days viewing The Tribune drawings than they had learned in several months in their classes.

On the tour of the country, in addition to universities and colleges, the exhibition was also made at many important public institutions – at the Minneapolis Institute of Arts, at the Detroit new public library, at the Cleveland School of Arts, at the United States National Museum, Washington, D. C., and at the Montreal Art Gallery.

For a week, the drawings were shown at the Waldorf Astoria Hotel, New York. They were also shown at Kansas City, and at Peoria, Illinois.

At Chicago in May 1923, an exhibition of eighty-five drawings was made for fifteen days at the Art Institute, occupying the entire center gallery at the top of the main stairway. 25'000 people visited the Institute during this period. The Tribune, in December 1922, had placed all the drawings on display for a month at the Lake Shore Trust & Savings Bank Building, before the traveling exhibition was undertaken, and consequently Chicago people have had a splendid opportunity to see the drawings.

At the time this was written, the exhibit was still on tour and before July 1, 1923 will be shown at the John Herron Art Gallery, Indianapolis, the Milwaukee Art Institute, the Madison Art Gallery, and the Albright Art Gallery, Buffalo, N. Y.

There is no precedent for this great contest, which has drawn upon the genius of the old world and the new. The competitive method is adopted in the case of public buildings with increasing frequency, but the new Tribune Building will be the first privately owned edifice the design for which was awarded in a prize competition open to the world. There never has been such a contest and it is very doubtful that there ever will be another.

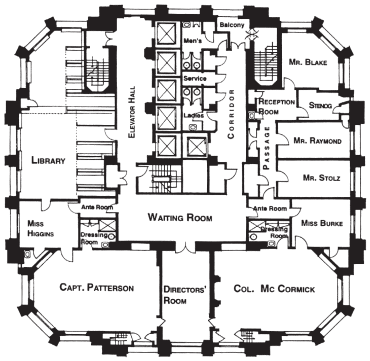
The Tribune's desire to erect the most beautiful and distinctive office building in the world, we believe, is now certain of fulfillment. The response to the offer of The Tribune was worthy of the occasion. Three designs receive prizes, but there are a dozen or more any one of which if erected would, in our opinion, easily surpass any office building in Chicago and compare favorably with the highest achievements in this field of architecture anywhere.

Thus the competition has achieved in a noteworthy way not only The Tribune's purpose to procure for itself the most beautiful and distinctive building, but its secondary object to stimulate architectural genius and bring forth works of beauty."

Tribune Tower Competition, p. 3-10

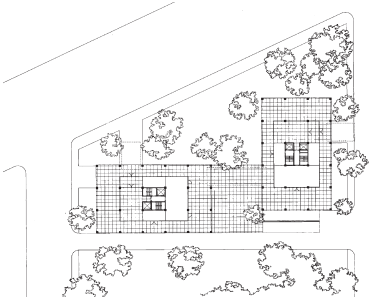
Büro von Col. Mc Cormick

Grundriss Direktionsetage

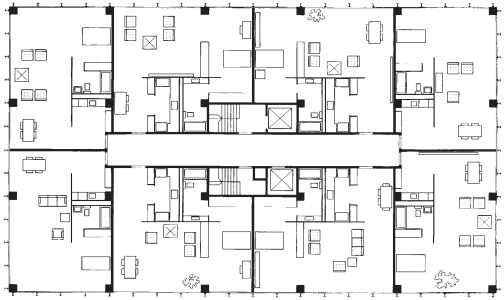


Ludwig Mies van der Rohe
1949-1951

Blick zum Lake Michigan



Grundriss EG



Grundriss OG

These towers constitute the first and most forceful demonstration of Ludwig Mies van der Rohe's ideas for tall buildings. No other building by Mies had as immediate or strong an impact on his American contemporaries, and the influence of these structures was to pervade much of modern architecture.
Mies had come to Chicago from Germany in 1938 to become director of the school of architecture at what would later become the Illinois Institute of Technology. He also established an architecture practice and in 1948 designed the concrete-framed Promontory Apartments in Hyde Park, the first of many projects for developer Herbert Greenwald. Mies had prepared two versions of the Promontory. One was the form actually used; the other had a steel-and-glass exterior on the long elevations, his first use of the curtain wall that came to be his hallmark.
While the Promontory was under construction, Greenwald commissioned these apartments. The plan was developed from the alternative version for the Promontory and from sketches that Mies had drawn between 1919 and 1921 for two radically innovative glass towers, which had brought him to the forefront of the modem movement. The unexecuted designs reemerged here and in 1968, through the hands of Mies's former students, in Lake Point Tower.
The buildings acquire their strong verticality from the narrow I-beams welded to the columns and mullions, a feature necessitated in part by the building code's requirement that steel-framed buildings be fireproofed with concrete. Mies satisfied the code and achieved the appearance he desired by finishing the framing elements with steel plate, which served as formwork for poured concrete, and by welding I-beams onto the plate.
Questioned on his use of a structural material as applied ornament, Mies gave a good reason and then the real reason. He noted that the I-beams functioned well as mullions.„But why weld them onto the column plates?" he was asked. „It strengthens the plates," Mies replied. „Do the plates need strengthening?" „Well, no," he confessed, „but if you leave out the I-beams there, it breaks the rhythm!"
The „Glass Houses" were startling not only in terms of form but also as habitation; critics wondered at the psychological impact of transparent homes. The apartments were a financial success, however. The buildings became the international prototype for steel-and-glass structures and engendered an architecture now so commonplace that it is almost impossible to appreciate their initial impact, when it was „as if steel and glass [were] seen for the first time."
- Joan Pomaranc

AIA Guide to Chicago, p. 85

Marina City
300 N. State St.

Bertrand Goldberg Assocs.
1959-1967

Few Chicago buildings were as innovative in design or had as great an impact on their environment as Marina City. Marina City stood out immediately among Chicago's many architectural highlights and was for a long time one of the most photographed buildings in the city. The two round apartment towers with their semicircular balconies – for many people they resembled corncobs – were especially intriguing, as were the spiraling garages that occupy the lower half of each tower.

Marina City was designed for the yuppie avant-la-lettre. Goldberg and his client, the Building Service Employees International Union, decided that despite the exodus to the suburbs, many of those employed in the Loop were single or childless and wanted an apartment close to their work. They were right. The complex was a success from the start and a prototype for many others on the edge of the Loop.

In the absence of facilities that would glamorize living in an area previously devoted to railroading, Goldberg incorporated stores, a restaurant, a health center, a swimming pool, a skating rink, an exhibition space, a theater, a manna, a bowling alley, and an office tower. The complex was advertised as a „city within a city," a place for „24-hour urban living," both clearly commentaries on the suburbs, in which commuters spent only their nights.

Goldberg's masterful design imparts an open feeling to the small, packed complex, every part of which seems to defy gravity and move upward; the plaza, for example, is lifted above the water and dematerialized by the windows of the restaurant. It is experienced as a thin slab, very different from the heavy box beneath its neighbor, Mies van der Rohe's IBM Building. Because of the spiraling garage floors, the apartment towers seem to grow out of the plaza. Indeed, the towers appear virtually transparent, with the garage floors and balconies cantilevenng from the perimeter columns. The office tower is also lifted off the plaza, to stand on columns above a windowless slab containing the bowling alley. This structure, in turn, is separated from the plaza by a glass-enclosed floor housing the lobby of the office tower and spaces for a bank and stores. The irregularly shaped theater is the only structure that seems to rest on the plaza instead of taking off from it.

The apartments themselves are also designed to create feelings of openness. Not only are they placed above the garages and the warehouses formerly in the vicinity, but also their pie shapes allow for ever-expanding views of the city. More than in any other high-rise apartments, in Marina City one has the feeling of having the whole city at one's feet.

Although modernistic in design, Marina City's round, cast-concrete forms were a clear reaction against the glass and steel towers of Mies van der Rohe, whose style was prevailing in Chicago at the time.

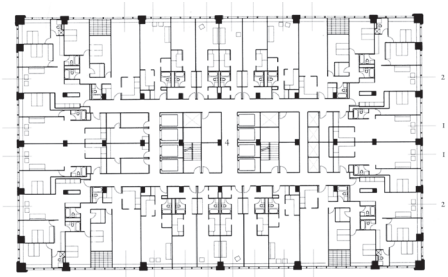
- Wim de Wit

AIA Guide to Chicago, p. 71-72

John Hancock Center
875 North Michigan Avenue

Skidmore, Owings & Merill
1969

Das John Hancock Center ist ein 344 m hoher Wolkenkratzer an der Magnificent Mile in Chicago. Das Gebäude besitzt insgesamt einhundert Stockwerke. Entworfen von dem Architekten Bruce Graham aus dem Architekturbüro Skidmore, Owings and Merrill (SOM) und dem Ingenieur Fazlur Kahn war das John Hancock Center zu seiner Fertigstellung 1970 das weltweit höchste Gebäude außerhalb von New York. Heute ist es mit Antenne 457m hoch und damit das achthöchste freistehende Bauwerk der Welt (Fernsehtürme mit eingeschlossen). Es überragt damit sogar die Petronas Towers um fünf Meter. Trotzdem ist es nicht einmal das höchste Bauwerk der Stadt, denn der insgesamt 527m hohe Sears Tower, das vierthöchste freistehende Bauwerk der Welt, befindet sich auch in Chicago und ist noch deutlich höher. Charakteristisch für das Gebäude sind die sichtbar in der Fassade liegenden Auskreuzungen des Stahlskeletts, die sich nach oben verjüngende Gebäudeform und die dunkel eloxierte Aluminiumfassade.
Gelegen an der prestigeträchtigen North Michigan Avenue in unmittelbarer Nähe zum Lake Shore Drive, waren die anfallenden Windlasten der „windy city“ und die gewünschte Schlankheit des Tragwerks eine Herausforderung für die Ingenieure. Die schräg stehenden Verstrebungen brachten die nötige Aussteifung. Bei seiner Fertigstellung stieß das John Hancock Center wegen seiner schwarzen, abweisenden Fassade auf Ablehnung, heute zählt es zu den Wahrzeichen Chicagos.
In seinem 94. Stockwerk befindet sich das observatory, die Aussichtsetage. Von hier aus bietet sich bei klarem Wetter ein 100 km weiter Blick über Chicago und den Michigansee. Im 95. und 96. Stock befindet sich das Restaurant „Signature Room“.
Der Name des Gebäudes rührt vom Bauherrn her, der John Hancock Insurance (John Hancock Versicherung), benannt nach dem Präsidenten des Kontinentalkongresses und ersten Unterzeichners der Unabhängigkeitserklärung John Hancock (*1737, †1793).
Das John Hancock Center ist hauptsächlich ein „Wohnwolkenkratzer„. Bis zum 43. Stockwerk befinden sich jedoch Büroräumlichkeiten. Im 44. Stock befinden sich ein Schwimmbad, ein Fitnesszentrum, die Eingangshalle sowie ein kleiner Einkaufsladen für die Bewohner. Die Stockwerke 45 bis 93 werden von Privatpersonen bewohnt und bilden die sogenannte „resident-area“, die nur von deren Bewohnern und Gästen betreten werden darf. Zwischen dem 93. - 100. befinden sich Fernsehstation, Restaurant, Aussichtsetage (observatory) und Technik.



Sears Tower
233 S. Wacker Dr.

Skidmore, Owings & Merill
1968-1974

Stand back and look at the 110-story Sears Tower. Its modernist rendition of base, middle, and top clearly illustrates the goals of client Sears, Roebuck & Co. and architect Bruce Graham: housing 5,000 Sears employees in the base, leasing the middle to tenants, and using the top to establish the world's tallest building for the world's largest retailer.

By creating the massive, 50'000-square-foot floor plates in the first fifty floors, Sears was able to consolidate its merchandising group employees from seven Chicago locations. The large floors allowed the greatest amount of employee interaction without moving up and down elevators. By stepping the building back above the fiftieth floor, Graham created prestige leasable space that helped Sears pay for – and profit fromthe $186 million project.

Of that amount, one third was used for the superstructure. Structural engineer Fazlur R. Khan skillfully carried out his duties by designing a „bundled tube" consisting of nine squares, seventy-five feet each. These squares, formed by I-beams spaced fifteen feet apart, are anchored in a deep concrete slab below the three subbasements. The slab rests on 114 steel and concrete caissons embedded in bedrock sixty-five feet below.

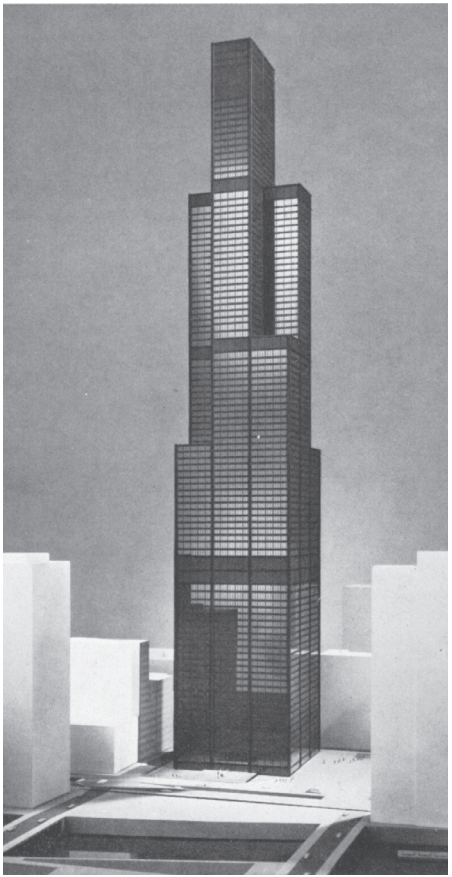
Two of the nine tubes stop at the 50th floor, two more end at the 66th floor, and the last three terminate at the 90th, leaving two tubes to rise the full 1,454 feet. The termination of the tubes was determined as much by the lateral stiffness required to resist wind loads as by spatial considerations or aesthetic needs.

The daily movement of 25'000 tenants and visitors in and around the building has been problematic. The windswept plaza was difficult to access and rarely used. A redesign of the entry and lower levels in 1985 improved the original circulation design, which was confusing. Following Sears's move to Hoffman Estates in 1992, another lower-level renovation sorted out circulation for the building's new post-Sears life.

Sears Tower has always been more of a structural engineering triumph than an architectural accomplishment. While Graham and Khan were like a well-oiled, twincam engine firing on all cylinders when they designed the elegant John Hancock Center, the architectural manifold was slightly backfiring when they were running the Sears 500.

- Michael Bordenaro

AIA Guide to Chicago, p. 90-91



Lake Point Tower
East Grand Avenue

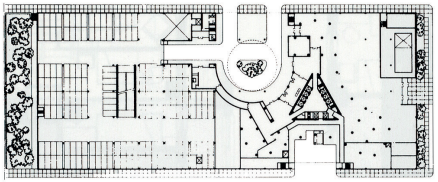
Schiporeit-Heinrich Associates
1965-1968

Der Lake Point Tower ist der einzige Wohnungsbau östlich des Lake Shore Drive in Chicago. Von dem Standort vor dem Navy Pier hat man nach drei Seiten Seeblick und nach der vierten einen Blick auf den nördlichen Loop. Die Architekten Schipporeit und Heinrich, die im Büro Mies van der Rohe tätig waren, griffen einen ersten Vorschlag von Mies aus dem Jahr 1921 für ein Wohnhochhaus mit gerundeten, vollständig verglasten Fassaden auf.

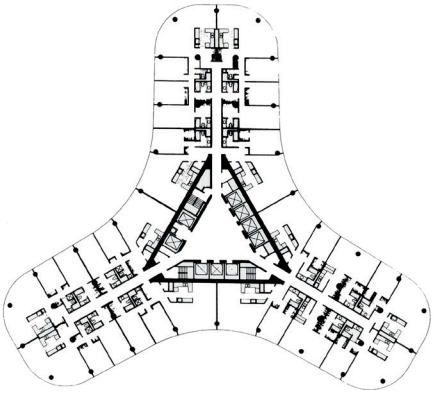
Aus der Überlegung soviel Freiraum wie möglich zu erhalten ergab sich ein Sockelbau mit vier Parkebenen und zwei Geschäftsgeschosse. Der Zugang erfolgt über eine Vorfahrt mit rundem Innenhof des Sockelbaus. Das Dach des Sockelgeschosses ist landschaftsgärtnerisch gestaltet, kann jedoch nur von Hausbewohnern betreten werden.

Im als Dreieck ausgebildeten Erschliessungskern befinden sich neun Aufzüge, drei Treppenhäuser, Müllabwurf und Installationsschächte. Die Wohnungen werden durch je drei Stichflure erschlossen, die sich immer an einer Ecke des dreieckigen Kern befinden. An jeden Flur grenzen maximal sechs Wohnungen. Ausgangspunkt der Grundrissbildung ist eine Dreizimmerwohnung, die mit wenigen Mitteln entsprechend den Marktanforderungen vergrössert oder verkleinert werden kann.

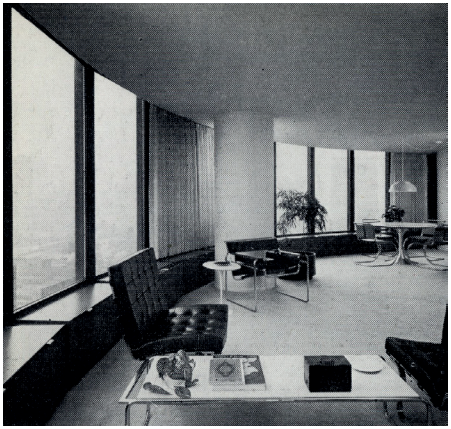
Auf dem Dach des Hochhauses erhebt sich ein doppelgeschossiger Aufbau, indem sich ein Restaurant und Technikräume befinden.



Erdgeschoss

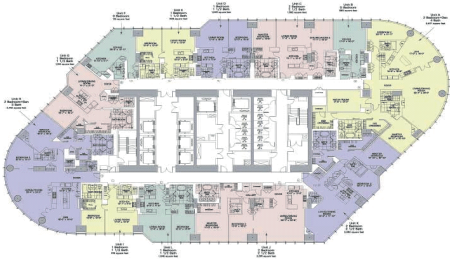


Regelgeschoss

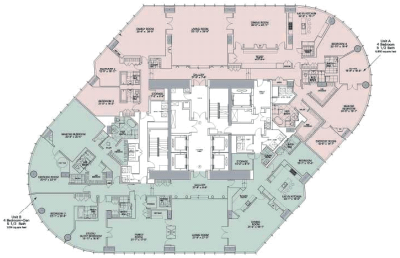


Trump Tower
401 N. Wabash Avenue

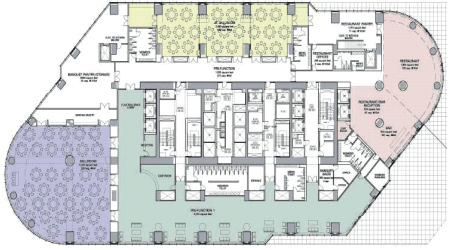
Skidmore, Owings & Merill
im Bau, Bauvollendung 2009



Wohnungen



Penthousewohnungen



Hotel , Restaurant, Lobby, etc.

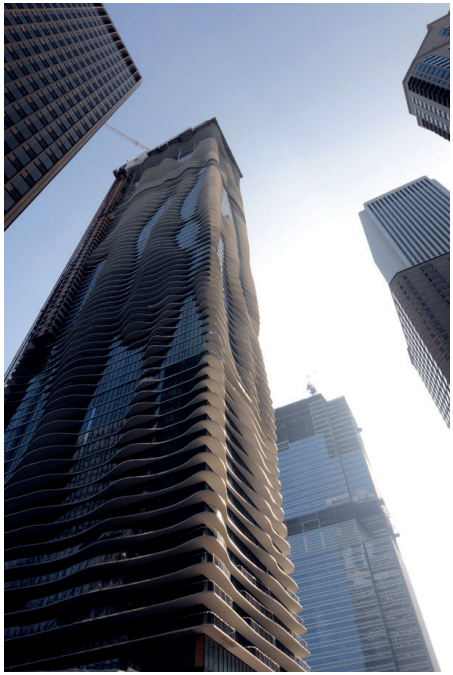
Hotelzimmer

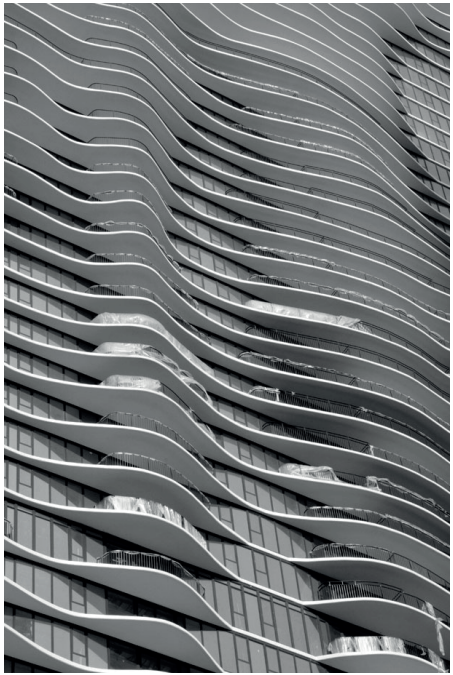
Aqua Tower
225 N Columbus Drive

Studio Gang Architects
im Bau, Bauvollendung Sommer 2009

In an increasingly dense city like Chicago, views from a new tower must be negotiated between existing buildings. Aqua tower considers criteria such as views, solar shading and function to derive a vertical system of contours that gives the structure its sculptural form. Its vertical topography is defined by its outdoor terraces that gradually change in plan over the length of the tower. These terraces offer a strong connection to the outdoors and allow inhabitants to occupy the building façade and city simultaneously. The result is a highly sculptural building when viewed obliquely that transforms into a slender rectangle from further away. Its powerful form suggests the limestone outcroppings and geologic forces that shaped the great lakes region.

Architect: STUDIO GANG ARCHITECTS
Program: Hotel and Residential High-rise with retail and commercial spaces
Size: 1.9 m SF including parking, 823 feet high
Completion: Summer 2009, currently under construction



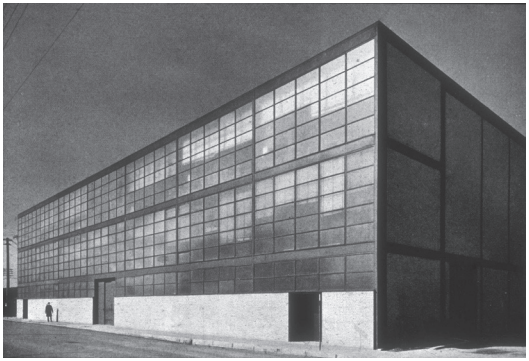


IIT, Minerals and Metals Research Building

IIT Campus

Ludwig Mies van der Rohe

1943



Eckansicht des Baus von 1943

The Minerals and Metals Research Building is the first structure on campus by Mies van der Rohe. His earliest completed work in the United States, the building exploits the advantages of steel, a material more typical of construction in the U.S. than in Germany. Well-suited to the technological needs of the day in general, steel also seemed an appropriate choice for a technical university in particular. Mies constructed the entire frame of the Minerals and Metals Research Building, vertical and horizontal members alike, of wide-flange beams and mullions. Freestanding walls of the building were designed in glass and brick and were inserted within the frame. Indicative of the primacy of structure in the abstract, the wide-flange steel section would later become Mies's signature element.

That the building occupied a transitional place in Mies's body of work is apparent on the south end elevation, where columns and spandrels are connected by bolts rather than by welding, which later became standard at IIT. Nonetheless, the closest thing to its dynamic use of steel in the U.S. was the industrial plant architecture of Albert Kahn. Relative to the vocabulary of buildings at other American technical universities, the Minerals and Metals Research Building qualified as a revolutionary structural effort.

Oddly enough, the columns of the building are not visible at all on the exterior, where a glass wall and a brick apron conceal them. Early sketches suggest that at one point Mies did consider revealing the columns externally but ruled against it, a decision that resulted, unhappily, in cracks in the brick wall at the mullion points. In later IIT buildings, he exposed the columns on the face of the wall, between brick spandrel panels laid in Flemish bond.

On the building's interior, the wide-flange of the fully constituted frame is most evident. The differentiation of the interior, which houses a three-story foundry hall flanked by three floors of laboratories and offices, was made readable originally on the end wall of the building. There the surface of the metal frame appeared on the brick walls as a geometric pattern. Also externally indicated, by the wider fascia at the second-story level, was the balcony that overlooks the main floor of the hall. This early display of Mies's often quoted concern for clarity of expression led some observers to speculate that the building's structural system was derived from the geometric abstractions of the Dutch modernist painter Piet Mondrian, an influence that Mies denied. The truth behind this speculation became academic when the wall was made part of the interior by the 1958 six-bay addition to the north, which maintained the height and width of the first structure but did not continue the space of the foundry hall. Thus, with no need to suggest the presence of a large space, Mies was content to extend the pattern of clerestory windows around the three added elevations, rendered in brick laid in English bond.

It is worth adding that the Minerals and Metals Research Building figured in a typological distinction made by Mies. He saw such buildings as „Gothic," since they were linear systems that could be cut off anywhere along their length. Double-span structures with square bays were regarded as characteristic of the Renaissance, hence „Classical."

Illinois Institute of Technology Guide, p. 21-23

IIT, Carr Memorial Chapel
IIT Campus

Ludwig Mies van der Rohe
1952

The nonsectarian Carr Memorial Chapel is the only ecclesiastical work ever constructed to Mies's design. The building went through two major planning stages. The first scheme consisted of two parts: the chapel proper, conceived as a steel-framed structure with a basement, and a nearby parish house with living quarters for a chaplain and a parish hall with a conference room and foyer.

As completed, the chapel is more modest, both in planning and scale. It is a single, one-story building measuring thirty-seven by sixty feet. Its end elevations are identical, although the glass on the east entry side is clear while that on the west is sand-blasted opaque. Support is provided by a brick bearing wall, which, like the steel-frame roof, is fully visible from within. The plan is basilican, with two side aisles and a center aisle leading to the sanctuary. In this instance Mies's inclination toward refined materials employed with utmost simplicity is especially evident. The altar is a solid block of Roman travertine resting upon a platform of the same substance. The curtain behind the altar is of natural shantung silk. Slender lineaments of highly polished stainless steel form the cross and altar rail. At the rear of the chapel, accessible through doorways lined with white oak, are the sacristy, choir, and restrooms.

Illinois Institute of Technology Guide, p. 54-55

Carr Memorial Chapel

IIT, S. R. Crown Hall
IIT Campus

Ludwig Mies van der Rohe
1956

During his American career, Mies came to believe that structure and space were the essential elements of architecture; as a result, his American reputation has centered on the expression of those concepts. In Crown Hall he exposed the structure and enclosed the space with a powerful balance of steel, glass, and light.

Mies's building for the College of Architecture was in design as early as 1950 and was completed in 1956. It is dominated by the steel frame and glass pavilion of its upper level. Effectively a one-room school, the space is 120 by 220 feet and 18 feet high.

Crown Hall's greatness derives from both its clarity and its comprehensive solution of all the problems it set out to solve. The building reads as a largely transparent glass box floating between its translucent podium and its roof, which is suspended from the four plate girders that punctuate its silhouette. The podium is actually a concrete frame on a twenty-by thirty-foot module, set with eight feet below grade and with four feet above grade glazed with translucent glass.

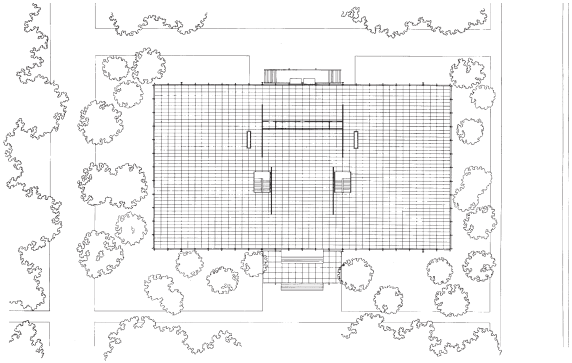
During the day Crown Hall seems a precisely defined, translucent, and transparent volume in perfect repose. At night it becomes a reliquary of light, as its interior illumination appears to make the building seem almost to float on a cushion of light. The travertine main entrance stairs, centered on a long side of the building, also seem to float, serving to invite the visitor inside, through entrances marked by floor-to-ceiling glass. Upon entering, one faces a central space defined by eight-foot-high oak partitions; the cross axis that divides this core into two parts helps orient the visitor to the richly developed spaces of a building that seems initially to be without a plan. One could easily locate the physical center of the building only to discover that much of the greatness of the space comes from its development whereby no single place is seen to have priority.

Crown Hall departs from the module that Mies established for the campus in his master plan. As a result, it – rather than a more traditional campus structure, such as a library, administration building, or student union – becomes what Mies called representational. Such a building, Mies had maintained, must declare the highest purposes and ideals of the institution. At the dedication of Crown Hall he said, „Let this building be the home of ideas and adventure" that would be „in the end a real contribution to our civilization."

- Kevin Harrington

AIA Guide to Chicago, p. 85

Grundriss EG



Eingangssituation

IIT, Arthur Keating Hall
IIT Campus

Skidmore, Owings & Merill
1966

One of five IIT campus buildings designed by Myron Goldsmith of Skidmore, Owings & Merrill, Keating Hall differs from the other four most obviously in that it does not closely resemble any of Mies van der Rohe's work at IIT. The difference may be accounted for by its function, which is that of a sports center.

That basic dissimilarity aside, in some respects the building is recognizably related to the rest of the campus. Goldsmith gave it the form of a clear-span structure, with plate girders supporting the roof from its underside. The exterior is clad in a curtain wall of multicolored glass. A columnfree main floor, large enough to accommodate a wide range of indoor sports, features a gymnasium with seating for two thousand spectators. At the south end of the ground floor is the Olympic-size Ekco swimming pool; at the north end are practice and exercise rooms as well as handball and racquet ball courts. Keating Hall replaced a gymnasium that had earlier stood on Thirty-second Street between Dearborn and State streets. To the east of the building is a baseball field.

Illinois Institute of Technology Guide, p. 73

Visualisierung, im Hintergrund die Gebäude für ‚Graduate Student Housing': Bailey, Cunningham und Carmen Halls.

The McCormick Tribune Campus Center

IIT Campus

Rem Koolhaas and OMA

2003

In 1993 IIT formed a national commission composed of faculty, trustees, and informed outsiders and charged them with assessing the school's entire financial, academic, and physical condition. A campaign to raise $250 mio, launched three years later, with an initial $120 mio gift from the families of alumni Robert Galvin and Robert Pritzker, eventually proved successful. Among the most immediate architectural consequences of the campaign was a new master plan for a reshaped campus, presented by Chicago architect (and grandson of Mies van der Rohe) Dirk Lohan.

An international competition funded by the Richard H. Driehaus Foundation followed. From the fifty-six architects invited from around the globe, five finalists were selected: Peter Eisenman of New York; Zaha Hadid of London; Helmut Jahn and Werner Sobek of Chicago and Stuttgart; Rem Koolhaas and OMA of Rotterdam; and Kazuyo Sejima and Ryue Nishizawa of Tokyo. In 1998 the jury awarded the commission to Koolhaas.

The building bearing the name The McCormick Tribune Campus Center was dedicated in the fall of 2003. It is effectively a student union. Like Helmut Jahn's State Street Village dormitories just south across Thirty-third Street, it is located beneath the elevated train track of one of the branches of Chicago's public transportation system. The noise generated by the trains is considerable, and muffling it was a problem for both Jahn and Koolhaas. By putting up a 530-foot-long, elliptically sectioned concrete tube clad in corrugated stainless steel (its upper arc open to the sky) that wraps around the elevated track, Koolhaas dealt with the problem. This solution, like Jahn's glass wall and screens, has been successful.

The two works have little in common formally. Jahn's dormitories are notable for their symmetry of plan and elevation and the neutrality of palette. Externally and internally, Koolhaas's center is dominated by diagonals, and the principal color of the outer walls is a bright orange. The fascia is maroon striped in black. So as to give the State Street facade sufficient height, the architect canted the roof to accommodate the tube. The resulting southern elevation is V-shaped.

The building serves a wide variety of purposes. The most notable spaces are occupied by a theater, a sports bar, a ballroom, a conference room, and a bookstore. Also included are a radio station, a coffee bar, a faculty-staff dining room, Ping Pong and billiard halls, an internal courtyard, a corridor with computers, a convenience store, a suspended bridge lined with plants, an information station, and a welcome center – the last relating the story of IIT and the surrounding Bronzeville. Wall graphics are based on an abstracted standing figure. This motif, designed by the New York studio 2x4, has been created to produce images of Mies and some of IIT's founding fathers.

Illinois Institute of Technology Guide, p. 85

Eingangssituation

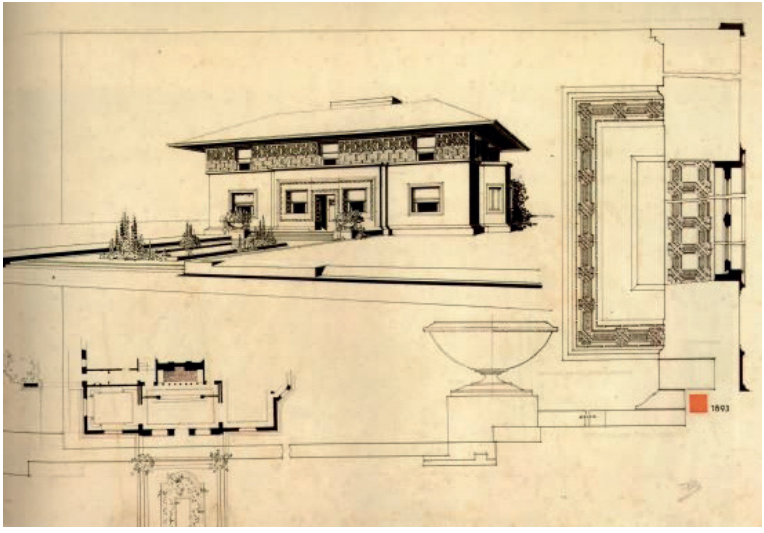
Wiliam H.Winslow House

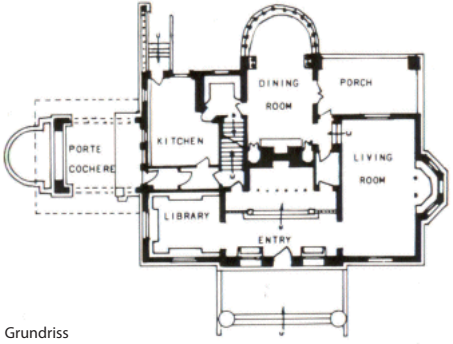
River Forest, Illinois

Frank Lloyd Wright

1893-1894

Aus heutiger Sicht strahlt das Haus für William H. Winslow eine schlichte, noble Eleganz aus, im Jahre 1894 jedoch war es aussergewöhnlich, dass sich die Nachbarn mokierten. Verschiedene Merkmale bezeugen eine deutliche Abkehr von der Wohnhaus Architektur, die im neunzehnten Jahrhundert im Mittleren Westen der USA üblich war. Die Aussenmauern erheben sich direkt von einem Sockel aus Betonsteinen, den Wright wasserspiegel nannte. Nur wenige Pflanzen umgeben den Bau, um die Einheit von Haus und Grund zu betonen.Anstatt des üblichen steilen Daches, das von einem hohen, dünnen Kamin durchstossen wird, fällt das Dach von einem kräftigen Kamin aus sanft ab und ragt weit über die Fenster des ersten Stocks hinaus. Die Fenster selber reichen von der Brüstung bis zur Traufhöhe, statt etwa dreissig Zentimeter tiefer zu enden,wodurch sie nicht wie Löcher in einer Mauer, sondern wie Öffnungen in einer Fläche wirken. Die Baustoffe sind ihrem jeweiligen Charakter entsprechend verarbeitet Beton ist ursprünglich Weiss belassen, goldene römische Ziegel bleiben goldene römische Ziegel, der Terrakotta Fries in Höhe des ersten Stocks ist tiefbraune Terrakotta, und all dies in einer Zeit, als man Ziegel verputzte, Holz bemalte, Beton versteckte usw. Im Inneren des Hauses sind die Räume zwar klar definiert, fliessen aber weich ineinander statt wie üblich „Kisten in Kisten" anzuhäufen. Die Holausstattung ist einfach und natürlich bearbeitet, nur Schnitzwerk und Verkleidung finden sich im Vergleich zum üblichen Zuviel an Schnörkeln. Das Ganze verströmt eine bewusst zurückhaltende, würdevolle Eleganz, die in dieser Epoche der Übertreibungen bis dahin unbekannt gewesen war.





Grundriss

Home & Studio
428 Forest Ave, 951 Chicago Ave

Frank Lloyd Wright
1889-1898

Wright began this small residence in 1889 shortly after his marriage to Catherine Tobin. It was here that he lived during his first twenty years of architectural practice while designing the now-famous buildings of his Oak Park period. Originally the room at the front of the house on the second floor served as his drafting room until his studio building was finished in 1898 on Chicago Avenue.

In 1895 he added the two-story polygonal bay onto the south side. It contained a new dining room on the ground floor and above it, an enlarged bedroom.

In 1895 he also added a two-story structure onto the rear of the house. Occupying its ground floor was a new kitchen and a maid's room. Over them Wright built the superb vaulted room that was to serve as his children's playroom. This splendid space, illuminated on both sides by art-glass windows, also received light from above through a skylight shielded from view by exquisite screens of fret-sawed (fret-saw = Laubsäge) wood.

Adjoining Wright's house on the north is a brick-and-shingle building that he designed in 1898 to serve as his architectural office. A large portion of the funds for its erection came from a commission of 1897 from the Luxfer Prism Company in connection with a promotional competition calling attention to their newly-developed electro-glazed illuminating prisms.

When finished in 1898, the studio consisted of a low entrance pavilion connecting an octagonal library on the right with a two-story drafting room on the left. Wright's private office was located directly behind the reception hall.

When Wright remodeled the house as a rental unit in 1911, he changed the house significantly by adding a porch and moving the main entrance to the south side. The house has been restored to the way it was in 1909 the last time that Wright and his family lived here.

A wide flight of steps leads from Chicago Avenue past brick piers into the reception hall. The drafting room consists of a square first floor of bricks and shingles and an octagonal second story covered with boards and battens laid horizontally. Inside, the two-story space is open to a pitched octagonal ceiling 27 feet above the floor. An encircling balcony is suspended from the roof beams on chains. The library is also covered by an octagonal roof of low pitch that is mostly a skylight.

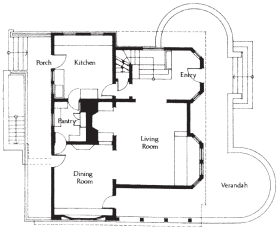
This picturesque group of buildings, now commonly known as "The Frank Lloyd Wright Home and Studio," was declared a National Historic Landmark in 1975. A major restoration program for the buildings has been completed by the Frank Lloyd Wright Home and Studio Foundation, a non-profit organization.

Guide to Frank Lloyd Wright, p. 20-21

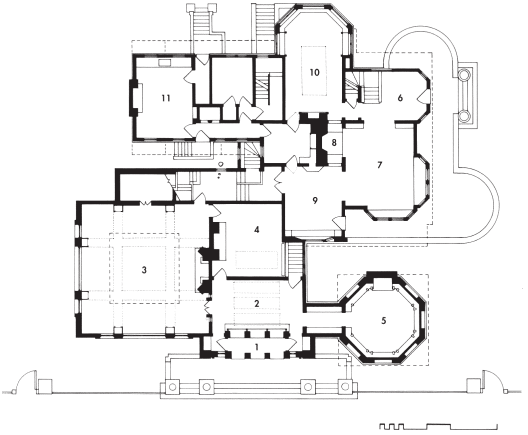
Kinderspielzimmer

Esszimmer

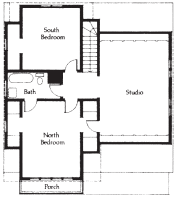
Obergeschoss 1889



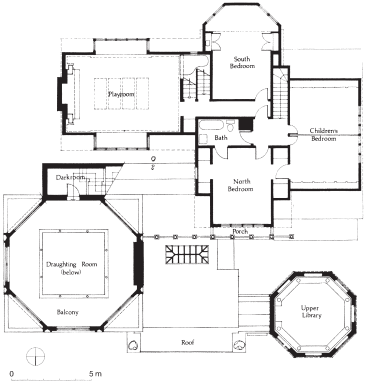
Obergeschoss 1898



Erdgeschoss 1889

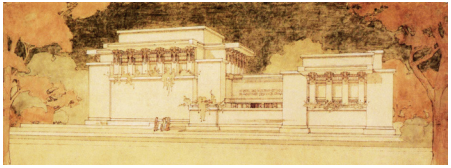


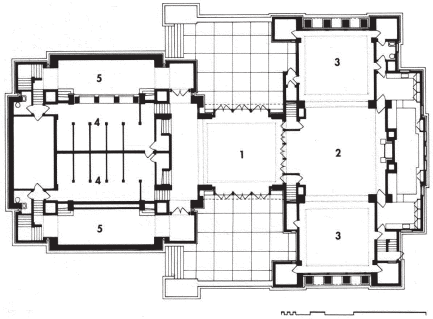
Erdgeschoss 1898

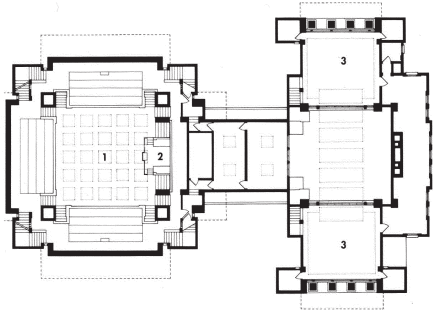


Unity Temple
875 W. Lake St.

Frank Lloyd Wright
1889-1898







Throughout his life, Wright was absorbed with pathways of discovery. At Unity Temple, the experience is both physical and spiritual. The route from the radical and uncompromising Lake St facade to the warm and intimate Temple is a sequence of spaces as compelling as any Wright ever created.

After their Gothic Revival church burned in June 1905, Oak Park's Universalists asked Wright to design a new building for four hundred members. The chosen site was prominent but small and close to noisy streetcar and train tracks. The budget was a modest $45,000.

These limitations, and a deep understanding of the principles of the Universalist faith, stimulated Wright's creativity. For reasons of economy, the architect selected reinforced concrete, usually used for important buildings only if covered with another material or molded to resemble stone. Construction technology and economics dictated broad, unornamented expanses and repetitive shapes. High walls and side entries set far back would shield worshipers from as much noise as possible.

Two similar but unequal blocks – 'Unity Temple' for worship and ‚Unity House' for social-service functions are joined by a low entry link. The deep overhang of the slab roof covers the walkway; the monumentally scaled planter cuts off the view of the street as one ascends the short flight of stairs. The visitor is sheltered and then encircled by the building before ever crossing the threshold. Facing the doors, the sheer walls of the two blocks and the entry parapet dramatically emphasize the sky, presaging the Temple space. The inscription above each entry, „For the Worship of God and the Service of Man," reflects the Universalist belief that a house of worship must serve both sacred and secular needs.

Inside, the low-ceilinged entry area leads circuitously to even more confining cloisters from which one enters the dramatic Temple space. Only 30' from the clamor of Lake St is another world, flooded with light from amber-colored skylights which create the impression of what Wright called a „happy cloudless day." Three sets of galleries for the congregation and an alcove for the choir create a Greek cross within the square, with the corners occupied by square stair towers. No seat is more than 45' from the pulpit, and most seats are just barely above or below the speaker's eye level. There are no religious symbols; the Universalists chose to focus all attention on the speaker. Wright placed doors to either side of the pulpit so the congregants would sit toward the minister.

Even before it gained worldwide renown, Unity Temple was widely praised both by the congregation and by local newspapers. Despite the unorthodox form and materials, they recognized that Wright had given form to a deeply rooted spirituality. It remains a transcendent work, bound to the earth and open to the heavens.

- Alice Sinkevitch

AIA Guide to Chicago, p. 325

Frederick C. Robie House
5757 S. Woodlawn Ave

Frank Lloyd Wright
1906-1908

This house, which Frank Lloyd Wright designed in 1906 for a bicycle and motorcycle manufacturer, is one of the world's most famous buildings. Magnificently poised, like a great steamship at anchor, it is the distilled essence of Wright's Prairie School style and the culmination of his search for a new architecture. It is also among the last of his Prairie houses; during construction Wright abandoned both his Oak Park practice and his family to embark on a new phase of his long career.

The Robie House faces west and south on a lot measuring 60 by 180 feet. Its basic form consists of two parallel, rectangular two-story masses at the meeting of which rises a smaller, square third story. The massive chimney effectively anchors these separate parts. The main living quarters occupy the second floor, with three bedrooms above. There is no basement. The exterior formulation of base, wall, and cornice, common to all of Wright's Prairie houses, is repeated in every part of the elevations. Here it is expressed by thin, long Roman bricks and limestone trim. Floors and balconies are reinforced concrete, while the great overhangs are made possible by numerous concealed steel girders, some as long as sixty feet.

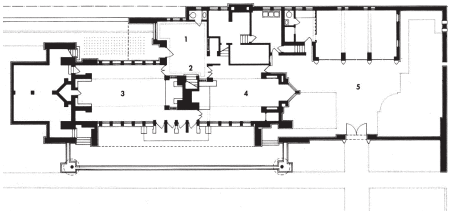
Space is defined not by walls, in the conventional sense, but by a series of horizontal planes intercepted by vertical wall fragments and rectangular piers. These horizontals extend far beyond the enclosures, defining exterior space as well and echoing the flat midwestern landscape that so inspired the architect. The chief embellishments are the exquisite leaded- and stained-glass doors and windows, which not only provide accents of color and ornament but also screen interior from exterior space while preserving the unity between outside and inside.

The Robie House's calculated asymmetry, irregular form, and striking silhouette invite us to explore its carefully arranged sequences of spaces. This picturesque manner of composition can ultimately be traced to the freely experimental buildings of the Shingle Style that Wright had learned in the 1880s from his first significant employer, Joseph L. Silsbee. The beautiful abstraction of the building's surfaces, clean geometry of form, and personal manner of decoration – its emphatic style – as well as the strong central axis that orders its raised living and dining rooms, are the legacy of Wright's „Lieber Meister," Louis H. Sullivan. Only by uniting these seemingly opposing traditions was Wright able to create a personal modern style in 1900 and give it its perfect expression six years later in the Robie House.

- Paul Kruty

AIA Guide to Chicago, p. 433

Grundriss EG



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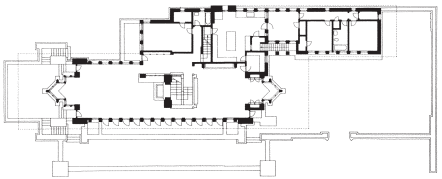
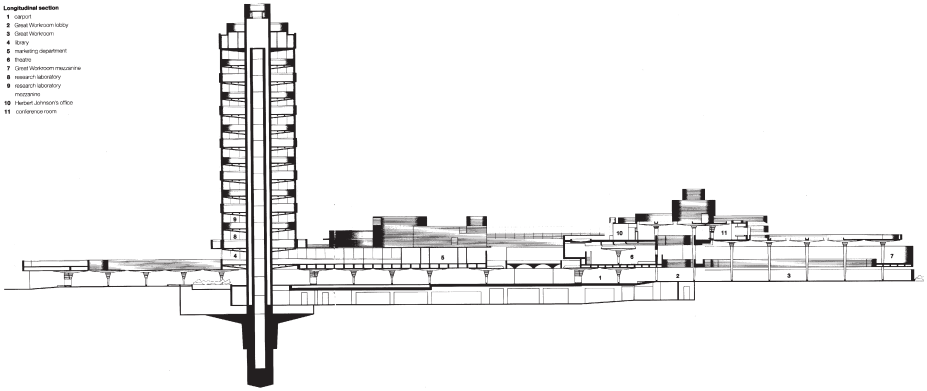


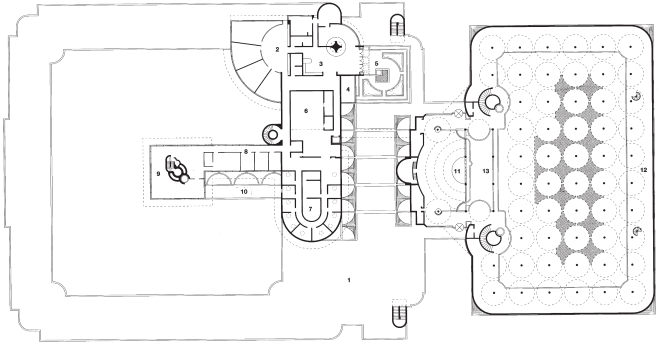


Wright is best known for his residential work, but the Johnson Wax Building also puts him at the forefront of commercial design. It was certainly a product of its time, with its sleek, streamlined appearance. Unlike other buildings of the period that were often called Art Deco, this building appears moderne without being trendy. It has no plate glass windows, only Pyrex glass tubes to admit light. At night these become more pronounced, their luminosity making the roof appear to float above the red brick walls. The tubing not only serves to insulate the space, but also to prevent the workers from gazing out of the windows, daydreaming.

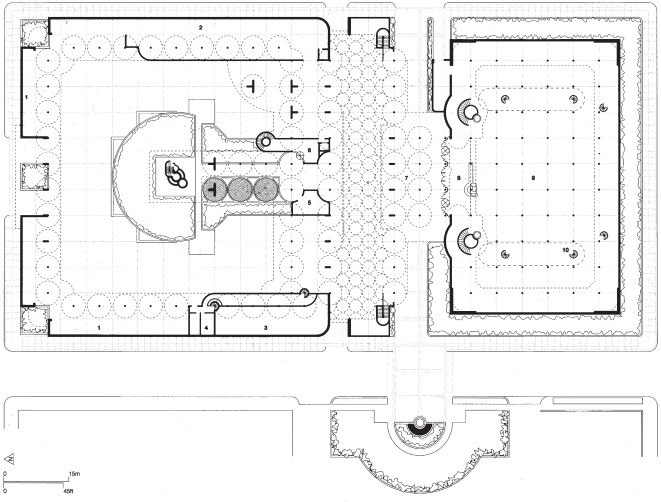
When one approaches the Johnson Wax Building, there is an element of surprise as it is smaller than expected. Even the tower cannot be seen from more than a few blocks away, despite appearing very tall in photographs. The building permit was issued on 30 April 1927, building started on 3 September 1936, and work finished on 1 April 1939.

The idea for the mushroom columns was first proposed five years earlier in unexecuted designs for a newspaper building in Salem, Oregon. In the Johnson Wax Building they were a great point of contention. The State building inspectors stopped construction in order to perform a full-scale test to determine their permissible and ultimate carrying weights. The columns were designed to support 12 tons. When tested they were able to hold 60 tons, five times the allowable limit: the inspectors allowed construction to continue.

The interior of the main Administration Building is unexpected. It is like looking through a small grove of concrete trees. The space is very large but the columns create differing effects, at times making it appear larger and at others smaller – one of the visual dichotomies common to many Wright designs. The office furniture is innovative and certainly as moderne as any of the time, yet it also has a timeless quality. The desks have three table levels which could almost have been designed to accommodate today computer keyboards and screens. Most of the chairs for those working on the main floor were three-legged without wheeled casters, and had pivoted hacks. The colours of their original fabric covering included the familiar Cherokee red of the floor and brick, along with a soft blue, green and yellow ochre. The original Cherokee red rubber tiles of the floor are now covered with carpet. The underside of the balcony that surrounds the workroom is surfaced with cork to absorb sound. The



Grundriss OG



Grundriss EG und Situation

brass guard rail along the top of the balcony wall was fitted in the early 1970s to conform to OSHA standards, even though no one had fallen from the balcony in the previous thirty-five years. Similar requests to add a metal fire escape to the outside of the tower – which would have destroyed the building's beauty – resulted in its closure.

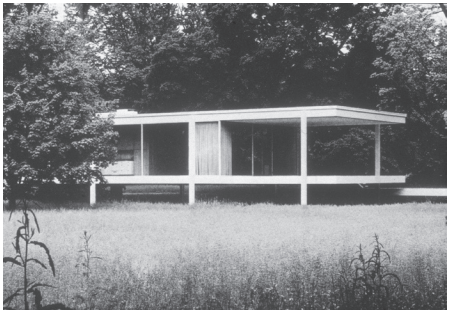
The Research Tower is a later addition to the Administration Building and was built in the mid 1940s. The walls are not supported from the outside, but by the cantilevered floors that extend from the central spine of the building. This spine also contains all the mechanical systems and the elevator.

The pools and granite sculptures at the base of the Research Tower were added in the late 1970s by Taliesin Associated Architects. The sculptures are upscaled versions of those that were originally designed for the Nakoma Country Club of Madison in the 1920s. Before these additions, the Tower rose directly from the grade level and made a very strong statement.

The Golden Rondelle Theater, where tours of the building begin, was designed by William Wesley Peters, the late chief architect and engineer of Taliesin Associated Architects. Built for the New York World Fair, the Golden Rondelle was flown by helicopter back to Racine.

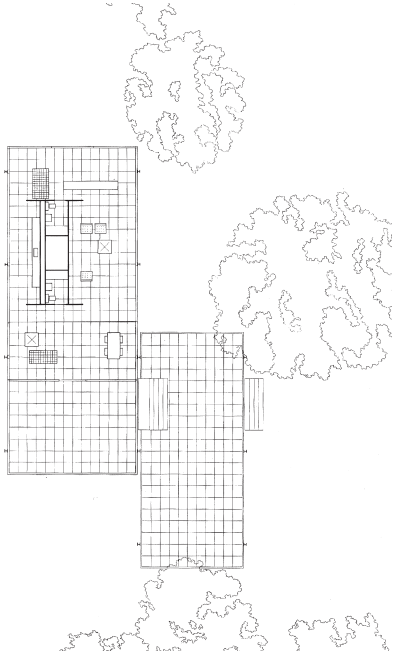
The Johnson family started business in Racine as a wood flooring company. Responding to inquiries on how to protect these beautiful wooden floors, they decided to produce a protective wax.

The Frank Lloyd Wright field guide, p. 91



Ansicht

Innenansicht



Grundriss

The Farnsworth House is one of Mies van der Rohe's few completed residential designs in the United States, and by far the most celebrated. It is also Mies's first fully realized example of a unitary space enclosed in a rectangular prism, a building form that more than any other distinguishes his American work from his European.

Architecturally, the house is a remarkable distillate of structure and space: a floor slab and a roof slab are welded to eight wide-flange columns, four to a side, that have been sandblasted to a smooth surface and painted white. The exterior walls are panes of floor-to-ceiling glass hung behind – that is to say, within – the enclosing columns. The slabs are cantilevered from the column rows so that on the western, short side they form an entry porch accessible by a low stair from an asymmetrically oriented terrace, itself reached by another low stair from ground level. While Mies is often criticized for having paid little attention to the contexts of his buildings, it is worth noting the southern exposure of the house, where the terrace and the house proper effectively embrace a splendid old sugar maple tree that mediates between the manmade and the natural elements.

The main floor slab is poised about feet above the ground to protect the house from occasional flooding from the Fox River, a stream that flows along the front, or southern, edge of the property. This functional attribute, together with the white structure and glass walls, gives the structure a floating, near-apparitional effect.

The interior, which features a core lined mostly in primavera wood, contains kitchen facilities, cabinets, two baths and a fireplace. There is also a freestanding teak closet nearby. So disposed, these elements suggest, without defining, a living-dining area, a sleeping area, and a kitchen area, all linked by unpartitioned space. Mies's practical rationale for so reductivist a design was that the house was commissioned as a country retreat for a single woman, Dr. Edith Farnsworth of Chicago.

The house is isolated on a wooded 9.6 acre tract near Plano, about 50 miles west of Chicago.

Chicago`s Famous Buildings, p. 291

Dankmar Adler

1844, Stadtlengsfeld, D
1900, Chicago, USA

American architect and engineer of German birth. His family moved to the USA in 1854, and he trained in Detroit, in the architectural offices of John Schaefer, E. Willard Smith and others. After his family moved from Detroit to Chicago, Adler worked under a German émigré architect, Augustus Bauer (1827–94). Adler's ability soon brought him to the attention of an established practitioner, Edward Burling (1818–92), who needed assistance in the aftermath of the Chicago fire of 1871.
In 1879 he and Burling parted.

Adler's first independent commission was the Central Music Hall (1879; destr. 1900), Chicago. Other early commissions in Chicago were a number of commercial buildings: the Borden Block (1881; destr. 1916), Jewelers' Building (1882), the Brunswick and Balke Factory (1882–91; destr. 1989) and the Crilly & Blair Complex (1881; destr. c. 1970). By 1881 Adler's employees included Louis Sullivan, as is evident from the style and placement of the ornament on the Borden Block. Adler made Sullivan a full partner in 1883, by which time the office was designing factories, stores, houses, office-blocks and especially theatres. The early success of Adler & Sullivan was due to Adler's planning and engineering innovations and his reputation as a careful builder and businessman of integrity. He could recognize and guide talent in others, and the firm also benefited from his many social connections. A founder of the Western Association of Architects, he led its merger into the American Institute of Architects, of which he was secretary in 1892.

Between 1879 and 1889 Adler executed many commissions for theatres and concert halls, ranging from remodellings to enormous multipurpose complexes. He was recognized as a leading expert in acoustics and served as acoustics consultant during the construction (1890–91) of Carnegie Hall, New York. Adler & Sullivan's records do not survive, and the contribution of the partners and their employees can only be inferred; for the Auditorium Building, Chicago (1886–9), Sullivan, Paul Mueller and Frank Lloyd Wright, who was employed as a draughtsman, all contributed to the building complex, but the commission and the overall design were Adler's. Other theatre commissions carried out by Adler & Sullivan include the Schiller Theatre (1891–3; destr. 1961), Chicago, which—like the Auditorium Theatre—was part of a tall office building. Several influential early skyscrapers were also produced by the firm, notably the Wainwright Building, St Louis (1890–91, the Chicago Stock Exchange (1893; destr. 1971) and the Guaranty Building, Buffalo (1894–6)

The financial crash of 1893–4, a shift in architectural taste and irreconcilable aesthetic and economic arguments between Adler and Sullivan led to the partnership being acrimoniously dissolved in 1895. That year Adler became a consultant for a company manufacturing lifts for new skyscrapers, mostly in New York. He left after six months, returning to architecture and to
Chicago, taking his son Abraham (1876–1914) into partnership. Adler and Sullivan now became competitors. Of the edifices built after the split with Sullivan, Adler's Morgan Park Academy dormitories (1896; destr. c. 1970) for a college preparatory school and Isaiah Temple (1898), both in Chicago, were architecturally the most interesting.

Adler spent much of his later life writing and working successfully for state licensing of architects. He was particularly interested in two causes: recognition for architecture as a learned profession and the education of both the public and the practitioners on how to design for modern society. There were some unbuilt projects, but after his death the firm he left behind did not flourish. The work of this brilliant and conscientious architect and engineer was dominated by the idea of the building as a synthesis, in which 'form and function are one'. He solved practical problems creatively and literally put a firm foundation under the skyscraper and a solid skeleton under its skin. Adler opposed height limitations and slavish obedience to historical precedents, and he was unusual in his willingness to experiment with new materials and relatively untried structural and foundation techniques, as well as in the breadth of building type undertaken. With Sullivan he provided a model for the modern, multi-specialist architectural office, providing also a creative and productive milieu, in which some of the 20th century's leading architects began their careers.

Rochelle Berger Elstein, Grove Art Dictionary Online

Daniel Hudson Burnham

1846, Henderson, NY, USA
1912, Heidelberg, D

American architect, urban planner and writer. The most active and successful architect, urban planner and organizer in the years around 1900, Burnham, with his partner John Wellborn Root, created a series of original and distinctive early skyscrapers in Chicago in the 1880s. Burnham's urban plans, particularly those for Washington, DC (1901–2), and Chicago (1906–9), made a crucial contribution to the creation of monumental city centres with a great emphasis on parks.

1. Architectural work, to 1892.
In 1854 Burnham's established New England family settled in Chicago. His father, ambitious for his son, sent him for tutoring and to a preparatory school in Waltham, MA (1863). He failed the entrance examinations for both Harvard University, Cambridge, MA, and Yale University, New Haven, CT, before returning in 1867 to Chicago where his father placed him temporarily in the office of the engineer and architect William Le Baron Jenney. In 1872 he was presented by his father to Peter Bonnett Wight of Carter, Drake & Wight. There he met Root, who was chief draughtsman, and in 1873 they set up their own firm of Burnham & Root, with Burnham in charge of business and planning and Root of design. Initially they received only house commissions, the first being that in 1874 (destr.) for the businessman and organizer of the Union Stock Yards, John B. Sherman, whose daughter Burnham married in 1876. The firm's domestic commissions for a fashionable clientele were executed in an accurate Ruskinian Gothic Revival style, which Root had learnt from Wight.

From 1880 Burnham & Root emerged as the principal designers of the new ten-storey skyscraper office buildings, especially with the Montauk Block (1881–2; destr.), Chicago. Here and in some two dozen subsequent structures in the city, the firm perfected 'raft' foundations to support tall buildings on the muddy Chicago soil, iron (and eventually steel) skeletal frames to lighten and expedite their construction, and a frank, unfussy treatment of façades in red brick, terracotta and sandstone to express this new technological creation. The Rookery Building (1885–8) was their next prominent work, followed by the Rand–McNally Building (1888–90; destr.) with a complete steel frame lightly clad only in terracotta, the Monadnock Building (1889–92, with a brick exterior ornamented only by the elegant batter of its walls and cavetto cornice, and finally the steel and terracotta Masonic Temple (1890–92; destr.), at 22 storeys then the tallest building in the world.

2. Urban plans for the World's Columbian Exposition, 1890–93.
In 1890 Burnham & Root were appointed consulting architects to the World's Columbian Exposition, a world fair in commemoration of the discovery of America in 1492. Preliminary plans were worked out in late 1890 by Burnham & Root and the landscape partnership of Frederick Law Olmsted and Henry Sargent Codman (1867–93). In December 1890 it was decided that detailed designs for the pavilions were to be executed by a board of five of the most prestigious architectural firms in the country: Richard Morris Hunt, George Browne Post and McKim, Mead & White, all from New York; Peabody & Stearns of Boston; and Van Brunt & Howe of Kansas City. In the face of local dismay that no Chicago architects were included, an equal number of Chicago practices were added: Adler & Sullivan, Solon S. Beman, Henry Ives Cobb, Jenney & Mundie and Burling & Whitehouse. The first five firms and Beman were given the task of designing the pavilions around the monumental Court of Honor, sketched out by Root and Olmsted, and they agreed to adhere to common façade and cornice lines and to adopt a consistent Greco-Roman style, executed in a kind of plaster known as staff. The Chicago firms were mostly assigned structures behind the Court of Honor, and they produced freer designs, especially Louis Sullivan's Transportation Building and Cobb's Fisheries Building. Root died unexpectedly of pneumonia just after the first meeting of the board of architects, but Burnham carried the project through with legendary assiduousness as Director of Construction, employing Charles B. Atwood of New York to design structures not envisioned in the initial plans, most notably the celebrated Fine Arts Building. Although Burnham did not design the complex, he was responsible for its execution, deciding such important secondary questions as the painting of the buildings in a uniform ivory white and their illumination at night.
The opening of the Exposition on 1 May 1893 was a triumph for Burnham. The monumental harmony, the classical nostalgia and the white cleanliness of the Court of Honor made a tremendous impression on Americans as a vision of what a great orderly city might be.

Daniel Hudson Burnham

1846, Henderson, NY, USA
1912, Heidelberg, D

3. Architectural work, 1893 and after.
Burnham had virtually closed his practice during the erection of the World's Columbian Exposition buildings. When he reopened it in 1893, he organized it around his Exposition staff, with Atwood in charge of design (until 1895) and with a 27% interest in the partnership, and Ernest Graham controlling the draughting room and Edward Shankland (1854–1924) responsible for engineering, both of them with a 10% interest.
Atwood withdrew 1895 and Shankland 1900, after which Graham and Burnham split the firm 40:60. In 1900 Peirce Anderson (1870–1924) returned from the Ecole des Beaux-Arts, Paris, to take charge of design and in 1908 he became a partner. In 1910 Burnham's sons Hubert (1887–1974) and Daniel Hudson Jr (1886–1961) also entered the firm. After Burnham's death in 1912, the firm was reorganized as Graham, Burnham & Co.; in 1917, when Burnham's sons left the practice, it took the name Graham, Anderson, Probst & White.
The production of the firm after 1893 was almost exclusively office buildings and department stores, particularly the large and expensive sort: the Reliance Building (lower storeys, 1889–91; upper storeys, 1894–5), Chicago; the Ellicott Square Building (1894), Buffalo, NY; the Frick Building (1901), Pittsburgh, PA; the Flatiron Building (1903), New York; the Railway Exchange (1903) and People's Gas buildings (1910), both Chicago; the department stores Selfridge's (1906), London, and Wanamaker's (1909), Philadelphia. Although widely scattered, these buildings displayed a remarkably consistent vocabulary of a few classical motifs applied over a clearly expressed steel skeleton, small variations in the costliness of materials and extensiveness of ornament responding to the budget and pretences of particular cases. The designs of Burnham & Co. were considered practical and fashionable, the 'latest thing' from Chicago. The firm's few monumental commissions included the Union Station (1907) in Washington, DC, of which Peirce Anderson was in charge. It is a remarkably spacious and successful composition of characteristic volumes without, however, any individuality or 'punch' in its details.

4. Urban plans, 1901 and after.
The World's Columbian Exposition ultimately inspired a movement that supported monumental municipal planning in New York, Philadelphia and elsewhere. Burnham and his new friend McKim were honoured and consulted, and Burnham was awarded honorary degrees from Yale, Harvard and Northwestern universities. In 1901–2 Senator James McMillan, chairman of the congressional committee administering the national capital, the District of Columbia, commissioned a new plan for the city, based on the 18th-century Baroque scheme of Pierre-Charles L'Enfant. Burnham, McKim and Frederick Law Olmsted jr (1870–1957) were appointed to a three-man planning commission and, in collaboration with government authorities, they worked out a scheme of low Greco–Roman masses set in broad parks along L'Enfant's monumental axes, which was followed in the rebuilding of Washington during the next half century. In 1905 Burnham produced an elaborate plan for San Francisco; the plan was not, however, adopted when the city was rebuilt after the earthquake of 1906. In 1904–5 the US government dispatched him to the newly pacified Philippines to redesign Manila and to lay out a summer capital at Baguio. Finally, and most importantly, between 1906 and 1909 Burnham, together with Edward H. Bennett (1874–1954), oversaw a plan for the rebuilding and expansion of Chicago, which they published as Plan of Chicago (1909), a magnificent volume with architectural designs by the Frenchman Fernand Janin (1880–1912) and renderings by the American Jules Guérin (1866–1946). The Chicago plan was Burnham's last as well as his greatest work. It provided for streets laid out on a grid with radial and concentric boulevards, monumental civic buildings and efficient transport systems, a greater number of parks and a lakefront park system stretching 20 miles along Lake Michigan. The drawings were displayed around the world, with Burnham himself presenting them at the Town Planning Conference held in London in 1910.
In 1884 Burnham was a founder and officer of the Western Association of Architects. After it amalgamated with the American Institute of Architects (1889), he served as the AIA's President in 1894 and 1895, pushing for application of the Tarsney Act of 1893, which provided for the competitive award of public commissions. In 1894 Burnham and McKim were the prime movers in the founding of the American School of Architecture in Rome (later the American Academy). In 1910 he was appointed Chairman of the National Council of Fine Arts to oversee all public building and art in Washington, DC.

David van Zanten, Grove Art Dictionary Online

Bertrand Goldberg

1913, Chicago, USA
1997, Chicago, USA

Bertrand Goldberg received his training in architecture from 1930 through 1936 at several institutions, including the Cambridge School of Landscape Architecture (now incorporated into Harvard University); the Bauhaus in Berlin, Germany; Armour Institute of Technology (now Illinois Institute of Technology) in Chicago; and also through a tutorial with engineer Frank Nydam. He worked in the offices of George Fred Keck (1935) and Paul Schweikher (1935-36) before organizing his own firm in 1937. During World War II, Goldberg was active under the Lanham Act designing housing and mobile penicillin laboratories for the U.S. government. Goldberg's distinctive designs often required innovative technology, as seen in such noted Chicago buildings as Marina City, the Raymond Hilliard Homes, and River City. He was the recipient of numerous awards and his work was the subject of many exhibitions in the United States and Europe. Goldberg was elected to the College of Fellows of the American Institute of Architects in 1966, and was awarded the Officier de l'Ordre des Arts et des Lettres from the French government in 1985

The Art Institute of Chicago, 2006
http://www.artic.edu/aic/libraries/caohp/goldberg.html

William Le Baron Jenney

1832, Fairhaven, MA, USA
1907, Los Angeles, CA, USA

American architect. The son of a prosperous merchant, he studied at Phillips Academy, Andover, MA, and in 1859 entered the Lawrence Scientific School, Harvard College, Cambridge, MA, to study engineering. He took the unusual step of studying at the Ecole Centrale des Arts et Manufactures in Paris (1853–6). In contrast to the course at the Ecole des Beaux-Arts, which stressed the art of design, the course at the Ecole Centrale focused more on expressing function in industrial design and on an empirical and pragmatic approach. Jenney worked for a French railway company for a few years and returned to the USA at the outbreak of the Civil War (1861). He served in the Union Army Corps of Engineers, being discharged in 1866 with the rank of major.

In 1868 Jenney established an architectural practice in Chicago. Gradually he focused on the design of office and loft buildings, making the structures more efficient and enlarging the windows. Such buildings as his Portland Block (1872; destr.) attracted promising young architects to his office, including Louis Sullivan, William Holabird, Martin Roche, Daniel H. Burnham and Enoch H. Turnock; their work developed the distinctive image of the Chicago skyscraper.

For the first Leiter Building (1879; destr.) Jenney used an internal skeleton of iron, with slender iron columns embedded in the exterior wall carrying the floor beams; otherwise the exterior masonry wall carried its own weight, which was reduced due to the extremely broad windows. In the Chicago branch of the Home Insurance Company (1883–5; destr. 1931), working with engineer George B. Whitney, Jenney took the decisive step of using a complete steel frame above the second floor, with metal lintels carrying all exterior masonry cladding and the windows. This was the first building constructed around a steel skeleton. Working with engineer Louis E. Ritter (1864–1934), in 1889–90 he also used an iron-and-steel skeletal frame for the whole of the taller Manhattan Building, 431 S. Dearborn Street, also adding diagonal wind bracing. None of these office blocks as yet had exterior masonry skins commensurate with the daring of their internal frames. In the granite exterior of the huge Sears, Roebuck & Co. Store (1889–91), State and Van Buren Streets in Chicago, he finally clearly expressed the presence of the internal iron and steel skeleton.

After 1891, when Jenney formed a partnership with William B. Mundie (1863–1939). In 1893 Jenney & Mundie participated in producing designs for the World's Columbian Exposition in Chicago. Jenney then retired and in 1905 moved to Los Angeles. More than any other architect Jenney was instrumental in establishing the character of Chicago office building and contributing to the structural development of the modern metal-framed skyscraper.

Leland M. Roth, Grove Art Dictionary Online

Rem Koolhaas

1944, Rotterdam, NL

Dutch architect and theorist. Originally a journalist and film-script writer, he trained as an architect at the Architectural Association in London (1968–72), where he was influenced by the visionary projects of Archigram. Thus Koolhaas's first work, with Elia Zenghelis, was 'Exodus' (1972; unexecuted), an imaginary project providing London with a central ceremonial strip to house all metropolitan activities. From 1972 to 1975 he studied with Oswald Mathias Ungers at Cornell University, Ithaca, NY. Fascination with the metropolitan lifestyle resulted in the foundation of the Office for metropolitan architecture in 1975 with Madelon Vriesendorp and Zoe and Elia Zenghelis. Their conceptual projects centred mostly around the metaphor of the metropolitan city as expressing and even generating a diversity of contemporary cultures, for example 'City of the Captive Globe' (1972) and 'Welfare Island Redevelopment, New York' (1975–6). In 1978 Koolhaas published Delirious New York, elaborating the Deconstructivist theories previously expressed through his drawings. From the late 1970s Koolhaas and OMA began to concentrate on competition projects, for example the extension of the Dutch Parliament Building (1978; with Zaha Hadid), The Hague. This and the restoration project for Arnhem prison (1979–80) best illustrate their position on the relationship of past and present, producing unashamedly modern yet contextual designs. Influenced by the early modernism of De Stijl and the Russian Constructivists, Koolhaas attempted to reinvent and recapture the diversity of the Modern Movement before the establishment of the Rationalist canon. In the 1980s he shifted towards more realistic projects, particularly housing programmes, for example two projects for Interbau (1981), Berlin; a residential building project (1980–82), Rotterdam; and public housing (1983), North-east Quarter III, Amsterdam. His urban plans include the Amsterdam North Development Plan (1984). His continuing avant-garde approach is seen in the Kunsthal (1993), Rotterdam.
Recent work includes the Dutch embassy in Berlin (2002), and The McCormick Tribune Campus Center in Chicago (2003).

Volker Fischer, Grove Art Dictionary Online

Office for Metropolitan Architecture [OMA].

Initially OMA worked in and about New York, mainly on theoretical projects based on the premise that the metropolis is the dominant experience of human existence in the 20th century, an experience that is perceived simultaneously as fragment and collage, as association and symbol. Specifically they argued that advertising and design, architecture and fashion, everyday aesthetics and music, lose their distinctions and form a continuum that gives the metropolis a 'second nature'. In Delirious New York the metropolis is depicted as a surreal iconographic cosmos, and this allegorical ensemble of architecture and urban planning imbues the imaginary buildings of the 'big city' with anthropomorphic qualities, in an almost psychoanalytical manner. The book's drawings, which quote images from the architectural history of the 20th century, made it a major aesthetic source not only for architects and architecture students but also for advertisers, film makers and designers in the USA and Europe.

Volker Fischer, Grove Art Dictionary Online

Ludwig Mies van der Rohe

1886, Aachen, D
1969, Chicago, USA

German architect, furniture designer and teacher, active also in the USA. With Frank Lloyd Wright, Walter Gropius and Le Corbusier, he was a leading figure in the development of modern architecture. His reputation rests not only on his buildings and projects but also on his rationally based method of architectural education.

1. Education and early work, before 1919.
He was born Ludwig Mies but later adopted his mother's name, van der Rohe. The son of a master stone mason, Mies van der Rohe had no formal architectural education. He attended the Domschule in Aachen until 1900 and then the local trade school (1900–02) while working on building sites for his father, from whom he acquired a respect for the nature of building materials. The town's many fine medieval buildings stimulated a youthful interest in architecture, and their characteristically clear and honest construction exerted a lasting influence upon his creative work. Two years as a draughtsman and designer for a firm specializing in stucco decoration followed, before he left for Berlin in 1905. Wishing to improve his knowledge of construction in wood, he became an apprentice to Bruno Paul. He received an independent commission to build a house for Dr Riehl, a philosopher, who first sent him for three months to Italy, where he visited Vicenza, Florence and Rome. The Riehl House (completed 1907), Neubabelsberg, Berlin, is ostensibly a single-storey house, traditional to the vicinity, with a steeply pitched roof, which sweeps smoothly over dormer windows. The placing of the house on a steeply sloping site is remarkable: a tetrastyle verandah at one end of the house rises from a retaining wall at entrance level. The house brought him to the attention of Peter Behrens, in whose office he then worked (1908–12), and towards the end of his time there he supervised Behrens's robust neo-classical German Embassy in St Petersburg (1911–12). He saw and was impressed by the work of Frank Lloyd Wright when it was exhibited in Berlin (1910).
Mies van der Rohe established his own office in Berlin in 1912, and for the next two years or so his work showed the influence of Karl Friedrich Schinkel, whose sparse Neo-classic manner he had seen reflected in Behrens's prestigious non-industrial commissions alongside the new rationalism of his industrial buildings and products. An invitation to design a house and art gallery (1912; unexecuted) for Helene Kröller-Müller at The Hague led Mies van der Rohe to the Netherlands, where he saw the work of H. P. Berlage with its clarity of structure and honest use of materials. He built three houses in the Berlin area before World War I began and from 1915 to 1918 served in the Engineers Corps of the German Army.

2. Europe, 1919–38.
In the first half of the 1920s the newly established Weimar Republic offered few opportunities for building in Germany, but progressive developments in the arts were beginning to find a hospitable European centre in Berlin. Mies van der Rohe participated fully in these activities. He directed the architectural division of the Novembergruppe (1921–5), helped to finance and wrote for the magazine G (Gestaltung) and prepared a remarkable series of projects in which he explored the architectural possibilities of the new building materials. Studies for glass skyscrapers (1919–21), in which multi-faceted glass skins enclosed open skeletal structures, were followed by an equally prophetic seven-storey concrete office building (1922) in which the cantilevered structure is the dominant exterior element, with the windows recessed in continuous horizontal bands. Two projects for country houses followed in 1923–4, one in brick, one in concrete. In them he developed the concept of decellurization of interior space as initiated by Frank Lloyd Wright.
Many other projects were designed during this period, all to remain unbuilt. The Karl Liebknecht and Rosa Luxemburg Monument to the November Revolution (1926; destr.) in the cemetery at Friederichsfelde in Berlin was a vigorously three-dimensional symbolic wall, composed of recessed and raised overlapping rectilinear blocks of brickwork and carrying a five-pointed star and standard. He designed and built the Wolf House (1926; destr.) at Guben, a finely crafted flat-roofed brick house, and municipal housing in the Afrikanischestrasse (1926–7) in Wedding, Berlin, three- and four-storey buildings with balconies on the south side. The decade closed, however, with two notable achievements. In 1927, as First Vice President of the Deutscher werkbund, Mies van der Rohe directed one of the most successful of the inter-World War initiatives, the Weissenhofsiedlung exhibition in Stuttgart. He invited the foremost European architects to participate, among them Walter Gropius,

Ludwig Mies van der Rohe

1886, Aachen, D
1969, Chicago, USA

busier, Behrens, Max Taut and Bruno Taut. Twenty permanent residential buildings were built around his own four-storey steel-framed apartments. They provide a remarkable exhibition of comparative individual interpretations of the new architecture. It was not, however, until 1929 that the ideas of the earlier experimental period were finally realized in one of the most important buildings of the Modern Movement, the German (or Barcelona) Pavilion (destr.; reconstructed 1986), Montjuïc, Barcelona. It was a last-minute addition to the German section of the Exposición Internacional in Barcelona in 1929 for which Mies van der Rohe and Lilly Reich (with whom he collaborated on exhibition projects) had been given overall design responsibility by the government in 1928. Here Mies van der Rohe used the open (decellurized) plan as an architectural analogy of the social and political openness to which the new German republic aspired. Space-defining elements were dissociated from the structural columns, planning was free and open, merging interior and exterior spaces: unbroken podium and roof planes were held apart by a regular grid of slender cruciform steel columns, giving a clear field for spatial design, using opaque, translucent and transparent walls freely disposed between the columns. These ideas were crucial to all his subsequent work. The rich materials of the space-defining walls, the reflecting pools—in one of which stands a sculpture by Georg Kolbe—and the furniture that he designed specifically for the pavilion (the well-known Barcelona chair, stools and table), all added to the architectonic qualities in a building of great poetic beauty. The Tugendhat House (1928–30; badly damaged by war but now refurbished), Brno, Czech Republic, interprets the ideas of the German Pavilion in a domestic context. These two buildings and the furniture that he designed for them established him as an architect and furniture designer of international stature. In 1930, at the recommendation of Walter Gropius, Mies van der Rohe was appointed Director of the Bauhaus, but by 1932, under political pressure from the Nazi party, he moved the school from Dessau to a disused factory in Steglitz, Berlin, where he ran it privately for one further session. Following further Nazi interference he closed the school in 1933, with the full support of his colleagues.

3. USA, 1938–69.
In 1938 Mies van der Rohe settled in Chicago and took up an appointment as Director of the Architecture Department of Armour Institute, which in 1940 became the College of Architecture, Planning and Design at Illinois Institute of Technology. He also re-established his architectural practice and for the next 20 years he divided his time between it and his teaching duties. His work in both capacities reflected a philosophy of architecture, based upon Thomas Aquinas's proposition that reason is the first principle of all human work. It led him to question open speculation and personal expression as the main bases for creative architecture and to follow certain general principles that he learnt from the buildings of the great architectural epochs of the past: namely that architecture is derived from, and eventually becomes an expression of, the significant forces that combine to determine the ethos of an epoch or a civilization; that architecture's physical realization is accomplished through the use of clear construction, elevated to a higher plane through an understanding of the art of building—Baukunst; that a language of architecture gradually evolves during the epoch in response to the epoch's particular needs and means, guided by a grammar based upon the principle of structure—the morphological and organic relationship of things that permeates the whole building fabric, illuminating each part as necessary and inevitable. At Illinois Institute of Technology (IIT) he set up a curriculum based on these principles and the belief that 'The function of education is to lead us from irresponsible opinion to truly responsible judgement; and since a building is a work and not a notion, a method of work, a way of doing should be the essence of architectural education'.
The North American technological environment facilitated the realization of these architectural ideas. During the first ten years or so in the USA, the development of his characteristically clear, highly influential concept of architecture was made possible by the Armour Foundation and IIT as clients: first a master-plan for the campus (1940–41), and successively the Research Buildings for Minerals and Metals (1942–3) and for Engineering (1944–6), both for the Armour Research Foundation; the Alumni Memorial Hall (1945–6); and Perlstein Hall (Metallurgy and Chemical Engineering) and Wishnick Hall (Chemistry), both 1945–6, for IIT. All these were executed in association with Holabird & Root, except the last, which was undertaken in association with Friedman, Alschuler and Sincere. In parallel

Ludwig Mies van der Rohe

1886, Aachen, D
1969, Chicago, USA

with these buildings he designed and built a country retreat (1945–50) for Dr Edith Farnsworth on the Fox River at Plano, IL. Many other buildings on the IIT campus followed throughout the period of his tenure of the Directorship of the School of Architecture, including the Students' Commons Building (1952–3; with Friedman, Alschuler and Sincere) and Crown Hall (1950–56; with Pace Associates). His first high-rise buildings resulted from a meeting in the mid-1940s with Herbert S. Greenwald, an active young developer with particular interests in the field of urban renewal. Promontory Apartments (1946–9; with Pace Associates and Holsman, Holsman, Klekamp and Taylor), 5530 South Shore Drive, Chicago, was the first of many buildings to result from an association that continued for more than a decade until Greenwald's untimely death in an air crash. Many multi-storey urban high-rise buildings were designed by Mies van der Rohe in the following 20 years, which by virtue of their precise, almost Platonic images found worldwide emulation and placed him in the forefront of 20th-century urban design. The list of high-rise structures includes several of the best-known and most widely discussed buildings of the mid-century: 860 Lake Shore Drive Apartments (1948–51; collaboration with same practices), Chicago; the Seagram Building (1954–8; with Philip Johnson, and Kahn & Jacobs; and with Phyllis Lambert representing the client), Park Avenue, New York; Pavilion and Colonnade Apartments (1958–60), Colonnade Park, Newark, NJ; and later the Toronto-Dominion Centre (1963–9) for which Mies van der Rohe was consultant architect to John B. Parkin Associates and Bregman and Hamann.

These buildings show clearly Mies van der Rohe's development and refinement of a structural aesthetic based on an open flexible plan. In contrast to many of his contemporaries, Mies van der Rohe profoundly questioned the concept 'form follows function' because he recognized that functional requirements often change. He believed that building solutions should allow for an optimum degree of flexibility in order to accommodate economically the frequent need to revise the arrangement of living and working spaces. Thus, within a concept of overall size and complexity of function taken in generalized terms, he chose to develop and work within three trabeated building types: the low-rise skeleton frame building, the high-rise skeleton frame building, and the single-storey clear-span building. In all these types those functions not requiring daylight, such as lecture theatres and law courtrooms, and the fixed core accommodating lifts, stairs, toilets and service ducts, are located within the interior spaces of the plan, leaving the peripheral areas available for the flexible arrangement of classrooms, workshops, laboratories, offices, flats or exhibition spaces as the particular building's function required. The development of the low-rise building type is apparent in the numerous campus buildings at IIT (1939–58), or between the clear formal disciplines of the early examples such as the IIT Metallurgical and Chemical Engineering Building (1945–6; with Holabird and Root) and the later spatial and structural sophistication of such buildings as the Bacardi Administration Building (1957–61) in Mexico City or the School of Social Service Administration (1962–5) for the University of Chicago.

Refinement of the high-rise building type moved from the reinforced concrete structural frame with brick and glass infill at Promontory Apartments, to the fireproofed steel structural frame enclosed by a skin of black-painted steel mullions, column and floor fascia plates with clear glass at the 26-storey 860 Lake Shore Drive Apartments, through to the prestigious Seagram Building with its skin of bronze mullions, floor fascia plates, glazing frames and louvres, with tinted glass and marble. The former visually expressed both columns and floors externally, the latter expressed the floor lines and the corner and ground-floor columns. For the 30- and 42-storey buildings of the Chicago Federal Centre (1959–63; with Schmidt, Garden and Erickson, C. F. Murphy Associates and and A. Epstein and Sons Inc.) the skin follows the Seagram Building's solution but comprises black-painted steel components with aluminium glazing frames and louvres, with tinted glass. There are also subtle differences in proportions between bay sizes and the positioning of projecting mullions to express scale in terms of an overall category of use or to take account of the building's magnitude.

Following a number of unrealized projects, the first built example of Mies van der Rohe's single-storey clear-span building was the Farnsworth House, Plano, IL—one of the best-known houses of the 20th century. The house, which is raised above the ground against the Fox River's spring flooding, comprises a classically proportioned and finely crafted white steel structure with rectangular floor and roof planes cantilevering beyond externally positioned 'I' section columns—the space between

Ludwig Mies van der Rohe

1886, Aachen, D
1969, Chicago, USA

being subdivided into interior and exterior living areas. In the interior area (enclosed by large sheets of plate-glass and paved with Roman Travertine marble), living, sleeping and kitchen spaces are subtly defined around a free-standing wood-panelled core housing bathrooms and services. The exterior area, also paved with Travertine, forms a protected terrace, and this is connected by a flight of steps to a lower open floating terrace and similar steps to the ground. There is no suggestion of a contrived formal relationship between the house and its natural surroundings, and the building's occurrence in the landscape would seem almost fortuitous were it not for the harmony achieved between it and the terrain. Its independence of, and at the same time interdependence with, its surroundings creates a convincing and moving image in a technological era and is prophetic of the handling of the relationships of buildings to context in many future projects. As a microcosm of the mature work of Mies van der Rohe the Farnsworth House has all the elements of the developed clear-span single-storey building type as exemplified by the larger Crown Hall (College of Architecture) at IIT and the new Nationalgalerie (1962–8), Tiergarten, Berlin. The former has a rectangular steel roof structure carried by external steel plate girder portal frames; the latter has a square steel roof structure supported in a cantilevered manner by eight peripherally located steel cruciform columns.

The majority of Mies van der Rohe's buildings were designed for centrally located urban sites, including the campus of IIT and his best-known housing development for Greenwald, the Lafayette Park urban renewal scheme in central Detroit. The Toronto-Dominion Centre is another of the traffic-free schemes in which it is notable that the attention to scale in descending order through structure, plan module and components of construction extends also to those elements that confront the pedestrian: paving, steps, benches etc. The common recognizable factor in all Mies van der Rohe's urban design is the ability to handle the space between buildings and the integration of space with landscaping. No one can walk between the high and low buildings of Lafayette Park, or between the buildings at IIT, without being conscious of the spatial definition achieved without formal enclosure. Mies van der Rohe's projected Mansion House Square (1967), London, which brought a new office building and existing historical structures together through the introduction of a public landscaped square, was rejected by the British planning authorities.

Because Mies van der Rohe developed his concept of architecture in a logical manner from one building to another, his work as a whole is endowed with a unity of purpose and expression. Regardless of magnitude or function the works belong together as a coherent group and speak with a single architectural language. This consanguinity is due to a number of factors: structural systems have been selected in accordance with the overall requirements of the building's functions, and their components are revealed, either actually or symbolically: non-load-bearing external skins and interior space-defining divisions are articulated separately from stressed members, leaving no doubt as to what is structural and what is not; materials, whether natural or industrially produced, are used in such a way as to acknowledge the nature of each; visible modules represent subdivisions of the structural bays in relation to function and provide a tool for internal planning and a practical inducement to flexibility in use; careful and thorough detailing exemplifies to the user the visual refinement called for in the further division of space; subtle proportions result from visual judgements, not systems; provisions are made for expressive response to changing conditions of light and weather.

Few architects practising after World War II have remained completely untouched by Mies van der Rohe's influence. He believed architecture to be a historical process, and that in consequence architects should recognize relationships between the significant facts of their own epoch and the ideas that are capable of guiding these facts in a direction beneficial to society in general. In his own work he tried to reach a practical synthesis of this ideal with the disciplines set by the principle of structure: he tried to evolve a truly contemporary language for architecture, a language that comes from the past yet is open to the future.

Mies van der Rohe was awarded the Gold Medal of the Royal Institute of British Architects (1959), that of the American Institute of Architects (1960) and the United States Presidential Medal of Freedom (1963).

Peter Carter, Grove Art Dictionary Online

Henry Hobson Richardson

1838, St James Parish, LA, USA
1886, Brookline, MA, USA

Childhood and education.
H. H. Richardson was the eldest of the four children of Catherine Caroline Priestley and Henry Dickenson Richardson, a native of Bermuda who had become a successful Louisiana cotton merchant. He spent his early life on the Priestley Plantation and in New Orleans, and he showed an aptitude for mathematics and was intended for the US Military Academy, West Point, NY, but failed to qualify due to a speech impediment. He spent one year at the University of Louisiana, then entered Harvard College, Cambridge, MA, in February 1856.
After graduating from Harvard in 1859, Richardson spent the summer travelling in Great Britain before going to Paris, where he studied at the Ecole des Beaux-Arts. He failed the examinations that autumn but passed after months of study in November 1860. He entered the atelier of Louis-Jules André, but, with the outbreak of the American Civil War in 1861, his family's support was cut off, and he was able to pursue his studies only intermittently thereafter. Although he returned briefly to the USA in 1862, his stay was short as he was torn between opening a practice in Boston and attempting to return to Louisiana. Instead he returned to Paris, where he worked in the offices of Théodore Labrouste and J. I. Hittorff, while continuing his studies in his spare time. He never completed the course at the Ecole, and he returned to the USA in October 1865.

Masterpieces.
Two of the finest works of Richardson's career, and two of the projects that he is known to have been most proud of, were the Allegheny County buildings and the Marshall Field Wholesale Store.
The Marshall Field Wholesale Store (1885–7; destr. 1930), Chicago, is thought to be Richardson's greatest design achievement. This seven-storey U-shaped building in downtown Chicago was constructed in granite and red sandstone. Richardson's personal resolution of the problem of the commercial building was demonstrated by the pattern of fenestration with windows grouped regularly under arches, which doubled and quadrupled on the higher floors. The impact of the building's massiveness (it filled a full Chicago block) and regularity was particularly enhanced by the contrast it presented to the surrounding chaotic development. The building inspired immediate and widespread comment, and its impact on the Chicago school architects, including Louis Sullivan, was particularly significant. As a result, the Field Store has since been regarded as a critical forerunner to the development of modern architecture.

Decline and death.
Richardson's health deteriorated rapidly in the last years of his life under the increasing demands of his practice. In the summer of 1882, while he was travelling in Europe, Richardson consulted Sir William Gull about his chronic case of Bright's disease, a renal disorder. Gull cautioned Richardson about his work-load, but he continued to practise at the same pace on his return to Brookline. He died four years later. Richardson's office was maintained by his three chief assistants at the time of his death, George Foster Shepley, Charles Hercules Rutan and Charles Allerton Coolidge, under the name Shepley, rutan & coolidge. Nearly all of the works under construction at the time of Richardson's death were completed under their supervision.

Jeffrey Karl Ochsner, Grove Art Dictionary Online

John Welborn Root

1850, Lumpkin, GA, USA
1891, Chicago, USA

American architect and writer. He was educated in Atlanta, GA, then in England at Clare Mount School (1864–6), near Liverpool, and graduated in 1869 from New York University where he trained as a civil engineer. In January 1872 Root moved to Chicago to serve as head draughtsman (and prospective partner) with Peter Bonnett Wight who had formed a partnership with Asher Carter (1805–77) and William H. Drake (b 1837). Daniel H. Burnham entered Wight's office soon afterwards, and in 1873 he and Root set up Burnham & Root, with Root as the designer and Burnham the businessman and organizer.

Domestic commissions occupied the practice until 1880 when they received their first commission for a tall office building, from the Boston investors Peter Brooks and Shepherd Brooks, the Grannis Block (1880–81; destr.), Chicago, followed by the Montauk Block (1881–2; destr.), Chicago, a ten-storey building. These were the first of Burnham & Root's skyscraper office buildings, built between 1880 and 1891, a type that developed out of the invention of the elevator and the intense pressure on land values in the booming city of Chicago. It was also made technically and economically possible by the evolution of light steel skeletons on to which a fireproof brick or terracotta cladding might be attached. Stone facings with carved ornament were avoided, and the skyscraper was consequently inappropriate for conventional architectural treatments based on the horizontal organization of the orders. Root composed with bare red brick or sandstone masses, peppered with windows, shaped like medieval fortifications. The Grannis Block was of warm red brick with exactly matching terracotta. The exterior of the Montauk was devoid of stonework and carving, being one of the first structures of note in Chicago to be built only of brick and terracotta. In this block he invented the 'raft' foundation, a concrete slab laced with steel rails underlying parts of the structure to spread its weight as evenly as possible, which supported a building of unprecedented height on the soft Chicago subsoil.

The Rookery Building (1885–8) was again built for Peter and Shepherd. In the Rookery, Root supported ten storeys in a block 200 ft square, open on all four sides with an inner courtyard and with a continuous grid of steel columns and beams. Its two principal façades are powerfully composed in stone and brick. The impressive internal court is covered at second-floor level by glass supported on a filigree of exposed iron beams. In the Rand–McNally Building (1888–90; destr.), Chicago, he adopted a complete steel skeleton, clothed only in thin sheets of mass-produced terracotta. In the Monadnock Building (1889–92), Chicago, the Brooks commissioned 16 storeys on a narrow site. They were reluctant for the new steel skeletal technology to be used, and so Root erected the structure as a row of tall brick cells, open on the interior. Exterior walls of specially moulded bricks are plain, with a projecting series of window bays from the third to the fifteenth floor. The walls have an elegant batter and flare outwards at the cornice, like an Egyptian cavetto.

The firm was now at the peak of its success and Root was a leader of his profession, appointed Secretary of the American Institute of Architects in 1889. In 1890 planning for the World's Columbian Exposition (1893) to celebrate the discovery of America began in Chicago, and Burnham & Root were placed in charge, Burnham of construction, Root of design. Root had produced imaginative sketches for the exposition buildings as well as for the Art Institute of Chicago, when he died unexpectedly of pneumonia. Between 1880 and 1891 Burnham & Root had erected eighteen office buildings in Chicago as well as eight in other cities. In Chicago they contributed significantly to the urban development of the central business district, known as the Loop, which became almost a private testing ground for their architectural experiments. Critics, such as Root's friend Henry Van Brunt, Sigfried Giedion, Carl Condit and Reyner Banham, have acknowledged Root as the creator of one of the great icons of modern technical building, the tall office building.

David van Zanten, Grove Art Dictionary Online

American architectural practice founded in Chicago in 1939 by Louis Skidmore (b Lawrenceburg, IN, 8 April 1897; d Winter Haven, FL, 27 Sept 1962) and Nathaniel A. Owings (b Indianapolis, IN, 5 Feb 1903; d Santa Fe, NM, 13 June 1984), and the engineer John O. Merrill (b St Paul, MN, 10 Aug 1896; d Chicago, IL, 13 June 1975). Both Skidmore and Owings were trained as architects, and they worked together on the Century of Progress Exposition in Chicago (1929–34) before forming a partnership in 1936. In an attempt to gain more commissions they opened a branch office in New York in 1937. During World War II SOM were commissioned to design the town at Oak Ridge, TN (completed 1946), to house those who worked on the atom bomb. The experience that they gained on this enabled them to develop an exceptional organizational and managerial capability at an early stage. The firm dominated American corporate architectural practice for over three decades and during this time grew to be the largest in the country, if not the world. It created an American image and style: International Style, modernist, glossy, meticulously detailed buildings, fitted out with modern furniture and art. At one time or another the firm had branch offices in nearly every American city, and they would compete with one another for commissions.

SOM defined a new architectural approach of team work and total or comprehensive design, since the firm undertook everything: design, engineering, landscaping, urban planning and interiors. Also an innovation, especially given the quality of work and the prominence of the firm, was that none of the founding partners actually designed. The character of SOM's work was much influenced by the engineers who became partners in the practice. In addition to Merrill, who established the multi-disciplinary nature of the firm, they included Myron Goldsmith and Fazlur Khan (1929–82), both of whom joined the firm in 1955. The firm's designers included Gordon Bunshaft in New York and Bruce Graham (b 1925) and Walter Netsch (b 1920) in Chicago. Architectural recognition came first with Lever House (1952), New York, by Bunshaft. It is a 21-storey rectangular block, in plan only about one third of the available plot area, placed above one end of a 2-storey podium, which extends to the edges of the site and is open at street level. Not only was this the genotype of hundreds of city buildings, giving better access to natural light and air, but its almost transparent curtain-wall skin, made possible by brilliant structural engineering, opened a new, glass-aesthetic phase of modernism, to be imitated all over the world. Structural innovation continued as the Miesian frame moved outside the building skin in examples such as the Business Men's Assurance building (1963), Kansas City, and the Tennessee Gas Corporation Headquarters (1964), Houston. Virtuosity reached a new dimension when Khan and Graham put into practice the 'tubular frame' method of design, which enabled super-tall structures to be built without cost-penalty for additional height. It resulted in such buildings as the Sears Tower (1974), in Chicago, one of the world's tallest buildings (442 m), and Exchange House (1990), London, with its exoskeletal steel arches bridging the railway lines entering Liverpool Street.

Another of SOM's great achievements was their establishment of the low-rise peri-urban company headquarters as a building type in the 1950s and 1960s; they gave it a desirable image as a corporate modern Versailles set in park-like surroundings. An early example is the Connecticut General Life Insurance company headquarters (1957) at Bloomingfield, CT. Also significant was Netsch's 'field theory', developed in the early 1960s, a three-dimensional open-planning technique designed to free major complexes such as hospitals and universities from the boxiness of repetition, for example the campus of the University of Illinois at Chicago (1965–71). Although the rise of Post-modernism was antagonistic to SOM's major designers whose roots were in abstract modernism, throughout the 1980s SOM continued to build creative, high-quality corporate and institutional buildings across the USA and increasingly overseas, for example the huge Haj Terminal (1981–2) at King Abdul Aziz International Airport, Jiddah, Saudi Arabia, and the American Embassy (1987), Moscow, Russia.

Richard Guy Wilson, Grove Art Dictionary Online

Louis Henry Sullivan

1856, Boston, MA, USA
1924, Chicago, USA

American architect and writer. He was the leading progressive architect in Chicago at its most revolutionary period in the 1890s, and a designer of amazing virtuosity. His executed buildings include tall office buildings, theatres, department stores and banks, some of them in partnership with dankmar Adler. Sullivan accepted frankly the new creation of industrialized architecture, the steel-framed skyscraper building, but covered it with the most delicate ornament, also designed by him and executed in mass-produced terracotta slabs. He also wrote poetically of the position of the sensitive individual in the mechanized world.

Before 1890.
In 1872 Sullivan entered the Massachusetts Institute of Technology, Cambridge, MA, as a non-degree student, following the first architectural course in the USA. This was directed by William Robert Ware, a student of the French-trained Richard Morris Hunt in New York. Design was taught by Eugène Letang, who had recently arrived from Emile Vaudremer's atelier at the Ecole des Beaux-Arts, Paris. Sullivan was a brilliant, but impatient student and left after only a year, but Ware and Letang influenced the course of his later architectural training. In the summer of 1873 he visited Hunt in New York, then continued to Philadelphia, where he lodged at the home of his cousin and found a job with Hunt's student Frank Furness. After being made redundant during the depression of September 1873, Sullivan followed his parents to Chicago, which was still being rebuilt after the fire of 1871, and joined the office of the engineer and architect William Le Baron Jenney, who had studied at the Ecole Centrale des Arts et Manufactures in Paris. In the summer of 1874 Sullivan went to France and entered the atelier of Vaudremer at the Ecole des Beaux-Arts, Paris. Again he proved to be an impatient student, and after only a year he returned to the USA in May 1875, although in his Autobiography he claims to have stayed two years in France.
Sullivan probably did occasional work for other architects, and by 1880 he was working in the office of Dankmar Adler. In 1883 he became a full partner, and the firm was renamed Adler & Sullivan, with Sullivan in charge of design and Adler of business and engineering.
In 1886 Adler & Sullivan obtained the commission for the Auditorium Building, an opera house enclosed in a ten-storey block of hotel rooms and offices and the largest building yet projected in Chicago. It was a difficult job, both technically and aesthetically, and both partners carried off their departments magisterially.

1890–1908.
The inauguration of the Auditorium Theatre on 9 December 1889 marked an epoch in Sullivan's work. In his Autobiography the architect himself writes of a long vacation, followed by his return to Chicago and his conception of his first steel-framed 'skyscraper', the Wainwright Building in St Louis, MO, built in 1890–91.
The ambitions kindled by the success of the Auditorium Theatre were in fact not focused so much on the Wainwright Building as on another project of the period, the design of the World's Columbian Exposition of 1893. Indeed it was the frustration of his ambitions here that diverted Sullivan's attention to skyscraper design and later to writing and proselytizing.
Curiously, Sullivan's perfection of the 'skyscraper' type was little appreciated. The depression of 1893 had curtailed his firm's practice, and then in 1895 he had parted with Adler. Only a few opportunities came after that; the Carson Pirie Scott Store was his last large urban structure. In 1896 he published his celebrated article, 'The Tall Office Building Artistically Considered', and as his practice contracted after the completion of the Carson Pirie Scott Store, he began writing in earnest, particularly in his 'Kin

Louis Henry Sullivan

1856, Boston, MA, USA
1924, Chicago, USA

dergarten Chats', published weekly in the Cleveland Interstate Architect and Builder in 1902–3.
Other manuscripts followed, including the massive Democracy: A Man Search of 1904–8 (published posthumously in 1961). Sullivan was probably encouraged to write seriously by the group of younger architects who gathered around him in the closing years of the 19th century. They constituted what in 1908 one of them, Thomas Tallmadge (1876–1940), named the Chicago school. Frank Lloyd Wright (once Sullivan's chief draughtsman) was a leading member, together with such contemporaries as George Elmslie, Dwight Perkins (1867–1941), George R. Dean, Richard E. Schmidt and his partner Hugh M. G. Garden, Myron Hunt (1868–1952) and Tallmadge himself, as well as Wright's own assistants Walter Burley Griffin, Marion Mahony Griffin and William E. Drummond.

After 1908.
The last phase in Sullivan's career was largely devoted to designing banks in small towns in the Midwest. Midwestern agriculture thrived in the early 20th century, leading to a revolution in rural banking and the proliferation of small institutions sympathetic to local needs. These buildings posed no problems in the expression of structure, as they were all low, load-bearing brick constructions; they did, however, raise important questions of institutional expression. Sullivan's solution was to make them monumental, as befitted banks, but 'modern' and unrelated to historical precedent in order to communicate their transformed character. They are the final and most richly impressive demonstrations of his ornamental skill, with their rich use of polychromy in brick and terracotta. Furthermore, the design of each was sensitively adapted to its setting, usually at the end of the main street facing the town square (as at Owatonna, Grinnell, Newark, Sidney and Columbus). At Owatonna the mass of the structure rises above the surrounding shops and balances the mass of the court-house facing it across the square; at Columbus an arcade down the side of the bank frames the town's Civil War monument. Although these buildings were in remote areas, the care bestowed on them by Sullivan suggests that here he had finally found appreciative recipients for his exquisite talents.
During this period Sullivan also designed the Van Allen Department Store (1913–15), Clinton, IA, and two large houses, the Babson House (1907; destr.), Riverside, IL, and the Bradley House (1909), Madison, WI. He continued to be beset by financial difficulties, however. His only executed design after the Merchants' Union Bank in Columbus was the front of the Krause Music Store (1922), Chicago. He became destitute and dependent on the charity of friends. In 1922–4 Sullivan executed the elegant plates of his System of Architectural Ornament According with a Philosophy of Man's Powers and wrote his lyrical Autobiography of an Idea, both published by the American Institute of Architects immediately before his death.

2. Critical reception, posthumous reputation.
Critical evaluation of Sullivan's work has been inconsistent. European or European-inspired modernists have praised the frankness of the articulation of his steel-framed skyscrapers and overlooked (or denigrated) the Transportation Building, the late banks and his new vocabulary of ornament. This interpretation is evident, for example, in the assessments offered by Hugh Morrison (1935), Sigfried Giedion (1941) and Carl Condit (1952 and 1964). More recently, American scholars, led by Vincent Scully, have reversed this emphasis and depicted Sullivan as a humanist who shunned historical imitation to create a vivid sense of shape and surface through his ornament. To these writers the surfaces of his skyscrapers, clad in terracotta, communicate the elastic stresses within the steel membering, and the shape of his office buildings and banks give form to their settings, while the obscure poeticizing of his later theoretical works express a belief in spontaneous expression. This interpretation informs the assessments given by Sherman Paul (1962), Narciso Menocal (1981), Robert Twombly (1986), Lauren Weingarden (1986) and others.

David van Zanten, Grove Art Dictionary Online

Frank Lloyd Wright

1867, Richland Center, WI, USA
1959, Phoenix, AZ, USA

1. Training, influences and work, before 1901.
After leaving school, Wright went to work for the engineer Allan D. Conover in Madison; he also studied engineering at the University of Wisconsin, Madison, for two quarters until 1887, when he went to Chicago to seek his fortune in architecture. There he worked first for Joseph Lyman Silsbee, an architect who had designed religious buildings for the Lloyd Jones family. From early 1888 to mid-1893 he served as chief draughtsman for Adler & Sullivan, whose designing partner, Louis Sullivan, was then gaining recognition for the unique style of architecture he was forging. In 1891 Wright began to design houses in his spare time and, as this practice was not authorized by his contract, his employment was terminated in June 1893. In 1889 Wright married Catherine Tobin and later that year they moved into a house Wright designed for them in Oak Park, a suburb of Chicago. During this ensuing decade of marital stability, during which Catherine bore him six children, Wright worked to perfect his own architectural expression. Wright absorbed the essentials of picturesque design from Silsbee, whose houses consisted of asymmetrically organized rooms of contrasting shapes opening into each other through wide doorways, the spatial flow accentuated by long diagonal views that often continued outside on to wide porches. The complex exterior massing of these houses echoed the irregularity of their interior plans and volumes. If Wright derived his fascination for complex interior spaces from Silsbee, however, his mastery of plane and mass came from Louis Sullivan.

Wright was also inspired by Japanese architecture, from which he derived his method of using solid and transparent rectangular planes to define space. Another significant attribute of Wright's design process may be traced to the same source: the planning module, a rectangular grid laid over drawings to regulate the placement of walls, windows and doors, thus giving a consistent scale to a building. Wright also found inspiration in the abstract aesthetics of Japanese prints, which he later collected, exhibited and wrote about. From the English Victorian Gothic Revival, Wright borrowed the casement window, which he arranged most often in horizontal bands that served both to open up and to echo the rectangular shape of the wall planes from which he constructed his houses and, at the same time, illuminated their interiors with nearly continuous horizontal bands of light.
The development of Wright's mature architecture may be traced in a series of house designs of the 1890s, beginning with the brick house for James Charnley, which he designed in 1891 while with Adler & Sullivan. Its abstract massing and formal composition was based on Sullivan's experiments with pure geometry in the late 1880s. The same theme reappeared in the William Winslow House (1894), River Forest, IL, also of brick. Not until 1900 was Wright able to design an equally abstract house of wood frame. He accomplished this by replacing traditional board-and-batten with plaster in the house he built that year for B. Harley Bradley, Kankakee, IL. In doing so, he was influenced by the modern plaster houses of English architects such as C. F. A. Voysey.

2. Prairie houses and mature work, 1901–13.
In 1901 Wright published a project for 'A Home in a Prairie Town' (Ladies' Home Journal, XVIII/3, Feb 1901, p. 17); it was characterized by continuous hip roofs of low pitch extended to cover the carriage entrance, a continuous screen or frieze of casement windows, and a wall and base course below them. This approach culminated in 1902 in the house he designed for Ward Willits, Highland Park, IL. Buildings are organized around interlocking spatial units defined by solid and transparent planes. Simplicity of expression accorded each surface, which serves to convert the planes and masses into abstract geometric shapes and masses.
Between 1903 and 1913 Wright designed many brilliant variations on the theme of the Willits House. They included houses for Darwin Martin (1903–6), Buffalo, NY; Thomas Hardy (1905), Racine, WI; Steven Hunt (1907), La Grange, IL; Avery Coonley (1907–10), Riverside, IL; Isabel Roberts (1908), River Forest, IL; Fred Robie (1908–10), Chicago; Mrs Thomas Gale (1909), Oak Park; and Francis Little (1913–14; destr.), Lake Minnetonka, MN.
In the early years Wright had relatively few commissions for non-residential buildings. The largest and most significant executed examples were the Larkin Building, Buffalo, NY, and Unity Temple (1905–8), Oak Park. Both were similar in the way their interior volumes were expressed on the exterior. Both had a vertically orientated rectilinear space at the centre, with subsidiary volumes opening into it at various levels, and they were both originally designed to have brick walls trimmed in stone. Another project of this period, the 25-storey San Francisco Call Buil

Frank Lloyd Wright

1867, Richland Center, WI, USA
1959, Phoenix, AZ, USA

ding (1912; unexecuted), San Francisco, would have been his first tall building in reinforced concrete, conceived as a rectangular slab skyscraper with concrete load-bearing walls.

Wright recognized that his method of composing buildings—in which the traditional self-contained 'box' punctured by doors and windows was broken down into opaque planes and transparent screens merging inside and outside—was revolutionary, and he began to write about it in 1908. He asserted that he designed from the inside outwards, meaning that he did not begin with a preconceived idea of the exterior form or its details, as he supposed most other architects did, but with the building's requirements, both material and subjective, from which he developed a suitable plan and spatial configuration. Only then did he define interior spaces with rectangular screens, both solid and transparent, and raise the elevations that gave physical reality to the spaces enclosed. That Wright actually worked in this manner is certain from the testimony of his employees, both between 1902 and 1910 and after 1931. Architecture conceived of in this way, growing like a plant 'from the ground up into the light by gradual growth' he called 'organic'.

In Wright's mature architecture there is virtually no hint of historic styles, and he realized that to achieve integrated artistic compositions he would also have to design the furniture and furnishings for his buildings. For those residential clients who could afford both house and custom-designed fittings, Wright provided interiors of the highest quality, for example in the two houses for Francis Little; the Martin House, where he designed such items as complex rectilinear oak bookcases and tables, upholstered settles, and armchairs with circular seats, and coloured, geometrically patterned art glass windows; and the Robie House, where he designed settles and chairs, lamps, rugs, and a massive dining-table with lamps and flower vases at the corners and tall, rigidly rectangular slat-backed dining-chairs. For these and many of his early houses, he also designed coloured, geometrically patterned art glass windows. Wright also designed the metal office furniture and filing cabinets for the Larkin Building as well as other fittings.

In 1905 Wright made his first visit to Japan, where he studied Japanese architecture and collected ukiyoe prints. At this time, however, his personal life changed dramatically as a result of his liaison with Mrs Mamah Cheney, the wife of a client for whom he built a house in Oak Park in 1904. In 1909, accompanied by Mrs Cheney, he went to Europe to arrange for the first extensive publication (1911) of drawings and photographs of his architecture by Ernst Wasmuth of Berlin; much of the preparatory work was carried out with the help of his eldest son, Lloyd Wright. The Wasmuth portfolio may have influenced a number of early Modern Movement architects in Europe, including Mies van der Rohe, Le Corbusier and Walter Gropius. On his return to the USA in 1911, Wright built Taliesin, a country home for himself and Mrs Cheney in the Lloyd Jones Valley near Spring Green.

In August 1914 Wright's affair with Mrs Cheney ended in tragedy when a deranged servant murdered her, her children and four others at Taliesin after setting fire to the living-quarters.

3. Decorative years, 1914–34.

Although Wright rebuilt Taliesin, for the next decade he was a wandering architect, living variously in Tokyo, Los Angeles and Arizona as well as at Taliesin. In 1913 he had made preliminary drawings for the Imperial Hotel, Tokyo, and he returned there with his drawings late in 1916, accompanied by the artist Miriam Noel, with whom he had begun a liaison. During World War I and after he spent considerable periods of time in Japan, returning permanently to the USA only in 1922 after the completion of the hotel. During the time Wright travelled between the USA and Japan, he designed the vaguely Pre-Columbian Barnsdall House (1916–22), Los Angeles, and after his return he continued in the decorative vein of the Imperial Hotel with a number of designs for concrete-block houses. These are distinguished by their rich ornamentation producing a textile-like wall pattern both inside and out, achieved by casting geometric designs into outer and inner blocks, which were tied together with steel reinforcing. Among the best of the block buildings are houses for Mrs George Millard, 'La Miniatura' (1923), Pasadena, CA, for Charles Ennis (1924) and for Dr John Storer (1924), both in Los Angeles; Phi Gamma Delta Fraternity House (1924; unexecuted), Madison, WI, and San Marcos in the Desert Resort Hotel (1927–9; unexecuted), Chandler, AZ. Meanwhile Wright's relationship with Miriam Noel, whom he married in 1922, had proved disastrous because of her mental instability and they were divorced in 1927. In 1925 he had met Olgivanna Milanoff, the daughter of a Montenegrin judge, whom he took to live with him

at Taliesin following a second fire there in that year, and their marriage in 1927 ushered in a period of domestic tranquillity in his life that lasted until his death.

During the years before and after the Depression, writing, teaching and the dissemination of his ideas played a major part in Wright's work at a time when commissions were scarce. In 1927 he and Olgivanna were planning to convert the abandoned Hillside Home School, near Taliesin, that he had built for his aunts in 1903, into a new educational institution. Originally intended as an art school, it became a place where aspiring architects could receive instruction from Wright. Known as the Taliesin Fellowship, the school opened in 1932 and aimed to educate the whole person: in the communal life fostered by the Fellowship, students assisted with farming, food preparation and other chores, performed as musicians and thespians, and worked as draughtsmen. In 1927–8 Wright contributed a series of theoretical articles to the Architectural Record, and in 1930 he was invited to give the Kahn Lectures at Princeton University, which were published in 1931 as Modern Architecture. He subsequently lectured extensively in the USA, Europe and South America. In 1932 Wright's An Autobiography appeared, to be followed by a series of books that brought him worldwide publicity, enhancing his international reputation and providing fees, royalties and commissions that helped to ensure the financial security of the Fellowship. Among the best known are The Disappearing City (1932), The Future of Architecture (1953), The Natural House (1954) and A Testament (1957).

4. Late work, 1935 and after.

An incredibly rich and varied second career began for Wright in 1935 with the commission from Edgar J. Kaufmann for a country house at Bear Run, near Pittsburgh, PA. The result was Fallingwater, a multilevel structure of rugged stone walls and smooth concrete terraces cantilevered over a waterfall. The Johnson Wax Administration Building (1936–8), Racine, WI, is no less unique: a smooth, curvilinear, streamlined building of brick, indirectly lit through rooflights and continuous bands of glass tubing, its main roof carried on elegant tapered mushroom columns.

In this immensely creative period Wright also developed the Usonian house, intended as a relatively low-cost home affordable by the middle classes. Wright believed that his Usonian homes, cleansed of historic traditions and styles and organically united with the landscape, were appropriate dwellings for the free people of democratic 'Usonia' (United States of North America). The first of these houses to be built was designed in 1936 for Herbert Jacobs at Madison. More than 100 Usonian houses were subsequently built throughout the USA.

In spite of the visual and spatial diversity of Wright's late work, it is possible to identify two common characteristics of this period: surfaces became smooth or lightly textured, with ornament virtually eliminated; and innovative geometric planning grids, incorporating triangles, hexagons and circles, were introduced to generate unusually shaped interior volumes as well as exterior forms. Triangular grids, for example, became the planning module for as many as 100 homes designed between 1936 and 1959 and also for such non-residential buildings as the First Unitarian Church (1947–51), Shorewood Hills, WI, which has a dramatic triangular roof of acute pitch over the sanctuary. Wright had previously used a triangular grid in a project (1929; unexecuted) for St Mark's-in-the-Bouwerie, high-rise blocks of two-storey apartments in New York. In addition to the angular walls produced by the grid, these towers also were to have floors cantilevered from a central spine of reinforced concrete, which Wright likened to a tree trunk. The same structural system was used in the Johnson Wax Laboratory Tower (1944–50), Racine, WI, the external form of which continued the streamlined character of the earlier administration building, with rounded corners and bands of brick and glass-tube cladding. The 'tree-trunk' structure was also used in the Harold Price Tower (1956), Bartlesville, OK, a combined office and apartment building clad in glass and copper; and it was envisioned for the Mile-High Skyscraper (1956; unexecuted) projected for Chicago, the faceted walls of which formed an elongated pyramid tapering to a needle-like point. In the Beth Shalom Synagogue (1954–7), Elkins Park, PA, a triangular ground-plan was developed into a hexagonal structural pyramid filled in with translucent fibreglass panels which illuminate the interior with a diffuse milky light, while the hexagon was used as a planning device in the Paul Hanna House (1936–7), Palo Alto, CA, and the Arizona State Capitol (1957; unexecuted), Phoenix.

Wright's use of the circle as a planning device can also be traced back to the 1920s, although he did not employ it regularly until the late 1930s. Examp

Frank Lloyd Wright

1867, Richland Center, WI, USA
1959, Phoenix, AZ, USA

les include Olin Terraces, a civic centre for Madison later renamed Monona Terrace when the project was revived in the 1950s (1938; unexecuted but built in a revised form on the original site in 1995–6); the so-called solar hemicycle house for Herbert Jacobs (1943), Middleton, WI, laid out as a segment of a circle, its south wall of glass and its north wall an earth berm; and the Friedman House (1948), Pleasantville, NY. The spiral first appeared as a motor car ramp leading to a mountain-top planetarium overlook (1925; unexecuted) but did not appear again until the first designs for the Solomon R. Guggenheim Museum (1943), New York, resulting in the extraordinary (and functionally controversial) upwardly expanding helix of the main gallery (built 1956–9); it also appeared in the graceful ramp in the V. C. Morris Shop (1948), San Francisco; and in the house (1950) built for his son David Wright at Phoenix. In the 1950s the circle, used both as a planning tool and as a formal element, occurred more and more often in Wright's work, as seen in the segmental arches and dome of the Marin County Government Center (1957–66), San Rafael, CA, and the space-age Greek Orthodox Church (1959), Wauwatosa, WI, which resembles a flying saucer.

Wright continued to work actively as an architect, teacher, lecturer and writer until his death in 1959 just two months short of his 92nd birthday. Although his work has been widely admired since the beginning of the 20th century, relatively little of a scholarly or critical nature was written about it during his lifetime, the first book about his architecture in English being published only in 1942 when Wright was 75 years old. Between then and 1976 only a handful of scholarly books about Wright appeared and most of them dealt with contextual issues, though in 1976, beginning with a study of the Usonian house, there began a steady stream of books about Wright's architecture. Once the archives at Taliesin West were fully opened for research in the mid-1980s, and copies of their correspondence, drawings and photographs deposited at the Getty Research Institute, Los Angeles, CA, the pace of scholarly study and critical reassessment of Wright's work began to accelerate.

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