

R. Stephen Sennott, Editor

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A - F



reflected Reich's luxurious taste. Reich also likely inspired the Pavilion's inclusion of Georg Kolbe's bronze *Dawn* figurative sculpture. This gestural, female nude, one of a series Mies placed in buildings immediately after initiating a personal relationship with Reich in 1926, stood untouchable in a second, smaller courtyard pool as the final objective of the most remote passage within Mies' Pavilion.

Despite many authors' claims, Mies used no rigorously modular system at Barcelona. The podium's grid incorporated slight dimensional irregularities suiting local conditions. Further, the walls did not center on grid lines, and only four of eight columns found grid nodes. Still, it is undeniable that Mies' subsequent penchant for modular reticulation gathered strength here. The grid, the freestanding veneered plane, and the sculptural figure all underwent clarification at the Pavilion and later populated his more austere 1930s Courthouse projects.

Without alternate use once the exposition closed in January 1930, the Pavilion was dismantled after eight-months; however the Pavilion's afterlife as a much eulogized modernist exemplar began with its inclusion in the aesthetically oriented International Style exhibition curated by Hitchcock and Johnson (1932) at the Museum of Modern Art—a befitting launching given the Pavilion's aesthetic rather than pragmatic conception. The apparent dearth of documentation gradually lent Mies' building near mythic status. For 50 years, it was published monotonously using only inaccurate plans and a singular set of *Berliner Bild-Bericht* black-and-white prints. Bonta (1979) dissected the Pavilion's literature to exemplify how scholars rigidly perpetuate canonic interpretations. Tegethoff (1985) finally brought copious amounts of ignored documentation forward. Simultaneously, de Solà-Morales (1993) and others launched a successful reconstruction campaign, ending decades of discussion. Between 1981 and 1986, a painstakingly researched facsimile (rendered complete with technical changes enhancing permanence) arose over the original foundation trenches.

Reconstruction has generated many fresh interpretations. Quetglas (1988) reorients critical attention to the Kolbe statue's role; Constant (1990) interprets the Pavilion as a picturesque landscape resembling the temporal flux of nature, and, most startlingly; Evans (1990) discovers a lateral axis of horizontal symmetry. The visitor's optical plane precisely halves the Pavilion's 3.10-meter clear height. The composition's nonisotropic, overwhelmingly horizontal bias and hovering, antigravitational impression result from Mies' dedication to this unprecedented device.

RANDALL OTT

See also **International Style**; **Mies van der Rohe, Ludwig (Germany)**; **Tugendhat House, Brno, Czech Republic**; **Weissenhofsiedlung, Deutscher Werkbund, Stuttgart (1927)**

Further Reading

Having appeared in virtually every major work on 20th-century architecture since World War II and having already inspired several monographic studies, the German Pavilion possesses a vast and frustratingly multilingual literature. The sources are dispersed, fragmentary, and unusually riddled with unresolved contradiction, mythic supposition, and factual error. Published graphic documents are notoriously faulty. The most comprehensive written sources are Solà-Morales (which contains an extensive bibliography) and Tegethoff. What remains of Mies' original drawings are found in Drexler.

- Bonta, Juan Pablo, *Architecture and Its Interpretation: A Study of Expressive Systems in Architecture*, New York: Rizzoli, and London: Lund Humphries, 1979
- Constant, Caroline, "The Barcelona Pavilion As Landscape Garden: Modernity and the Picturesque," *AA Files*, 20 (Autumn 1990)
- Drexler, Arthur (editor), *The Mies van der Rohe Archive*, New York: Garland, 1986–; see especially part 2, vols. 7–20, 1938–1967: *The American Work*
- Evans, Robin, "Mies van der Rohe's Paradoxical Symmetries," *AA Files*, 19 (Spring 1990)
- Ford, Edward R., *The Details of Modern Architecture*, 2 vols., Cambridge, Massachusetts: MIT Press, 1990–96
- Hitchcock, Henry-Russell, Jr. and Philip Johnson, *The International Style*, New York: Norton, 1932; reprint, with new foreword, New York and London: Norton, 1995
- McQuaid, Matilda, *Lilly Reich, Designer and Architect* (exhib. cat.), New York: Museum of Modern Art, 1996
- Quetglas, Jose, "Fear of Glass: The Barcelona Pavilion," in *Architectureproduction*, edited by Beatriz Colomina and Joan Ockman, New York: Princeton Architectural Press, 1988
- Schulze, Franz, *Mies van der Rohe: Barcelona Pavilion and Furniture Design*, S.l.: s.n. 1979
- Solà-Morales Rubió, Ignasi, Cristian Cirici, and Fernando Ramos, *Mies van der Rohe: El pabellón de Barcelona*, Barcelona: Gili, 1993; as *Mies van der Rohe: Barcelona Pavilion*, translated by Graham Thomson, Barcelona: Gili, 1993
- Tegethoff, Wolf, *Mies van der Rohe: Die Villen und Landhausprojekte*, Essen, Germany: Bacht, 1981; as *Mies van der Rohe: The Villas and Country Houses*, edited by William Dyckes, translated by Russell M. Stockman, Cambridge, Massachusetts: MIT Press, 1985
- Von Vegesack, Alexander and Matthias Kries (editors), *Mies van der Rohe: Architecture and Design in Stuttgart, Barcelona, Brno* (exhib. cat.), Milan: Skira, and Weil, Germany: Vitra Design Museum, 1998

GERMANY

German architecture in the 20th century was forged by the succession of political and social upheavals that swept through Europe during the century, so often with Germany at their epicenter. Conservative and progressive, as well as regional and international architectural tendencies battled for hegemony in trying to shape the German built environment, each in their own image. The result is a century of tremendously heterogeneous architecture with seemingly few continuities or unifying themes. Despite this diversity, a walk through many large German cities today gives the impression that German architecture, perhaps more than that of any other country in Europe, is an architecture of the 20th century. Indeed, many consider Germany to be one of the birthplaces, if not the home of modern architecture.

German architecture at the turn of the last century was characterized by a continuation of many trends from the prosperous decades immediately following German unification in 1871. In architectural design, the use of extravagant historical styles flourished amidst increasing modernization, particularly for the residences and commercial properties of the increasingly wealthy upper and middle class. Alfred Messel's Wertheim Department Store (1898–1908) in central Berlin, with its mix of historicist exterior details and unprecedented use of steel and glass in a new building type celebrating the triumph of bourgeois, metropolitan consumer culture, epitomized this trend. The more na-

tionalist and militarist tendencies of the German bourgeoisie were embodied in Bruno Schmitz's gargantuan *Völkerschlachtdenkmal* outside of Leipzig (1898–1913), celebrating the centenary of the Prussian victory over Napoleon.

The first sparks of a modern, non-historicist architecture came from the Secession and Art Nouveau inspired reforms against the conservative norm in Germany. The artist's colony on the *Mathildenhöhe* in Darmstadt patronized by the Grand Duke Ernst Ludwig of Hesse (1900–1908) and the Folkwang buildings and artist community in Hagen promoted by Karl Ernst Osthaus (1898–1912) both experimented with new forms. Houses and complete interior fittings in these communities by Peter Behrens, the Viennese Secession architect Joseph Maria Olbrich, and the Belgian designer Henri Van de Velde revealed to the public a fresh, anti-historicist sense of form and ornament. There was a desire to escape history and dry academicism in favor of a more realistic unification of art, design, life, and the everyday world.

Such brief forays into the Art Nouveau (*Jugendstil*) style at the turn of the century were soon subdued by a penchant for more reserved, monumental, and often neo-classically inspired forms that swept Germany in the years just before World War I. Olbrich's Tietz Department Store in Düsseldorf (1906–1909), Paul Bonatz's main train station in Stuttgart (1911–1928), and Hermann Billing's Art Museum in Mannheim (1906–1907) are typical of this often monumental trend in stone construction.

This general call for architectural order and regularity was promoted by several reform institutions founded in the first decade of the century. Among the most important were the preservation oriented German Heimatschutz Bund (Homeland Protection Association), founded in 1907, and the German Garden Cities Association, founded in 1902, to promote the establishment of traditionally planned towns or suburbs with a restrained, arts-and-crafts style architecture to contrast with the increasingly unlivable industrial metropolis. The most well-known reform organization, however, was the *Deutscher Werkbund*, founded in 1907, intent on promoting a greater cooperation of German artists and industrialists with the explicit intent of producing more modern consumer goods to increase German exports. Behrens' AEG Turbine Factory (1908–1909) and Walter Gropius' factories for the Fagus shoe last manufacturer (1911–1914) and for the Cologne *Werkbund* exhibition (1914) were typical *Werkbund* products as they expressed Germany's new industrial image with a reserved, classically inspired set of architectural forms.

World War I brought Germany's defeat in November 1918, and with it the end of empire, an unsuccessful communist revolution, the imposition of social democracy, as well as economically crippling war reparations payments imposed on Germany. Although there was little work for architects, culture and architecture took on increasing ideological power in the attempt to reform society in the new social democracy. In the wake of defeat, groups of young artists and architects such as the *Arbeitsrat für Kunst* (Working Council for Art) and the *Novembergruppe*, led by Gropius, Bruno Taut, Mies van der Rohe, and others, dreamed up Expressionist, utopian architectural fantasies that spoke of a revolution in architecture and a longing for a new architectures of glass and steel, color and purity. In 1919 state officials asked Gropius to unify Weimar's old art academy and applied arts schools and create a state-sponsored Bauhaus,

a school that unified all the arts under the leadership of architecture on the model of a medieval cathedral workshop. Although it produced very few buildings, the Bauhaus proved to be one of the most important forces in reforming and modernizing design and architectural thinking in Germany and throughout Europe.

In the years immediately after the war, shortages of building materials and spiraling inflation made most construction impossible. The overcrowded cities and poor housing conditions, a legacy of Germany's rapid industrialization, only grew worse. Some of the more successful attempts to create housing focused on do-it-yourself building technology such as rammed-earth construction and the small-scale *Volkswohnung* (People's House), similar to those advocated by the Garden Cities Association. Many of the important commissions that were built after the war, such as the *Grosses Schauspielhaus* (Large Theater) in Berlin by Hans Poelzig (1918–1919), the Einstein Tower in Potsdam by Erich Mendelsohn (1920–1921), and the *Chilehaus* by Fritz Höger in Hamburg (1922–1923), began to realize an architecture that was free of academic norms and focused on dynamic, expressive forms and a wide range of colorful materials. This Expressionism was a short-lived but very prevalent style that touched nearly all modern architects, but was rarely continued in the late 1920s. However, the organic functionalism of Hugo Häring and the ecclesiastical architecture of Domenikus Böhm are clearly related in spirit and form.

By the mid-1920s, through the help of American foreign aid, the German economy and building industry began to revive and came into one of the most vibrant and culturally avant-garde moments of 20th-century architecture, the so-called "Golden Twenties," when Berlin was the cultural capital of Europe. Although most construction in Germany continued regional traditions of the *Heimatstil* (homeland style) or the ornamental traditions of earlier decades, an unornamented, flat-roofed, technologically oriented modern architecture, or *Neues Bauen* (New Building) coalesced in urban centers such as Berlin, Frankfurt (Ernst May), and Dessau (Gropius, Hannes Meyer, and the Bauhaus), as well as Magdeburg (Bruno Taut), Celle (Otto Haesler), Hamburg (Karl Schneider), Munich (Robert Vorhoelzer), and Altona (Gustav Oelsner). Progressive architects increasingly associated with new left-leaning social democratic policies that sought technologically oriented renewal for the masses, while many conservative architects chose to associate with right-wing nationalist groups in favor of a pure German culture and architecture.

The most important endeavor which brought about the *Neues Bauen* were the vast public housing projects made possible by the Social Democratic municipal governments all over Germany: over 135,000 new housing units in Berlin, 65,000 units in Hamburg, and 15,000 in Frankfurt alone. Under the guidance of planners such as Martin Wagner and architects such as Taut, cities like Berlin taxed extant landowners steeply, purchased huge tracts of land, formed cooperative house-building associations that modernized the production of building materials, standardized building elements, and streamlined the construction industry. They produced government owned and subsidized housing of all types that allowed thousands of worker families to escape the infamous rental barracks and slums for small but efficiently planned apartment complexes with modern kitchens and other facilities. These innovative housing developments, most de-

signed in a remarkably uniform style that would soon be dubbed the "International Style," drew almost universal international acclaim from architects such as Le Corbusier, J.J.P. Oud, and Philip Johnson. There was, however, increasingly harsh critique from within Germany, as the local press labeled the new architecture a "Bolshevik" or "Jewish" attack on German architectural traditions and inappropriate for the German climate and culture.

When Hitler and his National Socialist regime took over political control of Germany in January 1933, the modern styles associated with social democracy were halted in favor of a mix of conservative styles, including the pitched-roof cottage for domestic architecture, monumental classicism for the urban civic centers, and a highly technical modern architecture for transportation and industrial facilities. Many of the most esteemed modern architects were forced to leave Germany because of their Jewish heritage, while others such as May, Meyer, Taut, Gropius, Mies van der Rohe, Wagner, Ludwig Hilberseimer, and Marcel Breuer voluntarily left in search of more favorable political and architectural climates, especially in the United States.

Hitler took an intense personal interest in the development of a Nazi architecture; he chose Paul Ludwig Troost and later the young Albert Speer to oversee all major architectural production in the Third Reich. Speer and his teams of architects re-planned and even started construction in seven major representative regional cities to serve as party headquarters, foremost among them Berlin. The severe, bombastic classical style, solid granite building ensembles they envisioned were to evoke the power, glory and longevity of the German Reich. World War II put a halt to most of these projects, although large ensembles remain in central Munich, namely the party grounds outside of Nuremberg by Speer (1934–1939), in the *Gauforum* in Weimar by Hermann Giesler (1936–1942), and in Berlin.

But the story of Nazi architecture was more insidious and pervasive than a few monumental projects. German architects designed the concentration and extermination camps of the Holocaust for maximum efficiency. Slave labor from the camps was used in quarries, brick furnaces, and many points of the building industry, especially for the most representative architectural projects. Architects also designed factories and entire industrial towns for the machinery of war such as the cities of Salzgitter for coal mining (Werner Hebebrand, 1937), and Wolfsburg for Volkswagen (Peter Koller, 1938), as well as transport facilities such as the Autobahn, and even vacation facilities for German workers and soldiers such as the great beach facilities on the island of Rügen (Clemens Klotz, 1935–1939). Thousands of German architects of all persuasions joined the Nazi party in order to keep their practices, and most continued their work after the war, despite their Nazi affiliations.

The victorious Western Allied powers (under the leadership of the United States' Marshall Plan) exercised strong control over the redevelopment of Germany's post-war economy, government, society, culture, and architecture. Throughout Germany, the immediate post-war years were dedicated to clearing and recycling literally mountains of building-rubble from bombed out cities—most of the work being done by women. This was followed by a rapid rebuilding of society's basic architectural needs, including hospitals, schools, temporary churches, and above all housing, with peak production reaching 600,000 units/year.

Under the sway of Communist Russia, in East Germany, an early "National Building Tradition" was officially dictated by Moscow in deliberate contrast to the "American" International Style architecture in West. The references to Schinkel's classicism in the signature project of the *Stalinallee* (1952–1958) by Hermann Henselmann in Berlin was an attempt to distill references from history and region into the representational and monumentalizing goals of the regime intent on differentiating itself from both the Nazi past and the capitalist West. Over time, important historical monuments and historic city centers were restored with a care and expertise rarely seen in the West, as the best of architectural heritage was made available to the working class.

Following Stalin's death, Khrushchev ordered a complete about-face towards rationalization and standardization, both out of economic necessity as the cheapest way to build, but also to symbolize the modernity of the East. After 1955 the entire building industry was systematically reorganized to churn out factory prefabricated concrete apartment blocks both in and around every East German city. Housing developments in Berlin's Marzahn, Jena, and Hoyerswerda were technologically more primitive and less comfortable than similar developments in the West but represented a similar loss of urban and architectural quality and an exclusive orientation to function and economics.

In West Germany, the "Economic Miracle" brought on by reconstruction and the development of a capitalist, modern state radically reshaped the face of nearly every city and town by the 1950s. Minimalist, abstract modern architecture became pervasive, especially in the larger, representational projects that commenced after the primary needs of society had been met. Egon Eiermann's German Pavilion for the Brussels World's Fair of 1957 set the dominant tone for architecture that was to be transparent and simple, modest and modern. Increasingly successful German businesses chose to represent themselves with the image of American corporate modernism, such as Eiermann's designs for Neckermann (Frankfurt, 1958–1961), Olivetti (Frankfurt, 1968–1972), and IBM (Stuttgart, 1967–1972) and the refined glass slabs of the Thyssenhaus skyscraper in Düsseldorf (Hentrich & Petschnigg, 1957–1960). Entire new suburban business districts such as Hamburg's City Nord and Frankfurt's Niederrad were part of a general loosening of the traditionally dense core of German towns made possible by the emphasis on transportation and technology in planning and architecture.

A vast array of museums, theaters, and entire new university campuses built after the 1950s were visible symbols of the attempt by West German social democracy to rebuild German culture by heavily subsidizing arts and education. The Ruhr University in Bochum (Hentrich-Petschnigg, 1962–1967), and the Free University in Berlin by the English designers Candilis, Josic and Woods (1962–1973) were highly ordered megastructures built with purely functional and economic considerations. Mies van der Rohe's new National Gallery in West Berlin (1961–1968) and Philip Johnson's museum in Bielefeld (1963–1968) reinforced a trend towards a minimalist, highly technical and rectilinear, functionalist aesthetic.

As a counter-reaction to the strictures of this highly ordered, rational architecture inspired by Mies and American modernism, the Expressionist Hans Scharoun and others worked towards a more organic, anti-monumental planning and architecture. The freedom of the open spaces of Berlin's *Kulturforum*, as well as Scharoun's most well known architectural designs, the Berlin

Philharmonic and Chamber Music Halls (1956–1963, 1979–1984) and the State Library (1967–1976), each display a highly personal, expressive style based on curves and angled geometries. Located near the Berlin Wall at the heart of the Iron Curtain, they soon became symbols of Berlin's freedom, in opposition to the communist regime in the East. Some of the most evocative buildings by German architects after the war were churches and memorials such as those by Rudolf Schwarz, Gottfried Böhm, and Otto Bartning that provided simple but memorable spaces for worship and remembrance, often with organic plans and a hope in the future represented by modern architecture. The draped tensile structures by Frei Otto and Günther Behnisch for the Olympic Stadium in Munich (1972) continued this alternative trend in German modernism, a precursor to some of the fragmented shapes of more recent postmodernist and deconstructivist architecture.

Housing continued to be one of the most pressing issues facing German architects after World War II. Although Germans moved increasingly into single-family houses in the last five decades of the century, large-scale housing developments in the modern style such as those developed by the *Neue Heimat* housing agency still formed the dominant housing type. The Interbau Building Exhibition, built with the participation of 53 well-known architects from 13 nations in the Hansaviertel district of West Berlin in 1957, was prototypical, replacing a dense city section with a loose array of modern high-rise, low-rise, and single-family houses in a park-like setting. In its wake came a largely successful though often maligned and short-lived trend of developing mega-scale housing complexes such as the Neue Vahr Siedlung for 30,000 residents outside of Bremen (Ernst May, Bernhard Reichow, Alvar Aalto et al, 1957–1962), and the Märkisches Viertel for 60,000 in Berlin (Werner Düttmann, Georg Heinrichs, Oswald Matthias Ungers, et al., 1962–1972).

By the early 1970s there began to be an increasing reaction against the ascetic modernist planning ideas and architecture that had come to dominate the German landscape. Architects called for a more contextually sensitive and traditional approach to city building and architecture, and a wave of museum building throughout West Germany, including Hans Hollein's Abteiberg Municipal Museum in Mönchengladbach (1972–1978), James Stirling's Staatsgalerie in Stuttgart (1977–1982), and O.M. Ungers' German Architecture Museum in Frankfurt (1979–84), demonstrated an overt connection to the past, traditions, and postmodern variety. Rather than tearing down extant buildings, preservation, restoration, additions, and even reconstruction became increasingly popular alongside a more contextual approach to architecture that coincided with post-modernism. Berlin's International Building Exposition (IBA, 1979–1987) sought to reclaim some of the more run-down districts of West Berlin through a program of careful urban repair, while new infill housing projects, often with architectural references to history, tradition, and region, signaled a return to the traditional urban closed facade and block formation.

The collapse of the Soviet Union led to German unification and the dismantling of the Berlin Wall. The unified government invested heavily in the East and provided incentives for private industry to rebuild the infrastructure, renovate housing and cultural buildings, and set up branch offices and corporate headquarters throughout the Eastern states. The capitol was returned to Berlin, which soon became one of the biggest construction

sites in Europe and the world. Department stores on the Friedrichsstrasse by I.M. Pei, Jean Nouvel, O.M. Ungers and others returned the street in the East to its former status as the most elegant shopping street in Germany.

Although Berlin continues to be Germany's dominant metropolis, the country's federal political structure gives large autonomy to the States, and helps reinforce regional identity, pride, and wealth distribution such that pockets of the newest, most innovative architecture appear all over the newly unified Germany. The new bank towers blossoming in Frankfurt, the expanding port and business centers in Hamburg, the new State Parliament in Dresden (Peter Kulka, 1991–94) and the innovative Leipzig Convention Center (Von Gerkan, Marg & Partners, 1995–98) all resulted from unification as well as the internationalization associated with Germany's powerful role in the new European Union and general globalization. Although German architects, with a few noteworthy exceptions, have received comparatively few opportunities to build abroad, the ubiquity of architectural competitions continues to make Germany more open than perhaps any other country to foreign and young architects, and new ideas. At the close of the 20th century bold experiments in theory and deconstructivism, in planning ideas, in environmental sustainability, as well as in all manner of technology and building performance in Germany continued to stimulate and inspire new developments all over the world that will help define the architecture of the succeeding century.

KAI K. GUTSCHOW

See also Behrens, Peter (Germany); Deutscher Werkbund; Fagus Werk, Alfeld, Germany; Gropius, Walter (Germany); Hilberseimer, Ludwig (United States, Germany); Mendelsohn, Erich (Germany, United States); Mies van der Rohe, Ludwig (Germany); Poelzig, Hans (Germany); Scharoun, Hans (Germany); Taut, Bruno (Germany)

Further Reading

Although the developments of German 20th-century architecture are summarized in every survey of modern architecture, and the literature on the subject is rich and growing rapidly, an authoritative comprehensive survey of this complex and often difficult century has yet to be written. Monographs exist on most of the major and minor architects, institutions and particular epochs, especially of the inter-war period. Guidebooks, including Nerdinger's, as well as studies on individual cities, especially Scheer's catalogue on Berlin, often provide the best overview of architecture across the century. The three catalogue volumes edited by Magnano Lampugnani (1992, 1994) and Schneider (1998) accompanied major retrospective exhibits at the German Architecture Museum and represent some of the best scholarship on German architecture, especially from 1900–1950. The best introductions in English to pre-WWII architecture are Lane, Pommer and Zukowsky, while the best surveys of the developments after the war in English are Marshall, De Bruyn, and Schwarz.

De Bruyn, Gerd, *Contemporary Architecture in Germany, 1970–1996: 50 Buildings*, edited by Inter Nationes, Berlin and Boston: Birkhäuser, 1997

Durth, Werner, *Deutsche Architekten: Biographische Verflechtungen, 1900–1970*, Brunswick, Germany: Vieweg, 1986, new edition 2001

Durth, Werner, and Niels Gutschow, *Architektur und Städtebau der Fünfziger Jahre*, Bonn, West Germany: Deutsches Nationalkomitee für Denkmalschutz, 1987

- Durth, Werner, Jörn Düwel, and Niels Gutschow, *Städtebau und Architektur in der D.D.R.*, Frankfurt and New York: Campus, 1998
- Feldmeyer, Gerhard G., *Die neue deutsche Architektur*, Stuttgart: Kohlhammer, 1993; as *The New German Architecture*, translated by Mark Wilch, New York: Rizzoli, 1993
- Hoffmann, Hubert, Gerd Hatje, and Karl Kaspar, *Neue deutsche Architektur*, Stuttgart: Hatje, 1956; as *New German Architecture*, translated by H.J. Montague, New York: Praeger, and London: Architectural Press, 1956
- Huse, Norbert, *Neues Bauen: 1918–1933: Moderne Architektur in der Weimarer Republik*, Munich: Moos, 1975; 2nd edition, Berlin: Ernst, 1985
- James-Chakraborty, Kathleen, *German Architecture for a Mass Audience*, London and New York: Routledge, 2000
- Jaskot, Paul B., *The Architecture of Oppression: The SS, Forced Labor, and the Nazi Monumental Building Economy*, London and New York: Routledge, 2000
- Lane, Barbara Miller, *Architecture and Politics in Germany, 1918–1945*, Cambridge, Massachusetts: Harvard University Press, 1968; 2nd edition 1985
- Magnano Lampugnani, Vittorio and Romana Schneider (editors), *Moderne Architektur in Deutschland 1900 bis 1950: Reform und Tradition*, Stuttgart: Hatje, 1992
- Magnano Lampugnani, Vittorio and Romana Schneider (editors), *Moderne Architektur in Deutschland 1900 bis 1950: Expression und Neue Sachlichkeit*, Stuttgart: Hatje, 1994
- Marschall, Werner and Ulrich Conrads, *Neue deutsche Architektur 2*, Stuttgart: Hatje, 1962; as *Modern Architecture in Germany*, translated by James Palmes, London: Architectural Press, and as *Contemporary Architecture in Germany*, New York: Praeger, 1962
- Nerdinger, Winfried and Cornelius Tafel, *Guida all'architettura del Novecento, Germania*, Milan: Electa, 1996; as *Architectural Guide: Germany: 20th Century*, translated by Ingrid Taylor and Ralph Stern, Basel, Switzerland, and Boston: Birkhäuser, 1996
- Pommer, Richard and Christian F. Otto, *Weissenhof 1927 and the Modern Movement in Architecture*, Chicago: University of Chicago Press, 1991
- Posener, Julius, *Berlin auf dem Wege zu einer neuen Architektur: Das Zeitalter Wilhelms II*, Munich: Prestel, 1979
- Schneider, Romana and Wilfried Wang (editors), *Moderne Architektur in Deutschland 1900 bis 2000: Macht und Monument*, Ostfildern-Ruit: Hatje, 1998
- Schreiber, Mathias (editor), *Deutsche Architektur nach 1945: Vierzig Jahre Moderne in der Bundesrepublik*, Stuttgart: Deutsche Verlags-Anstalt, 1986
- Steckeweh, Carl and Sabine Güllicher (editors), *Ideen, Orte, Entwürfe: Architektur und Städtebau in der Bundesrepublik Deutschland/Ideas, Places, Projects: Architecture and Urban Planning in the Federal Republic of Germany* (bilingual English and German text), translated by Larry Fisher, David Magee, and Renate Vogel Berlin: Ernst, 1990
- Weiss, Klaus-Dieter, *Young German Architects/Junge deutsche Architekten und Architektinnen* (bilingual English and German text), Basel, Switzerland, and Boston: Birkhäuser, 1998
- Zukowsky, John (editor), *The Many Faces of Modern Architecture: Building in Germany between the Wars*, Munich and New York: Prestel, 1994

GETTY CENTER

Designed by Richard Meier; completed 1997
Los Angeles, California

In 1982, the Getty Trust decided to build a facility to house its administrative offices and the staffs of its six cultural programs.

It purchased a 110-acre site at the base of the Santa Monica Mountains north of Los Angeles, California, and invited 80 architects to submit their responses to a program calling for soundly constructed buildings to serve and enhance the Getty's institutions in a scheme "appropriate to the site and responsive to its uniqueness." In addition, the Getty Trust emphasized the need to meet these objectives in a manner that would bring aesthetic pleasure to the building's occupants, visitors, and neighboring community. After interviewing the finalists, the selection committee chose the American architect Richard Meier (1934–) to formulate the design.

The rugged topography of the promontory and a strict conditional-use permit enacted by a powerful neighborhood coalition placed unusual constraints on the architect, especially the restriction limiting the height of the buildings to 65 feet above the 896-foot hilltop. To meet this restriction and reduce the scale and monumentality of the project, Meier located approximately half the built work below ground with passageways connecting many of the facilities at a level of 876 feet. Above ground, he planned a campus of low buildings instead of one dominant structure and added a five-acre propylaeum (vestibule or entrance) to furnish parking and provide access to the acropolis via an electric tram.

Meier's design for the Getty Center exhibits significant departures from his previous work. One example involves his decision to create an assemblage of buildings instead of a stand-alone structure. This decision forced him to consider urban-planning concerns, such as the relationship of buildings and the nature and sequencing of their interstitial spaces. His response is a 24-acre campus emphasizing freedom of movement between human-scaled edifices and through generous courtyards and gardens. His choice of materials represents another change. Local resident groups rejected both Meier's signature white-enameled exteriors and his alternate choice of metal panels but approved his later recommendation of rough-cleft Italian travertine for rectilinear surfaces and complementary colored enameled aluminum panels for the curvilinear areas. Cutting the fossilized stone into 30-inch blocks to conform to the grid used as the basis of the Getty design presented another challenge, requiring the invention of a guillotine-type apparatus. In addition, Meier devised a method of supporting the cladding on metal plates, leaving open seams between blocks and space between waterproofed interior surfaces and the travertine, diverting rainfall behind the stone to protect the rough exterior from erosion. Meier's suspension of the travertine panels denies the weight and massing of masonry, prompting some critics to describe the stone as having a fake appearance. The nontraditional handling of the material does produce insubstantiality and unfortunate results in some areas, particularly in the surface irregularity of the tall piers in the garden courtyard, but overall the effect of the travertine's variations in color and texture complements the tiled surfaces and contributes to the unified aesthetic of the complex.

Although the individual steel-frame and reinforced-concrete structures vary in form, they continue the uniform aesthetic by repeating Meier's characteristic 1920s vocabulary of ship railings, flat roofs, and extensive glazing. References to the work of Le Corbusier, Rudolph Schindler, Frank Lloyd Wright, and others provide the distinguishing features between the individual structures and the institutions they house. The design of the Research Institute and the Museum rotunda stand out as original and

returned to Sweden and resumed his work for Svenskt Tenn. Frank continued to reflect on the problems of modern architecture, however, and in the late 1940s and early 1950s he produced a series of designs for houses based on the principles of non-orthogonal geometry and chance ordering. He spelled out these ideas in a manifesto titled "Accidentism," which was published in the Swedish design review *Form* in 1958. By that time, Frank was largely a forgotten figure, and his bold proposals attracted little attention. Many of his ideas for an architecture of complexity and contradiction, however, presaged the rise of Postmodernism in the 1960s.

CHRISTOPHER LONG

See also **Congrès Internationaux d'Architecture Moderne (CIAM, 1927-); Loos, Adolf (Austria); Mies van der Rohe, Ludwig (Germany); Tugendhat House, Brno, Czech Republic; Weissenhofsiedlung, Deutscher Werkbund (Stuttgart, 1927)**

Biography

Born in Baden, Austria, 15 July 1885. Studied architecture, Technische Hochschule, Vienna 1903–10. Worked with Bruno Möhring for a year in Berlin 1908–09. Private practice, Vienna from 1910; founder, Haus and Garten, Vienna 1925; supervisor, Österreichischer Werkbund Exhibition, Vienna 1929. Settled in Sweden 1933; worked as interior designer, Svenskt Tenn, Professor, the Kunstgewebeschule, Vienna 1919–25; professor, New School for Social Research, New York 1942–43. Contributor, Weissenhofsiedlung, Stuttgart 1927; representative, CIAM 1928; member, Deutscher Werkbund; member, vice president, Österreichischer Werkbund. Died in Stockholm, Sweden, 8 January 1967.

Selected Works

Scholl House, Vienna, 1914
 Wiedenhofer-Hof (apartment building), Vienna, 1925
 Winarsky-Hof (apartment building), Vienna, 1926
 Villa Beer, Vienna, 1930
 Bunzl House, Ortman, Austria, 1914
 Nursery School (Kinderheim), Ortman, Austria, 1921
 Hoffingergasse Housing Project, Vienna, 1925
 Claëson House, Falsterbo, Sweden, 1927
 House, Weissenhofsiedlung, Stuttgart, 1927
 House, Vienna Werkbundsiedlung, 1932
 Sebastian-Kelch-Gasse Apartment House, Vienna, 1928
 Leopoldine-Glöckel-Hof (apartment building), Vienna, 1932
 Bunzl House, Vienna, 1936
 Wehtje House, Falsterbo, Sweden, 1936

Selected Publication

Architektur als Symbol: Elemente deutschen neuen Bauens, 1931

Further Reading

A detailed, scholarly catalog of Frank's designs appears in Stritzler-Levine. A complete catalog of Frank's textile designs is included in Wängberg-Eriksson (1999). For a catalog raisonné of Frank's architectural works, see Long and Welzig.

Long, Christopher, *Josef Frank*, Chicago: University of Chicago Press, 2002

- Spalt, Johannes (editor), *Josef Frank, 1885–1967: Möbel und Geräte und Theoretisches*, Vienna: Hochschule für Angewandte Kunst, 1981
- Spalt, Johannes, and Hermann Czech (editors), *Josef Frank, 1885–1967* (exhib. cat.), Vienna: Hochschule für Angewandte Kunst, 1981
- Spalt, Johannes (editor), *Josef Frank zum 100. Geburtstag am 15. Juli 1985* (exhib. cat.), Vienna: Hochschule für Angewandte Kunst, 1985
- Spalt, Johannes (editor), *Josef Frank, 1885–1967: Stoffe, Tapeten, Teppiche* (exhib. cat.), Vienna: Hochschule für Angewandte Kunst, 1986
- Stritzler-Levine, Nina (editor), *Josef Frank, Architect and Designer: An Alternative Vision of the Modern Home*, New Haven, Connecticut: Yale University Press, 1996
- Wängberg-Eriksson, Kristina, *Svenskt Tenn: Josef Frank och Estrid Ericson: En konsthistorisk studie*, Stockholm: Stockholms Universitet, 1985
- Wängberg-Eriksson, Kristina, *Josef Frank—Livsträd i krigens skugga*, Lund: Signum, 1994
- Wängberg-Eriksson, Kristina, *Josef Frank: Textiles Designs*, Lund: Signum, 1999
- Welzig, Maria, *Josef Frank (1885–1967): Das architektonische Werk*, Vienna: Böhlau Verlag, 1998

FRANKFURT, GERMANY

Frankfurt am Main was, next to Berlin, perhaps Germany's most important center of 20th-century architectural developments. Its attempts to initiate an era of "New Building" with innovative social housing programs and extensive public works construction in the 1920s and its impressive post-World War II rebuilding program that culminated with the creation of a publicly funded "Museum Mile" in the 1980s have given Frankfurt an architectural prominence that far outweighs its modest size. The building of dozens of Europe's tallest skyscrapers has made Frankfurt's skyline similarly distinctive.

Located on the Main River at the edge of western Germany's densely populated Rhein-Main industrial area, Frankfurt is the capital of the German state of Hesse and one of Europe's most important banking, commercial, industrial, and transportation centers. It began the 20th century as a province of Prussia under the guidance of Mayor Franz Adickes (1846–1915), who initiated a series of reform-minded urban-planning policies. Before World War I, visitors and professionals from the nascent field of urban planning flocked to admire Frankfurt's new streets, boulevards, parks, housing projects, public transit system, sanitation, and land development schemes. The unique brand of municipal socialism created by Adickes gave the city government broad powers to create a beautiful and well-ordered city that planning officials throughout Germany, England, and the United States envied and sought to copy.

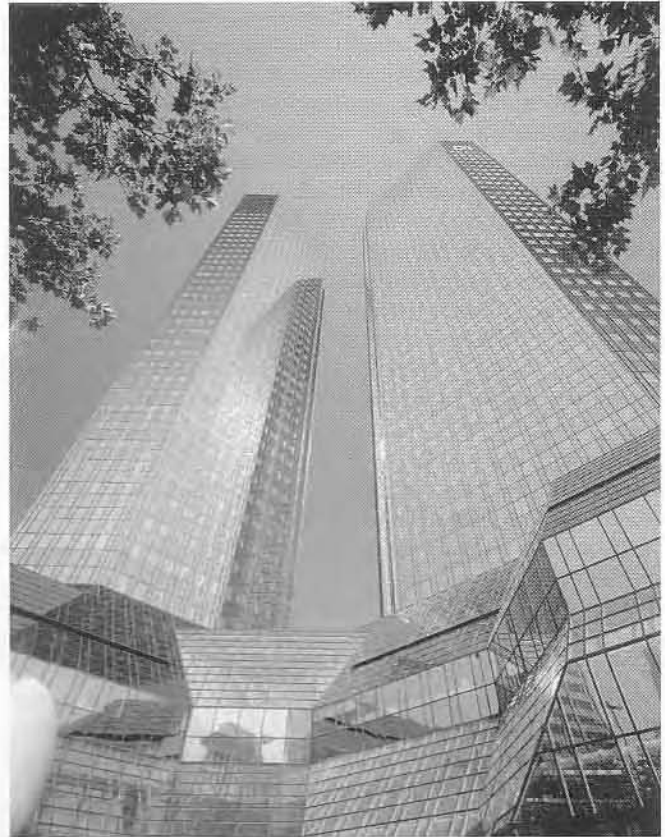
Despite these reforms, Frankfurt, like most other German (indeed European) cities, suffered a tremendous housing shortage at the end of World War I in 1918. Although some remedial reforms were implemented immediately after the war, major improvements did not come until the enactment of the Dawes Plan and the infusion of American money and loans in 1923 and the election of Social Democrat Ludwig Landmann as mayor

in 1924. Landmann further reorganized the city government and the tax laws to allow for more efficient planning and construction of housing and public works and hired the young architect Ernst May from Breslau in Silesia to take control of all building and construction departments in the city. Although May did not solve the housing crisis he inherited, he initiated an unprecedented program of innovative research, planning, and construction that once again drew the attention and participation of many of the Europe's leading architects and planners.

May's program called for the greater part of the population to live in a series of new decentralized satellite cities clustered around the old city core, to which they would be connected with high-speed roads and public transit. Based on older ideas of the Garden City movement that May had learned as a student of Raymond Unwin in England, the new housing estates provided high-density low-rise housing for middle-income workers both in large blocks and in long row houses. Whereas early satellites developments such as Bruchfeldstrasse (1926–27, E. May), Römerstadt (1927–28, E. May), and Praunheim (1927–29, E. May) were often laid out with more traditional curved streets and courtyards, the latter ones, such as Westhausen (1929–30, E. May), Hellerhof (1929, M. Stam), and Am Lindenbaum (1930, W. Gropius), were laid out in rigid, uniform rows oriented north to south to maximize the solar orientation of each apartment and allow for greater standardization of building components.

To realize his ambitious plans, May reorganized the municipal construction industry, making the process faster, cheaper, and better. Through the help of some national building research grants (RFG), he rationalized the municipal production of materials and standardized building components, including the lightweight, prefabricated-concrete panels that were assembled into cubic, flat-roofed housing. May and his team, including Grete Schütte-Lihotsky, Martin Elsaesser, Adolf Meyer, Emil Kaufmann, and Ferdinand Kramer, worked hard to define an "existence minimum"—the optimal and most efficient apartment layout for a given family size. The floor plans, the furnishings, and especially the "Frankfurt Kitchens" were completely redesigned and mass produced according to the latest American efficiency theories of C. Frederick, Frederick Taylor, and Henry Ford in order to minimize costs and work for the housewife. The resulting "New Building" was, like engineering, striving to be completely objective, rational, and efficient not only in its construction system but also in its aesthetic and social organization.

The housing program was complemented by an ambitious school-building program, new libraries, parks and recreation areas, new wholesale markets and electrical substations, and the implementation of a whole series of social and cultural reforms to help transform Frankfurt into a more modern home of the proverbial "New Man." May publicized Frankfurt's reforms in the avant-garde magazine *Das neue Frankfurt* (The New Frankfurt), which circulated the innovative ideas to Europe, the United States, Japan, and the rest of the world. Frankfurt's successes led the Congrès Internationaux d'Architecture Moderne (CIAM) holding its second congress in Frankfurt to inspect, admire, and share May's achievement of building over 10,000 new apartments in five years. Le Corbusier, Mies van der Rohe, Walter Gropius, and many other avant-garde architects of the Modern movement marveled at the new housing, infrastructure,



Deutsche Bank, by ABB Architects (1984), Frankfurt
© Derek Croucher/CORBIS

advertising graphics, and schools in the "New Frankfurt" and modeled many new standards on the Frankfurt prototypes.

In 1930, May and his team of architects left Frankfurt because of increasing pressure from Germany's radical right, who labeled May's modern brand of architecture "Bolshevik" and un-German. They went to the Soviet Union, where they had even greater experimental planning projects. Construction on the "New Frankfurt" continued until 1933, when Hitler's Nazi regime took over political power of Germany and championed a more traditional, handcrafted, pitched-roof architecture. Although architectural development slowed, Frankfurt's banking, transport, and industrial base made it an important center for Nazi wartime production. Two of the world's largest chemical companies, Hoechst and the former I.G. Farben, makers of the gas used in Nazi concentration camps, had their headquarters in new buildings in Frankfurt, the former in a brick Expressionist building by Peter Behrens (1924), the latter in a monumental, stone-clad, 10-story curved building by Hans Poelzig (1931). After World War II, Poelzig's office building was used as headquarters for the U.S. Army, and after 1995, it was slowly converted into university facilities.

From the fall of 1943 to September 1944 and especially on the night of 22 March 1944, the historic center of Frankfurt was almost completely destroyed by Allied bombings: of 47,500 buildings, fewer than 8000 survived at least in part. After the

war, expecting to become the headquarters of Allied occupation forces, Frankfurt's planners elected to reconstruct their city based primarily on considerations of efficient traffic arteries and large building lots rather than restoring the original medieval city fabric. After rubble removal in the late 1940s, rebuilding started in the 1950s alongside West Germany's economic recovery. The modern, International Style buildings designed by May's colleague Ferdinand Kramer as well as well-known younger architects, such as Egon Eiermann, Sep Ruf, and Gottfried Böhm, still dominate downtown Frankfurt. With the relocation of the West German Central Bank to Frankfurt in 1957, the city grew rapidly into the largest banking and stock exchange center of Germany, the home of one of Europe's largest and architecturally significant convention centers, with exhibit halls by F.V. Thiersch (1907), O.M. Ungers (1984), and Helmut Jahn (1989), and home to Europe's largest and busiest train station, one of the busiest airports in the world, and some of Germany's busiest Autobahn crossings.

In the late 1970s, citizens began to demand more spending on cultural affairs and the creation of a more humane cityscape. They voted to restore and reconstruct their war-torn central Römer Square with its surrounding 16th-century merchants' houses, using traditional half-timber framing techniques. The city also began the creation and construction of a series of world-class museums, most of which were located on a short stretch of riverbank across from the downtown in the more traditional Sachsenhausen neighborhood. Unger's German Architecture Museum (1984) and Richard Meier's Museum of Applied Arts (1985) added on to early 20th-century villas, whereas the German Postal Museum (1990, G. Behnisch), the Museum of Modern Art (1991, H. Hollein), and the Schirn Kunsthalle (1985, D. Bangert, B. Jansen, S. Scholz, and A. Schultes) are completely new structures.

Although the tall banking towers had already earned the city the nicknames "Bankfurt," "Mainhattan," and "Chicago on the Main," during the final decade of the century Frankfurt added a whole series of Europe's tallest and most innovative new skyscrapers. The trend started with Ungers' Torhaus (1984) and Jahn's Messeturm (1991) at the convention center. On the skyline, the blue-glass twin towers of the Deutsche Bank (1984) downtown were soon joined by the DG Bank "Crown" tower (1993) by Kohn Pederson Fox and the Commerzbank Tower (1997) by Sir Norman Foster, which contains large multistory atriums every eight floors with trees to help condition the building's air. Frankfurt's recent designation as the home of the European Union's new central bank has only fueled the construction boom—the Landesbank Hessen is planning a tower by Peter Schweiger, and German Telekom is planning a skyscraper by Richard Rogers. The second "New Frankfurt," created alongside the new museums and banks, has once again become a fertile ground for architectural innovation and admiration.

KAI K. GUTSCHOW

Further Reading

Kalusche is the best and most up-to-date guidebook to individual buildings. Many studies exist of the "New Building" in Frankfurt in the 1920s, of which Mohr is the most authoritative, and Bullock perhaps the best English summary. Hirdina's anthology of articles from *Das neue Frankfurt* provides invaluable contemporary source material. The

recent museums and skyscrapers are reviewed in countless architecture periodicals.

- Bullock, Nicholas, "Housing in Frankfurt 1925–1931 and the New Wohnkultur," *Architectural Review*, 163 (1978)
- Fehl, Gerhard, "The Niddatal Project: The Unfinished Satellite Town on the Outskirts of Frankfurt," *Built Environment*, 9 (1983)
- Henderson, Susan Rose, "A Setting for Mass Culture: Life and Leisure in the Nidda Valley," *Planning Perspectives*, 10 (1995)
- Hirdina, Heinz (editor), *Neues Bauen, neues Gestalten: Das Neue Frankfurt, die neue Stadt, eine Zeitschrift zwischen 1926 und 1933*, Berlin: Elefanten, 1984
- Jonak, Ulf, *Die Frankfurter Skyline: Eine Stadt gerät aus den Fugen und gewinnt an Gestalt*, Frankfurt and New York: Campus, 1997
- Kalusche, Bernd, and Wolf-Christian Setzepfandt, *Architekturführer, Frankfurt am Main; Architectural Guide, Frankfurt am Main* (bilingual German-English edition), Berlin: Reimer, 1992; 2nd edition, 1997
- Ladd, Brian, *Urban Planning and Civic Order in Germany, 1860–1914*, Cambridge, Massachusetts: Harvard University Press, 1990
- Lane, Barbara Miller, *Architecture and Politics in Germany, 1918–1945*, Cambridge, Massachusetts: Harvard University Press, 1968
- Mohr, Christoph, and Michael Müller, *Funktionalität und Moderne: Das neue Frankfurt und seine Bauten, 1925–1933*, Frankfurt: Fricke, 1984
- Prigge, Walter, and Hans-Peter Schwarz (editors), *Das Neue Frankfurt: Städtebau und Architektur im Modernisierungsprozess, 1925–1988*, Frankfurt: Vervuert, 1988

FREY, ALBERT 1903–1998

Architect, United States

Albert Frey holds a unique place in the history of 20th century Californian architecture as an uncompromising modernist of the European school, a pupil of Le Corbusier, and an exponent of high-tech and rationalist architecture who lived out his long life in the hills above Palm Springs, California.

Frey spent the early part of his career working for Belgian modernist architects Jules Eggericx and Raphael Verwilghen in Brussels, where he was involved with rebuilding housing following the Great War. He returned to Switzerland in 1927 to work for the firm of Leuenberger, Fluckiger before moving to Paris in 1928 to work for Le Corbusier and Pierre Jeanneret for nine months. In Le Corbusier's atelier he sat between Charlotte Perriand and Jose Louis Sert, working on the Centrosoyus Administration Building in Moscow (1933) and the Villa Savoye (1931) at Poissy. Here he was introduced to *Sweet's Catalogue* and, like Richard Neutra before him, found himself drawn to the American dream of a technological future.

Upon his arrival in New York in September of 1930, Frey began working with A. Lawrence Kocher, architect and editor of *Architectural Record*, in a partnership that would last until 1935. The most significant building of Frey's early career was the exhibition house designed for the 1931 Allied Arts and Building Products exhibition at the Grand Central Palace in New York. Called the "Aluminaire House" because of its ribbed aluminum cladding and its qualities of lightness and airiness, it was strongly influenced by Le Corbusier's Maison Citrohan (1920) projects and Maison Cook at Boulogne-sur-Seine (1926–27), as well as Frey's own investigations of mass housing, as evidenced in

and his competition-winning proposal for the Museum of Modern Art (1997) in New York. Despite the public nature of these commissions, he has been able to develop supportive relationships with his clients. His buildings are often the result of generous budgets and schedules, and a number are repeat projects for the same client. Even among Japanese architects, who enjoy a great deal of support and flexibility during design and construction, Taniguchi's craftsman-like design process and his constant presence on the construction site are considered extreme. As one frequent collaborator has noted, "Every step of the process of design and building is lovingly overseen and often reviewed. No detail remains unconsidered. No idea is unchallenged, often changed even during construction. Basic materials are considered and reconsidered right until their final installation." Taniguchi makes a point of acknowledging the contributions of experienced constructors, and he uses these relationships to exploit the latest material and technological innovations.

The result of his intense focus on each project is a pristine perfection. Taniguchi's dignified and uncompromising architecture has led more than one author to revive the idea of an architectural morality that sets him apart.

DANA BUNTROCK

See also **Japan; Tange, Kenzo (Japan)**

Biography

Born Tokyo, Japan, 1937. Graduated from Keio University, Bachelor's of Mechanical Engineering, 1960, and Harvard University, Master of Architecture, 1963. Taniguchi worked for Kenzo Tange, 1964–72. Established Taniguchi, Takamiya, and Associates in 1975; Taniguchi and Associates was established in 1979. Selected awards include an award from the Architectural Institute of Japan (for the Shiseido Art Museum, 1980), the Japan Academy of Art Prize (for the Ken Domon Museum, 1987), the Togo Murano Memorial Prize (for the Marugame Gen'ichiro Inokuma Museum of Contemporary Art, 1994), and the Public Building Award (for the Tokyo Sea Life Park, 1994). Taniguchi has also won awards from the Building Contractors Society for five of his buildings: Kanazawa Municipal Library (1980), Hotel Appi Grand (1987), Tokyo Sea Life Park (1991), Sakata Kokutai Kinen Gymnasium (1994), and the Marugame Gen'ichiro Inokuma Museum of Contemporary Art (1994).

Selected Works

Shiseido Art Museum, 1978
 Ken Domon Photography Museum, Sakata, Japan, 1987
 Tokyo Sea Life Park Aquarium, 1989
 Higashiyama Kai'i Gallery for the Nagano Prefectural Shinano Art Museum, 1990
 IBM Makuhari Building, 1991
 Marugame Gen'ichiro Inokuma Museum of Contemporary Art, 1991
 Toyota Municipal Museum of Art, Tokyo, 1995
 Kasai Rinkai Park Visitors' Center, 1996
 Tokyo National Museum of Horyuji Treasures, 1998
 Tsukuba City Theater, 1999

Further Reading

Because of Taniguchi's notorious reticence, there is very little available on his work. There are, however, two monographs that offer an up-to-date overview of his work. These are listed first. In addition, two articles attempt to summarize his work, and these are also noted.

Taniguchi, Yoshio, *The Architecture of Yoshio Taniguchi*, Tokyo:

Tankosha, 1996, and New York: Harry N. Abrams, 1999

"Yoshio Taniguchi," *Japan Architect* 21 (Spring 1996)

Buntrock, Dana, "Yoshio Taniguchi, Minimalist," *Architecture*, (October)

"The Work of Yoshio Taniguchi," *Casabella* 62 (November 1998)

TAUT, BRUNO 1880–1938

Architect and urban planner, Germany

Bruno Taut was one of the leading architects in the development of a modern architecture in Germany. He worked from a traditional historicist style to a colorful Expressionism before World War I and then helped create a rationalized "New Building" in which he maintained a sense of color and creativity that transcended the austere machine aesthetic and objectivity of his International Style peers. His career can best be divided into four major phases: training and early works, 1903–12; Expressionist experiments, 1912–23; large-scale social housing projects in Berlin, 1924–31; and exile in Russia, Japan, and Turkey, 1932–38.

Taut was born in Königsberg, East Prussia (present-day Kaliningrad, Russia), the son of a merchant and older brother of prominent architect Max Taut. He was educated at the local building college and received further training in the offices of leading contemporary architects Bruno Möhring in Berlin (1903), Theodor Fischer in Stuttgart (1904–08), and the urban designer Theodor Goecke at the Technical University in Berlin (1909). In 1909 Taut opened an office in Berlin with Franz Hoffmann and was joined by his brother Max in 1914, although they maintained separate design practices. The first commissions were for apartment buildings in Berlin in which Taut created abstracted, Secessionist-style compositions within a traditional framework.

In 1912 Taut was appointed advisory architect to the reform-oriented German Garden City Association, which led to commissions for two housing developments: the "Reform" Siedlung (housing estate) in Magdeburg, Germany (1913–14, 1921–23), and the Falkenberg Garden City southeast of Berlin (1913–14). In both developments Taut combined traditional garden city ideals and small, plain pitched-roof houses with brightly colored facades as an inexpensive, expressive way to enliven architecture without traditional historicist ornament.

Beginning in 1912, Taut also received a series of commissions for important experimental exhibition pavilions to advertise new construction materials, including the "Monument to Iron" in Leipzig (1913) and the famous "Glass House" at the Werkbund Exhibition in Cologne (1914). The Glass House, a propaganda building for the German glass industry, contained glass-block floors, a sparkling waterfall, walls lined with brightly colored tiles and prism glass, and a multifaceted, colored-glass dome with reinforced-concrete ribs. The pavilion was dedicated to the

poet Paul Scheerbarth, whose fantastical writings praised glass as the material of the future. The important critic and Taut's friend Adolf Behne championed glass in the popular press as the harbinger of a new, modern architecture for the future.

As a committed pacifist, Taut refused to participate in World War I, but in December 1918, within days of the German surrender, he and Walter Gropius formed the short-lived revolutionary Working Council for Art. This was an organization of young artists and architects intent on promoting a visionary new architecture of colorful, magical forms that were free of all the burdens of past traditions, ornament, and materials. Taut publicized his own dreams in several books, including *Alpine Architektur* (1919; *Alpine Architecture*) and *Die Auflösung der Städte* (1920; *The Dissolution of Cities*), and a series of utopian writings circulated among his friends that were later dubbed the "Crystal Chain Letters." All advocated the dissolution of existing cities in favor of a purified, crystalline architecture of colored glass. Throughout his life Taut used the power of the press to circulate his ideas to a larger audience, writing 21 books and nearly 300 articles over the course of his career.

In 1921 the newly elected socialist government of Magdeburg hired Taut as chief city architect, offering him an opportunity to implement some of his utopian ideas. He oversaw the extension of his own colorful Reform Siedlung, built a large concrete-frame exhibition hall, and initiated a controversial but widely publicized program of colorizing existing urban facades to enliven the drab cityscape of postwar Magdeburg. Rampant inflation and increasing criticism of his avant-garde ideas, however, soon ended his tenure.

The most productive phase of Taut's career began in 1924, when he accepted an offer to oversee the design of large socialized housing developments in Berlin for the communal building association GEHAG in cooperation with the chief city planner of Berlin, Martin Wagner. In seven very productive years, Taut designed more than 10,000 units of affordable housing that proved to be among the most important achievements in public housing of the century. Alongside Wagner, Taut became increasingly committed to rationalized, standardized, and largely prefabricated construction systems, and functional and efficient apartment layouts and furnishings that became models for housing all over the world. Large-scale developments, such as the "Horseshoe" Siedlung in Berlin-Britz (21,374 units, 1925–31) and Onkel Tom's Hütte in Berlin-Zehlendorf (1915 units, 1926–31), were built in a radically modern architecture of mostly flat roofs, unornamented facades (except for Taut's trademark color), and plenty of green space that provided a welcome relief for Berlin's working class. The developments helped alleviate a dire housing shortage and, along with built-in social institutions such as libraries, sports fields, communal laundries, dining facilities, and social clubs, helped promote worker solidarity and the socialist political ideals of Berlin's city government.

The success of these projects earned Taut a prestigious professorship in housing and city planning at the Technical University of Berlin from 1930 to 1932 as well as an honorary membership in the American Institute of Architects. The worldwide economic depression and an increasingly conservative and right-wing press and political machinery, however, once again forced him out of work and office. After 1931 he accepted various offers to work in the young Soviet Union, which had been relatively

untouched by the worldwide economic depression and which offered great promise to many important German architects in search of opportunities to implement their dreams of a new architecture for a new socialist society. Taut moved to Russia in 1932 and began plans for a hotel and several institutional buildings as well as a master plan for Moscow. However, political pressure soon forced him on the move again, briefly to Germany, where Adolf Hitler had started to campaign against all modern architects in 1933, and then on to Japan.

Taut stayed in Japan for three years, writing books, designing well-crafted furnishings and household objects, and studying the ancient building traditions of Japan, which he found surprisingly similar to European modern architecture. He was, however, unable to build anything in Japan because of his émigré status. Eager to build, in 1936 Taut once again followed a number of German colleagues and accepted an offer from the Turkish government for a professorship at the Academy of Art in Istanbul and a position in the Ministry of Education. His attempt to combine local Turkish building traditions with European modernism in several university and institutional buildings, and his attempt to use architecture to create a new society for postrevolutionary Turkey, earned him great fame and respect and put Taut back in his element in an adopted homeland. When his life was cut short by failing health in December 1938, he was honored by being the only European buried in the national cemetery.

KAI K. GUTSCHOW

Biography

Born in Königsberg, Germany, 4 May 1880; brother of architect Max Taut. Attended the Baugewerkschule, Königsberg; studied at the Technische Hochschule, Stuttgart under Theodor Fischer 1903–05; studied urban planning under Theodor Goecke at the Technische Hochschule, Charlottenburg, Berlin 1908–09. Married Hedwig Wollgast: 1 child. Worked in the office of Bruno Mehring, Berlin 1900–03; employed in the office of Theodor Fischer, Stuttgart 1904–08. Private practice, Berlin 1908–21; city architect, Magdeburg, Germany 1921–23; partnership with Max Taut and Franz Hoffmann, Berlin 1923–31; advisory architect, GEHAG (Gemeinnützige Heimstätten-, Spar-, und Bau-Aktiengesellschaft) 1924–32; practiced in Moscow 1932–33; practiced in Tokyo 1933–34; worked for Crafts Research Institute, Sendai; practiced in Ankara and Istanbul, Turkey, from 1935; head of architectural office, Turkish Ministry of Education. Professor, Technische Hochschule, Charlottenburg 1930–32; professor of architecture, Academy of Arts, Istanbul. Founding member, Arbeitsrat für Kunst 1918; member, Der Ring 1924. Died in Ankara, 24 December 1938.

Selected Works

Monument to Iron, International Building Trades Exhibition, Leipzig (with Franz Hoffmann), 1913
 Garden City Reform, Magdeburg, 1914, 1923
 Falkenberg Garden City, Berlin, 1914
 Glass House, Werkbund Exhibition, Cologne, 1914
 Hufeisensiedlung Housing Estate, Britz, Berlin (stage I with Martin Wagner), 1931

Forest Housing Development, near Onkel Toms Hütte, Zehlendorf, Berlin (stage I with Hugo Häring and O.R. Salvisberg), 1931
 Bruno Taut House, Ortakoy, Turkey, 1938
 Ministry of Culture Exhibition Buildings, International Exposition, Izmir, Turkey, 1938
 Language and History Faculty Buildings, University of Ankara, Turkey, 1938

Selected Publications

Alpine Architektur, 1919; as *Alpine Architecture*, translated by James Palmes and Shirley Palmer, 1972
Die Auflösung der Städte, oder die Erde eine gute Wohnung, 1920
Die neue Baukunst in Europa und Amerika, 1929
Nippon mit europäischen Augen gesehen, 1934
Architekturlehre: Grundlagen, Theorie, und Kritik, 1936

Further Reading

Although Taut's papers were destroyed in World War II, the first study of his socialist-inspired architecture was done by Kurt Junghanns in communist East Germany. As interest in Expressionism and the "New Objectivity" of interwar Germany increased over the years, so too did scholarship on Taut. Bletter, Sharp, and Whyte are good English-language sources. Speidel's recent catalog for an exhibit in Japan and Magdeburg provides spectacular color illustrations of Taut's work with complete reprints of his hard-to-find utopian writings.

- Bletter, Rosemarie Haag, "The Interpretation of the Glass Dream: Expressionist Architecture and the History of the Crystal Metaphor," *Journal of the Society of Architectural Historians* 40/1 (1981)
- Buddensieg, Tilmann (editor), *Berlin, 1900–1933: Architecture and Design; Architektur und Design* (bilingual English–German edition), New York: Cooper-Hewitt Museum, 1987
- Hartmann, Kristiana, "Bruno Taut," in *Baumeister, Architekten, Stadtplaner: Biographien zur baulichen Entwicklung Berlins*, edited by Wolfgang Ribbe and Wolfgang Schäpe, Berlin: Historische Kommission zu Berlin, 1987
- Jaeger, Roland, "Bau und Buch: 'Ein Wohnhaus' von Bruno Taut," in *Ein Wohnhaus*, edited by Jaeger, Berlin: Gebr. Mann, 1995
- Junghanns, Kurt, *Bruno Taut, 1880–1938: Architektur und sozialer Gedanke*, Berlin: Henschel, 1970; 3rd edition, Leipzig: Seemann, 1998
- Pehnt, Wolfgang, *Die Architektur des Expressionismus*, Stuttgart, Germany: Hatje, 1973; 3rd edition, Ostfildern-Ruit: Hatje, 1998; as *Expressionist Architecture*, translated by J.A. Underwood and Edith Künstner, New York: Praeger, and London: Thames and Hudson, 1973
- Sharp, Dennis (editor), *Glass Architecture* (by Paul Scheerbarth, 1914) and *Alpine Architecture* (by Bruno Taut, 1919), translated by James Palmes and Shirley Palmer, New York: Praeger, and London: November Books, 1972
- Speidel, Manfred (editor), *Bruno Taut: Natur und Fantasie, 1880–1938*, Berlin: Ernst, 1995
- Taut, Bruno, *Modern Architecture*, London: Studio, and New York: Boni, 1929
- Thiekötter, Angelika (editor), *Kristallisationen, Spliterungen: Bruno Tauts Glashaus*, Basel and Boston: Birkhäuser, 1993
- Volkman, Barbara (editor), *Bruno Taut, 1880–1938*, Berlin: Akademie der Künste, 1980
- Whyte, Iain Boyd, *Bruno Taut and the Architecture of Activism*, Cambridge and New York: Cambridge University Press, 1982
- Whyte, Iain Boyd (editor), *The Crystal Chain Letters: Architectural Fantasies by Bruno Taut and His Circle*, Cambridge, Massachusetts: MIT Press, 1985

Zöllner-Stock, Bettina, *Bruno Taut: Die Innenraumwürfe des Berliner Architekten*, Stuttgart, Germany: Deutsch Verlag-Anstalt, 1993

TÁVORA, FERNANDO 1923–

Architect, Portugal

Fernando Távora can be considered one of the most important exponents of contemporary Portuguese architecture; he symbolizes the deep cultural renewal that has gradually allowed Portugal to again play an important role in European architecture. His poetical language is the fine result of a particular cultural background that has led him to create a new Portuguese architecture based on a careful dialogue between modernity and tradition. Most of his works show that he has explored new paths to enhance the traditional values of rural Portuguese architecture: Each project evokes the past, but his designs follow principles of modernity, including functional spaces, accurate details, refined shapes, perfect integration to natural sites, and traditional materials. In other words, Távora's architecture is not "something different, special, sublime, but work made for man by man." Thanks to his long teaching experience (university professor, Faculty of Architecture in Oporto and Coimbra), he has become one of the main reference points for a new generation of Portuguese architects.

Fully aware of architecture by Le Corbusier and Mies van der Rohe, Távora sought ways to blend traditional Portuguese architectural forms with those of the modernists. In 1947 he wrote an essay titled "O problema da casa portuguesa" (The Problem of the Portuguese House), in which he explained his point of view for reinvigorating Portuguese architectural language: "The typical house will provide us with many important lessons when properly studied, since it is the most functional and less fanciful; in short it comes closest to the new intentions. . . . In contemporary architecture, a promising consistency is looming on the horizon . . . with which Portuguese architecture should merge, without fear of losing its identity. . . . It does not fade away like so much smoke; if we do possess this individuality, nothing will be lost by studying foreign architecture." However, in the works of this period (1947–52), Távora appears not yet to be able to adapt these principles to his projects.

Távora's efforts to combine modernity and tradition show promise in one of his first public projects for Oporto, the Municipal Park of Quinta da Conceição (1960), which included the simple Tennis Pavilion, his first masterpiece. The park shows elements of its past: an old monastery, founded in the 15th century. In the quiet landscape of the old cloister, the chapel and the pools fit well with the elegant design of new modernist spaces. Távora himself describes the Tennis Pavilion as the work of "a young architect torn between reality and dream, the local and the international, the model and the history." The design recalls traditional elements of Portuguese rural architecture and Japanese religious structures. With its balanced proportions and the use of traditional materials (wooden trusses and white concrete), the small pavilion "contains a certain remote oriental influence, as does traditional Portuguese architecture from the sixteenth century onwards."

Távora's experiments continue to blend different elements, modern and traditional, in the Summer House (1958) in Ofir.

- Pommer, Richard and Christian F. Otto, *Weissenhof 1927 and the Modern Movement in Architecture*, Chicago: University of Chicago Press, 1991
- Rasch, Heinz, and Bodo Rasch, *Wie bauen? Bau und Einrichtung der Werkbundsiedlung am Weissenhof in Stuttgart 1927*, Stuttgart: Wedekind, 1927
- Roth, Alfred, *Zwei Wohnhäuser von Le Corbusier und Pierre Jeanneret*, Stuttgart: Wedekind, 1927; reprint, Stuttgart: Kramer, 1977

WERKBUND EXHIBITION, COLOGNE (1914)

The Werkbund Exhibition held in Cologne, Germany, on the eve of World War I was the first major manifesto of the Deutscher Werkbund (DWB; German Work Association), an organization founded in 1907 by artists, architects, and industrialists to address the problem of form and design in the industrial age. The exhibit sought to show the world the Werkbund's successful attempt to ally the creative potential of art with the modern power of industry to create more aesthetically pleasing and higher-quality products and thereby raise German exports in an increasingly competitive world market. Architecturally, the exhibit gained nearly instant fame through a number of very innovative exhibit pavilions built by some of Germany's most distinguished architects as well as the theoretical "Werkbund Debate," which greatly influenced the future of modern German design and architecture after the war.

Much like a world's fair, the exhibition was a microcosm of prewar German culture, products, and know-how designed by more than 1000 Werkbund members. The vast exhibits contained "everything from couch cushions to city building," as a contemporary slogan proclaimed. The primary exhibits featured architecture and applied arts, but there were also displays on sport, women's fashion, religious art, colonial wares, worker housing, factories, cabaret, cinema, transportation, theater, garden design, funerary sculpture, and much more. A large amusement park was integrated into the exhibit to provide entertainment and eating establishments for the more than one million visitors who came. The city built advanced mass transit systems to ensure easy access to the fairgrounds from all over the world.

Although the city of Cologne previously had very few connections to the Werkbund, by agreeing to pay for the exhibit, and with its strategic location in the center of one of Germany's most industrialized regions and close to the French border, Cologne proved to be an ideal host for this exhibit of the pride of German industry. Intent on success, the organizers commissioned the famed architect and designer Peter Behrens to create the overall exhibit organization and hired only the biggest-name architects to design the various pavilions. The main festival hall by Behrens, the primary exhibit building by Theodor Fischer, several buildings by Hermann Muthesius, the Austrian Pavilion by Josef Hoffmann, as well as most of the other buildings at the fair were all designed in a spare form of German Neoclassicism, a formal vocabulary based on established traditions and conventions that regained popularity after the exuberant, individualist Art Nouveau style at the turn of the century. Other buildings were more purely classical or Renaissance in style, and a mock vernacular town was built in a stylized version of local brick architectural traditions to introduce visitors to regional culture.

There were, however, three major exceptions to these conservative designs. One of the first buildings that visitors saw on entering the fairgrounds that received much attention in the press was the small "Glass House" designed by Bruno Taut to display products of the German glass industry. It was intended as a poetic essay in glass block, colored glass, tile, mirrors, light, and water that were to show off the completely new aesthetic that could be achieved by a more intense use of glass in the building industry. A theater with an innovative, flexible stage configuration, designed by the Belgian designer Henri van de Velde, was equally popular. It featured bold geometric volumes, softened through some flowing curves in plan and in the main facade, as well as some sculptural reliefs by Hermann Obrist that recalled the Art Nouveau style of a few years earlier. Finally, toward the rear of the exhibit, Walter Gropius designed a model Werkbund factory and office building with a symmetrical brick facade inspired by American technology and the designs of Frank Lloyd Wright but flanked by two daring concrete spiral stairs cantilevered inside glass cylinders. The rear elevation of the same building featured a glass curtain wall that looked out over a large courtyard and exhibit hall crammed full of modern machines and engineering, including some Pullman car interiors by Gropius.

The contrast between the rather conventional, classicized designs and the more individualized, artistically daring buildings formed the backdrop to a very heated debate that erupted almost without warning at the exhibit. During his opening speech, Muthesius, the vice president of the Werkbund, outlined a series of ten programmatic points to direct the future of the Werkbund's efforts. He called for more standardized, typical, and conventionalized forms in architecture and industrial design to counter the rampant individualism and arbitrary forms that he perceived in the modern, industrialized consumer culture around him. On the basis of interpretations of the knotty word *Typisierung* (meaning "type" or "standardize") used by Muthesius, many historians have given him credit for anticipating the standardization and machine aesthetic that were to become hallmarks of avant-garde design and International Style modern architecture after World War I in Germany. Stanford Anderson, however, has more perceptively argued that Muthesius intended to reinforce the conservative statement made by the classicism of his own buildings and that he surely spoke for many of the reform-minded architects present.

Others at the exhibit, however, disagreed completely with Muthesius and were outraged that he voiced these ideas as Werkbund policy. The next day, speaking for a group of younger architects, including Gropius and Taut, van de Velde proposed ten "countertheses" that insisted that the road to success for the Werkbund lay not in fostering standards, norms, or conventions but rather in the creative, individual artistic talents of designers in search of innovative forms and production techniques. Those historians who have seen Muthesius's remarks as an early call for standardization have criticized van de Velde's countertheses as a retreat to earlier, Romantic sensibilities about artistic genius espoused by Art Nouveau rather than as the more general recantation of stultifying norms that Anderson credits him with.

The intense debate between the Muthesius and van de Velde camps concerning the future of Werkbund policy raged on until the exhibition suddenly closed its doors on 1 August 1914, just as the German kaiser declared war on Russia and on nearby

France and, with it, the beginning of World War I. Although discussion halted in the fervor of war, the legacy of the debate continued for decades. Blaming German industry for much of the devastation of the Great War and with the revolutionary zeal to replace everything that was old, established, and conservative after the war, the younger architects took over the Werkbund in 1919 and insisted on van de Velde's theses that individual artistic design was the key to modern design. Paradoxically, however, through the writings of critics such as Adolf Behne and Adolf Loos, the Werkbund, alongside the Bauhaus and modern architects and designers all over Germany, began to connect the search for new artistic forms with an increasingly rational, standardized, and industrially mass-produced aesthetic. The uniform International Style architecture that became the norm for most of the Western world just before and after World War II thus combined aspects of both the artistic and the standardized sides of the famous Werkbund debate initiated at the Cologne exhibit.

KAI K. GUTSCHOW

See also **Art Nouveau; Bauhaus; Bauhaus, Dessau; Hoffmann, Josef (Austria); International Style; Loos, Adolf (Austria); Muthesius, Hermann (Germany); Taut, Bruno (Germany); van de Velde, Henri (Belgium); Wright, Frank Lloyd (United States)**

Further Reading

The catalog *Der westdeutsche Impuls*, edited by Herzogenrath, is the most complete overall description and analysis of the 1914 exhibit, whereas his other work listed offers a reprint of the exhibit catalog. Conrads's book includes English translations of Muthesius's and van de Velde's theses. Campbell offers the most complete account of the Werkbund in English, though Schwartz's work offers a more intensive interpretation of the consumer and commodity culture inspired by the Werkbund. Anderson's article, part of a large body of work on the role of "convention" in modern architecture, revises the traditional interpretations of the Muthesius-van de Velde debate.

- Anderson, Stanford, "Deutscher Werkbund—The 1914 Debate: Hermann Muthesius versus Henry van de Velde," in *Companion to Contemporary Architectural Thought*, edited by Ben Farmer and Hentie J. Louw, London and New York: Routledge, 1993
- Banham, Reyner, "Germany: Industry and Werkbund," in *Theory and Design in the First Machine Age*, by Banham, London: Architectural Press, and New York: Praeger, 1960
- Behrendt, Walter Curt, "Die Deutsche Werkbund Ausstellung in Köln," *Kunst und Künstler*, 12/12 (September 1914)
- Burckhardt, Lucius (editor), *The Werkbund: History and Ideology, 1907–1933*, translated by Pearl Sanders, Woodbury, New York: Barron's, 1980; as *The Werkbund: Studies in the History and Ideology of the Deutscher Werkbund, 1907–1933*, translated by Pearl Sanders, London: The Design Council, 1980
- Campbell, Joan, *The German Werkbund: The Politics of Reform in the Applied Arts*, Princeton, New Jersey: Princeton University Press, 1978
- Conrads, Ulrich (compiler), *Programme und Manifeste zur Architektur des 20. Jahrhunderts*, Berlin: Ullstein, 1964; as *Programs and Manifestoes on 20th-Century Architecture*, translated by Michael Bullock, Cambridge, Massachusetts: MIT Press, 1970
- Deutsche Form im Kriegsjahr: Die Ausstellung Köln 1914*, Munich: Bruckmann, 1915
- Fischer, Wend (editor), *Zwischen Kunst und Industrie: Der Deutsche Werkbund* (exhib. cat.), Munich: Die Neue Sammlung, Staatliches Museum für Angewandte Kunst, 1975

- Herzogenrath, Wulf (editor), *Frühe Kölner Kunstausstellungen: Sonderbund 1912, Werkbund 1914, Pressa USSR 1928*, Cologne: Wienand, 1981
- Herzogenrath, Wulf, Dirk Teuber, and Angelika Thiekötter (editors), *Der Westdeutsche Impuls, 1900–1914: Kunst und Umweltgestaltung im Industriegebiet: Die Deutsche Werkbund-Ausstellung, Köln, 1914*, Cologne: Kölnischer Kunstverein, 1984
- Junghans, Kurt, *Der Deutsche Werkbund: Sein erstes Jahrzehnt*, Berlin: Henschelverlag Kunst und Gesellschaft, 1982
- Schwartz, Frederic, *The Werkbund: Design Theory and Mass Culture before the First World War*, New Haven, Connecticut: Yale University Press, 1996

WILLIAMS, AMANCIO (1913–89)

Architect, Argentina

Amancio Williams is considered one of the most significant architects in Argentina's history. His work is characterized by recurring modernist themes: the use of technology to generate lyrical forms, concern for hygienic and functional issues, and minimal application of ornament. The thematic schemes of Le Corbusier and the classicist tendency and attention to detail of Mies van der Rohe also influenced his projects. Williams's work addressed the concept of type or paradigmatic space. Over time these concepts were explored, refined, and often expressed through the building section. Aspects of modern life can be seen in his development typologies, such as the "Housing in Space" project, the large cultural complex, the office tower, the airport, the hospital, and the exhibit space. Williams's projects are identified and qualified through the integration of type, structure, architecture, and site.

From 1948 to 1951, Williams served as construction supervisor for Le Corbusier's Currutcher House project in La Plata, Argentina. Williams produced most of the construction documents for this house and supervised the project's structural and concrete work.

In his Housing in Space project (1943), Williams explored the relationship between site and climate. Williams's new approach toward creating a settlement is revealed in the manner in which the units are stepped to maximize light and ventilation, and a gentle curving roof offers broader views for all residents.

The House over the Brook (1945) in Mar del Plata synthesized many significant ideas for Williams. Designed for his father, a musician, it remains one of his few built projects. Williams described this house, which embodies his classicist attitudes, as "a form in space that cannot deny nature . . . concrete—its material—is exposed, and textured by mechanical and chemical procedures: form, structure and quality are thus here the same thing" (Frampton, p. 10). Two pillars support the bridgelike structure, and the curvature of the building responds to the landscape. The manner in which the house spans the brook is related to Maillart's bridge (1933) over the Schawanbach River. It exemplifies Williams's belief in the confluence of engineering and architecture. The interior displays his concern for detail and his poetic sensibility toward the use of materials.

Structural typology also plays a crucial role in Williams's proposal for the Airport of Buenos Aires (1945). The solution is logical in its simplicity. Located 8 kilometers from the city,

- Fausch, Deborah.** Department of Art History, University of Illinois at Chicago. Articles contributed to *Encyclopedia of 20th-Century Architecture*: SCOTT BROWN, DENISE (UNITED STATES).
- Fedders, Kristin.** Office of Fine Arts, Earlham College, Richmond, Indiana. Articles contributed to *Encyclopedia of 20th-Century Architecture*: ARCHIGRAM; RANCH HOUSE.
- Fenske, Gail.** Independent scholar, Winchester, Massachusetts. Articles contributed to *Encyclopedia of 20th-Century Architecture*: GILBERT, CASS (UNITED STATES); WOOLWORTH BUILDING, NEW YORK CITY; WURSTER, WILLIAM (UNITED STATES).
- Feuerstein, Marcia F.** College of Architecture and Urban Studies, Virginia Polytechnic and State University, Blacksburg. Articles contributed to *Encyclopedia of 20th-Century Architecture*: BAUHAUS, DESSAU.
- Fisher, Roger C.** School of Architecture, University of Pretoria, South Africa. Articles contributed to *Encyclopedia of 20th-Century Architecture*: AFRICA; SOUTHERN AND CENTRAL AFRICA.
- Fleming, Steven.** School of Architecture and Built Environment, The University of Newcastle, Australia. Articles contributed to *Encyclopedia of 20th-Century Architecture*: SALK INSTITUTE, LA JOLLA, CALIFORNIA.
- Flores, Carol A.** College of Architecture and Planning, Ball State University, Muncie, Indiana. Articles contributed to *Encyclopedia of 20th-Century Architecture*: GETTY CENTER, LOS ANGELES; ORNAMENT; SYMBOLISM.
- Flowers, Benjamin.** University of Minnesota. Articles contributed to *Encyclopedia of 20th-Century Architecture*: CORPORATE OFFICE PARK/ESTATE/CAMPUS; THE ARCHITECTS COLLABORATIVE (IAC) (UNITED STATES); URBAN RENEWAL.
- Fogge Plotkin, Andrea.** Author Newton, Massachusetts. Articles contributed to *Encyclopedia of 20th-Century Architecture*: HOLABIRD, WILLIAM, AND JOHN WELLBORN ROOT (UNITED STATES); L'INNOVATION DEPARTMENT STORE, BRUSSELS; MONUMENT TO THE THIRD INTERNATIONAL (1920).
- Frank, Suzanne.** New York Institute of Technology. Articles contributed to *Encyclopedia of 20th-Century Architecture*: INSTITUTE FOR ARCHITECTURE AND URBAN STUDIES.
- French, Christine Madrid.** Author, Charlottesville, Virginia. Articles contributed to *Encyclopedia of 20th-Century Architecture*: VISITOR CENTER.
- Froehlich, Dietmar E.** College of Architecture, University of Houston. Articles contributed to *Encyclopedia of 20th-Century Architecture*: COOP HIMMELB(L)AU (AUSTRIA); CZECH, HERMANN (AUSTRIA).
- Gale, Dennis.** Joseph C. Cornwall Center for Metropolitan Studies, Rutgers-The State University of New Jersey, Newark. Articles contributed to *Encyclopedia of 20th-Century Architecture*: CITY BEAUTIFUL MOVEMENT.
- Gamard, Elizabeth Burns.** School of Architecture, Tulane University, New Orleans, Louisiana. Articles contributed to *Encyclopedia of 20th-Century Architecture*: BAUHAUS; DEUTSCHER WERKBUND; HÄRING, HUGO (GERMANY); HOLOCAUST MEMORIAL MUSEUM, WASHINGTON, DC; KAHN, ALBERT (UNITED STATES); POST OFFICE SAVINGS BANK, VIENNA; RICOLA FACTORY, LAUFEN, SWITZERLAND; SCHAROUN, HANS (GERMANY); TRIBUNE TOWER INTERNATIONAL COMPETITION, CHICAGO (1922).
- Garner, John.** School of Architecture, University of Illinois-Urbana, Champaign. Articles contributed to *Encyclopedia of 20th-Century Architecture*: FACTORY/INDUSTRIAL TOWN PLANNING; GRAIN ELEVATOR.
- Gelernter, Mark.** College of Architecture and Planning, University of Colorado at Denver. Articles contributed to *Encyclopedia of 20th-Century Architecture*: REGIONALISM.
- Gilderbloom, John.** Urban Studies Institute, University of Louisville, Kentucky. Articles contributed to *Encyclopedia of 20th-Century Architecture*: CUBA.
- Glassman, Paul.** New York School of Interior Design. Articles contributed to *Encyclopedia of 20th-Century Architecture*: AT&T BUILDING, NEW YORK; GLASS HOUSE, NEW CANAAN, CONNECTICUT; GUGGENHEIM MUSEUM, NEW YORK; HOWE, GEORGE, AND WILLIAM LESCAZE (UNITED STATES).
- Gold, Martin.** School of Architecture, University of Florida, Gainesville, Florida. Articles contributed to *Encyclopedia of 20th-Century Architecture*: ACOUSTICS; LIGHTING.
- Gomez, Javier Alvarez-Tostado.** Department of Architecture, Louisiana State University. Articles contributed to *Encyclopedia of 20th-Century Architecture*: EXPO 1992 SEVILLE CUADRA.
- Gournay, Isabelle.** School of Architecture, Planning, and Preservation, University of Maryland. Articles contributed to *Encyclopedia of 20th-Century Architecture*: COHEN, JEAN-LOUIS (FRANCE); MONTREAL (QUEBEC), CANADA.
- Grainger, Hilary J.** School of Art and Design, Staffordshire University, England. Articles contributed to *Encyclopedia of 20th-Century Architecture*: BAKER, HERBERT (ENGLAND); DARMSTADT, GERMANY; FOSTER, NORMAN (ENGLAND); GARDEN CITY MOVEMENT; GRIMSHAW NICHOLAS AND PARTNERS (ENGLAND); HOLABIRD, WILLIAM, AND MARTIN ROCHE (UNITED STATES); LE HAVRE, FRANCE; LUTYENS, EDWIN (ENGLAND); MCKIM, MEAD AND WHITE (UNITED STATES); NOTRE DAME, LE RAINCY; PERRET, AUGUSTE (FRANCE); WILLIAMS, E. OWEN (ENGLAND).
- Grash, Valerie.** Department of Fine Arts, University of Pittsburgh at Johnstown. Articles contributed to *Encyclopedia of 20th-Century Architecture*: CHICAGO SCHOOL; KOHN PEDERSON FOX (UNITED STATES); SKIDMORE, OWINGS AND MERRILL (UNITED STATES); SKYSCRAPER.
- Gruber, Samuel.** Jewish Heritage Research Center, Syracuse, New York. Articles contributed to *Encyclopedia of 20th-Century Architecture*: SYNAGOGUE.
- Gruskin, Nancy.** Cambridge, Massachusetts. Articles contributed to *Encyclopedia of 20th-Century Architecture*: RAYMOND ELEANOR (UNITED STATES).
- Gutschow, Kai K.** School of Architecture, Carnegie Mellon University, Pittsburgh, Pennsylvania. Articles contributed to *Encyclopedia of 20th-Century Architecture*: FRANKFURT, GERMANY; GERMANY; TAUT, BRUNO (GERMANY); WERKBUND EXHIBITION, COLOGNE (1914).
- Gyure, Dale Allen.** College of Architecture and Design, Lawrence Technological University, Southfield, Michigan. Articles contributed to *Encyclopedia of 20th-Century Architecture*: EMPIRE STATE BUILDING, NEW YORK; GAS STATION.
- Hadaya, Hagit.** Independent scholar, Ottawa, Canada. Articles contributed to *Encyclopedia of 20th-Century Architecture*: ISRAEL; MOSQUE; PONTI, GIO (ITALY).

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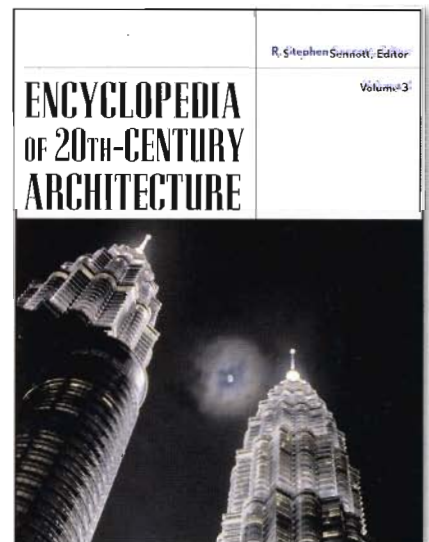
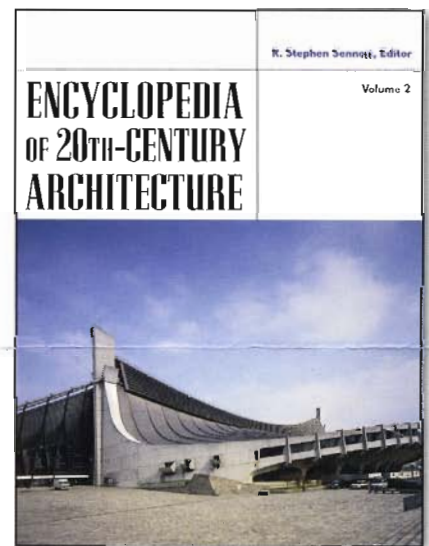
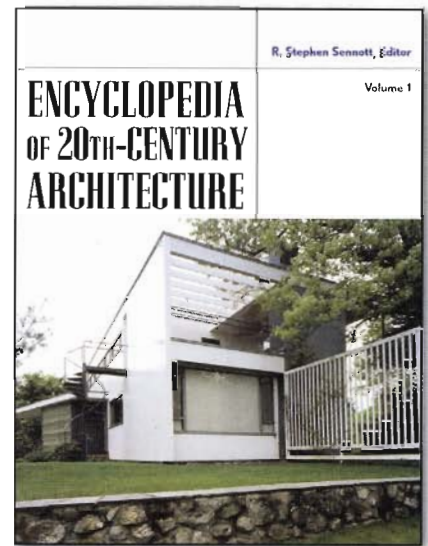
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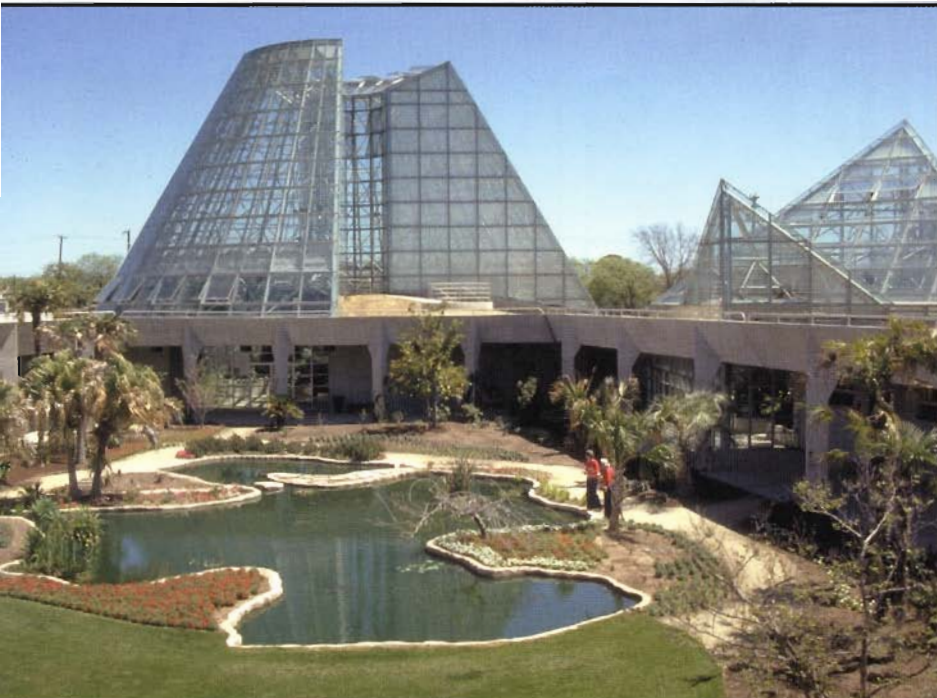


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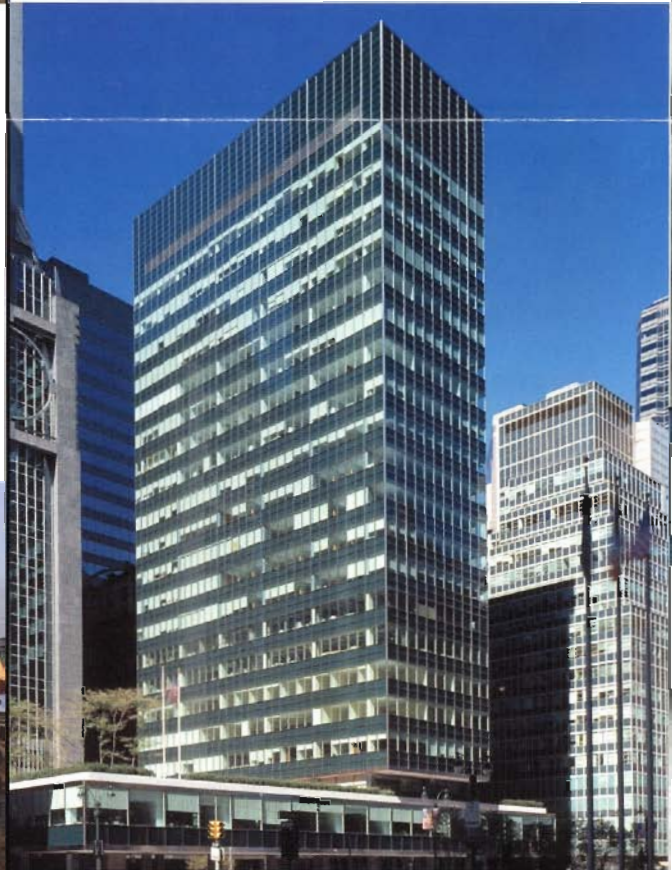


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