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Inside cover: NY/AV, Urban Plan, 2005. Drawing by Martha Skinner and Douglas Hecker, Clemson University.

Back cover: NY/AV. The inhabitants of the city are drawn into the truck to both read and contribute to the document of their city, day four, Straus Park, New York City, 2005. Martha Skinner and Douglas Hecker, Clemson University.

Page 2: *Berlin: A Renovation of Postcards*, Berlin, Germany, 2005. Lois Weinthal, The University of Texas at Austin. Photo by Lois Weinthal and Jeffrey Siegel.

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From Object to Installation in Bruno Taut's Exhibit Pavilions

This study investigates the gradual evolution of the idea of installation in three experimental exhibition pavilions designed before World War I by the German architect Bruno Taut. In collaboration with the critic Adolf Behne, Taut gradually transferred ideas from Expressionist painting to architecture and helped move his designs, and with it modern architecture more generally, from a focus on visual “objects,” to multisensory “experiences,” an idea that continues to resonate in modern installations today.

Introduction: Installations

From 1910 to 1914, the German architect Bruno Taut built a series of three increasingly radical exhibition pavilions in Berlin, Leipzig, and Cologne that challenged some of the most fundamental orthodoxies of modern architecture and art.¹ Only in part has the significance of these pavilions, especially of the experimental *Glashauss* built at the Cologne Werkbund exposition in 1914, been recognized. Aided by the popularity of the world's fairs of the nineteenth century, and of exhibit buildings by Peter Behrens and related Werkbund artists after 1907, Taut's pavilions have long been included in typological discussions of exhibit and fair architecture.² Contemporary architectural critics already highlighted their innovative use of glass, steel, and concrete, materials that would become hallmarks of the “New Building” after World War I in Germany.³ Art critics of the day praised the unique integration of contemporary art in the form of murals, sculptural reliefs, stained glass, and even poetic aphorisms into Taut's architecture. Ever since the critic Adolf Behne became the first to apply the term *Expressionism* to architecture in a 1913 review of Taut's work, the pavilions have been identified as early architectural examples of this art movement that helped rupture the stranglehold of tradition on German art and design.⁴ Building on these early reviews, the historian Reyner Banham later celebrated the “brilliant” uses of new materials in Taut's work that led to a modern “factory aesthetic.” Other scholars such as Ulrich Conrads celebrated the “fantastic architecture” that sprung from his pavilions.⁵ Since then, they have

featured prominently in discussions on the role of industrial building and the Werkbund in reforming design culture in Germany, and they have become nearly standard references in surveys of modern architecture.⁶

Despite being well known, Taut's pavilions remain misunderstood. This becomes especially clear when one compares the literature on Taut's designs with the mushrooming bibliography on Mies van der Rohe's Barcelona Pavilion, another temporary, experimental exhibit pavilion combining colorful materials, glass, light, electricity, water, and other artworks to create a uniquely modern spatial experience.⁷ While the latter has long been interpreted as one of the iconic monuments of high modern architecture, the former remains, for many, less relevant—a personal, iconoclastic gesture that merely prefigures the main events after the war. In an attempt to understand and appreciate the original intent of Taut's designs, this essay will interpret his pavilions as early experiments in creating “Installations.” In this context, they can be identified as landmarks in shifting twentieth-century art and architecture from a focus on visual “objects,” to multisensory “experiences,” ideas that continue to resonate in art today.

The term *Installation* has been used regularly only since the 1960s. The term generally describes a wide spectrum of creative production that seeks to escape art's focus on iconic, genre-specific, and permanent “objects,” such as easel paintings, and works that are conventionally “installed” by a curator in supposedly neutral spaces of galleries and museums.⁸

Both architects and installation artists create “immersive,” “theatrical,” and “experiential” environments that are site-specific, and often collaborative, ventures. Both are difficult to photograph and represent in two dimensions. Although installations usually eschew the permanence associated with architecture, both focus on spatiality and the carefully choreographed movement of “embodied” spectators, fully engaged with their senses, who activate and participate in the creation of space by moving through it. As this journal issue attests, the critique of art and society that often lies at the heart of many installations also continues to gain popularity among artists, architects, and the public.

A comprehensive history of installations remains to be written, especially as it relates to architecture.⁹ Some would have it that all architecture is a form of installation.¹⁰ Ancient and post-Enlightenment discussions on the “sublime” and the theory of the “picturesque,” embodied in the building of romantic garden follies and artificial ruins are replete with immersive and experientially rich associative environments. The so-called festival architecture, the elaborate outdoor spectacles, fireworks displays, and temporary environments that were created from the late Baroque to the end of the nineteenth century to celebrate birthdays, anniversaries, military victories, and revolutionary events involved many of the same artistic intentions as today's installations.¹¹

A closer antecedent of Taut's work can be found in the wide array of *Gesamtkunstwerk* (total work of art) theory and experiments that blossomed amidst eighteenth- and nineteenth-century Romanticism, as

well as the turn-of-the-century applied arts movements that influenced Taut's earliest training. Based on the premise that all art, like nature, embodied universally valid spiritual and material laws, *Gesamtkunstwerk* artists attempted to synthesize various artistic media into a single total work of art that would evoke and intensify such universal laws. In both their creative process and the resulting art works, these artists sought to confront the perceived chaos, anonymity, and spiritlessness of modernity with a greater artistic, social, and philosophical unity than was possible through more conventional art.¹² Taut too integrated the arts to create multisensory, at times even synaesthetic, experiences in his exhibit pavilions. But as shall be investigated in greater detail below, his intent to harness the other arts specifically in the service of architecture remained distinct and more closely allied with contemporary ideas about installations.

From Object Exhibit to Exhibit Object: The Steel Pavilions

Taut designed his first exhibit pavilion for the Träger-Verkaufs-Kontor, a manufacturer of structural steel seeking to advertise at the 2nd Ceramic, Cement, and Lime Industrial Exhibit in Berlin in 1910¹³ (Figure 1).¹⁴ The stark symmetry, the clear volumetric character, and the graphic sensibility of Taut's black-and-white design recalled Peter Behrens' nearly contemporary exhibit pavilions.¹⁵ But Taut abandoned Behrens' obvious references to Tuscan gothic and other historic precedents in favor of a more abstract modern image. Even more provocatively, the Träger-Kontor pavilion rejected the notion of creating clearly usable architectural spaces for displaying objects, as had been typical in exhibition buildings since the late eighteenth century. Instead, Taut reduced the typical exhibit pavilion to a small core that all but disappeared at the center of a large, abstracted volume outlined by a few slender, reiterated rectangular frames made from the clients' own steel beams. Borrowing from industrial marketing and advertising practices, Taut's evocative

1. Bruno Taut's pavilion for the Träger-Verkaufs-Kontor, a firm that sold steel beams, constructed at the 2nd Ceramic, Cement, and Lime Industrial Exhibit in Berlin, in 1910. (From *Berliner Architekturwelt* 13 (1911): 257.)



forms and supergraphics promoted an image, rather than specific objects.¹⁶ Here the exhibit building itself became the exhibit object. But the experience remained graphic and two-dimensional. With no inter-

rior, there was little difference between the view from afar and the experience of moving among the frames.

In the Spring of 1913, Taut began design work on a second pavilion, the "Monument to Iron,"

2. Taut's "Monument to Iron" pavilion for two steel manufacturer's associations, the Deutscher Stahlwerks-Verband and the Verband Deutscher Brücken- und Eisenbaufabriken, constructed at the International Building Exposition in Leipzig, in 1913 (From *Der Industriebau* 4, no. 11 (November 15, 1913): 149).

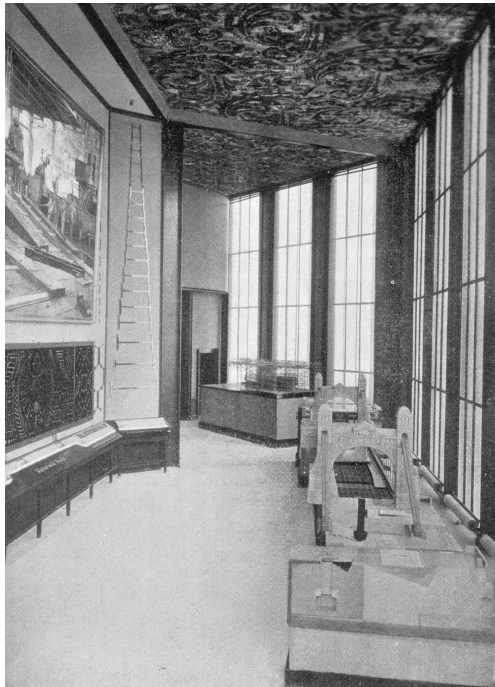


designed for the Association of German Steel Workers, and the Association of German Bridge and Steel Fabricators, for the much anticipated International Building Exposition in Leipzig¹⁷ (Figure 2). Much as in the Träger-Kontor pavilion, Taut used the very material he was hired to advertise and promote in order to create an abstract, geometric, exposed steel-frame construction. Supergraphics also clearly announced the product and sponsors being exhibited. The spare, logical, and precise black-and-gold color scheme was once again influenced by Behrens' tectonic and monumentalized forms.¹⁸

In the "Monument to Iron," however, Taut created a larger interior for display. The ground floor, clad in sparkling, glazed tiles in the German national colors of black, red, and gold, featured an outer ring of exhibition space for architectural models and product displays (Figure 3). A dark inner space contained imposing, large-scale photographic transparencies lit from behind. Stairs led to a two-and-a-half story, vaulted, early cinema space above¹⁹ (Figure 4). Draped in a sumptuous dark purple cloth designed by his artist friend Franz Mutzenbecher, the space showed film clips of steel construction to a seated audience. The dematerialization of the exhibition, represented in the transition from models to transparencies to moving images, was an important step in Taut's development beyond both the conventional exhibit hall, and architecture as object. Here was the elusive multisensory experience that could only be fully understood if experienced in person.

In the process of starting to design the "Monument to Iron," Taut met the young art critic and former architectural student Adolf Behne, soon to be Taut's biggest supporter.²⁰ Drawing on evolving definitions of Expressionism that he had gleaned from Wassily Kandinsky, Wilhelm Worringer, and other artists and theoreticians known to him through Berlin's avant-garde Sturm gallery, Behne began to write a series of articles that all commented favorably on the "new, revolutionary," and "strict, *sachlich*" (objective) nature of Taut's pavilion. Basing his ideas more on feelings than visual cues, he wrote "every-

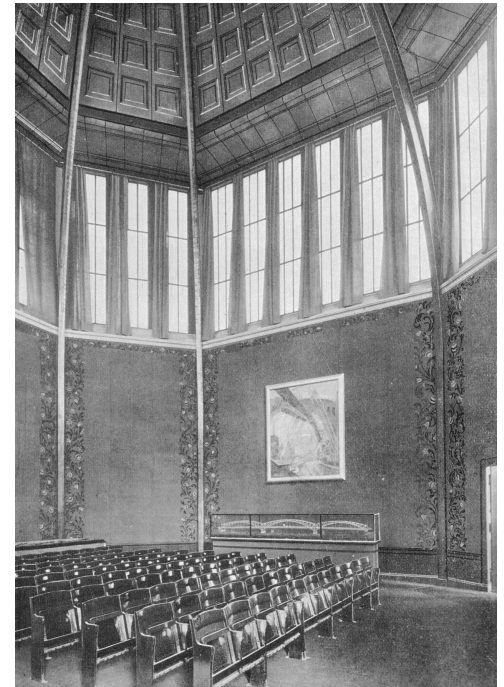
3. Outer exhibit area on the ground floor of Taut's "Monument to Iron," clad in red, black, and gold tiles. (From *Der Industriebau* 4, no. 11 (November 15, 1913): 151.)



one could feel that behind these spare and wonderfully energetic creations, free of all quotation, there is a truly modern and totally contemporary artist . . . What distinguishes [Taut], is his rigid *Sachlichkeit*—that is, an artistic *Sachlichkeit*, and not the *Sachlichkeit* of a 'functionalist' or of a 'purist' . . ."²¹ The modern, spectator experience of Taut's "Monument to Iron" was especially convincing, Behne felt, in comparison to the anachronistic logo of the Leipzig exposition—a single classical column—or in comparison to the neighboring "Concrete Pavilion"—a pastiche of the Roman Pantheon designed by the conservative architect Wilhelm Kreis.²²

For Behne, even the gigantic (nine-meter diameter), seemingly ornamental gold sphere resting on an open lattice at the top of Taut's stepped

4. Upper-level cinema in Taut's "Monument to Iron," draped in purple fabric designed by Franz Mutzenbecher, and showing film clips of steel construction. (From *Der Industriebau* 4, no. 11 (November 15, 1913): 155.)



pyramid was *sachlich* (objective) and aesthetically "functional." He described it as a "necessary antidote" and "lively counterpart" to the stack of "rigid vertical walls" below and to the building's overall "unrelentingly Cubist design" (*cubistische Gestalt*). He claimed it would be wrong to ask about the rational "functionality" (*Zweck*) of such a "stern yet playful . . . aesthetic creation" (*Gebilde*). The "artistic *Sachlichkeit*" of Taut's "innovative approach," he insisted, revealed forms derived simultaneously from primal elements of building and from inner fantasy.²³ In a line very similar to one Taut would later use to describe his own work, Behne wrote prophetically that the Leipzig pavilion appealed not to

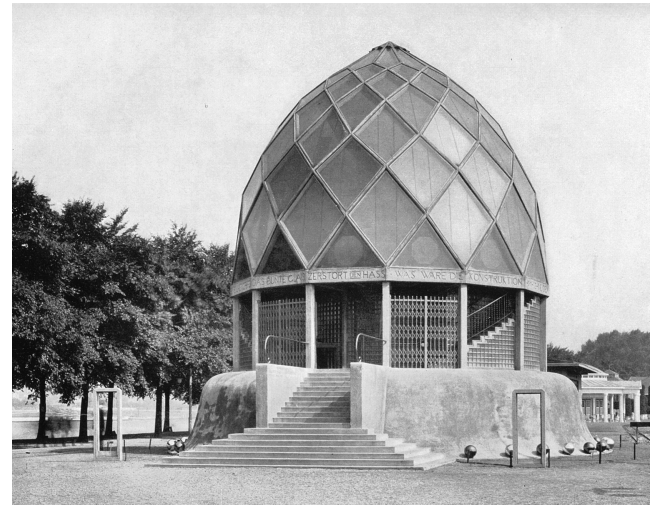
the intellect, but to feelings, having “no other purpose than an inner-artistic one.”²⁴ Although not yet a true “installation,” Taut was approaching the creation of architecture as a pure sensual experience.

Unifying the Arts in a *Glashaus*

In the summer of 1913, while finishing the “Monument to Iron,” Taut began work on an experimental glass pavilion, which he proposed to build at the upcoming Werkbund exhibit in Cologne²⁵ (Figure 5). Taut’s youth and relatively unknown status, the experimental and artistic nature of his ideas, and the fact that his project was both personally initiated and a form of advertising pavilion, rather than an officially sponsored exhibition building, made it controversial to the Werkbund’s executive board and planners.²⁶ In February 1914, Taut himself put pen to paper to explain and justify his ideas. The resulting article, “*Eine Notwendigkeit*” (A Necessity), was arguably the first written manifesto of Expressionist architecture and an early call for architecture as experience and installation.²⁷

Taut’s article called on fellow architects to follow the contemporary Expressionist painters in seeking a new artistic spirit. Success in this venture, he professed, would “necessitate” the creation of a magnificent new communal structure, akin to Gothic cathedrals. Architects were to lead the other arts in creating a temple of the arts whose design and construction would help revitalize and renew all of modern art.²⁸ He insisted that the new building was to be without any real function, more of a provocative installation than a pragmatic solution. Taut imagined a museum-like building, in an open space outside the city, with “large windows [containing] the light-compositions of Delaunay, on the walls Cubist rhythms, the paintings of a Franz Marc or the art of Kandinsky. The interior and exterior piers feature the constructive forms of [Alexander] Archipenko’s sculptures, and [Heinrich] Campendonk will create the ornament . . . Individuals all should

5. Taut’s *Glashaus*, located near the entry gate to the 1914 Werkbund exposition in Cologne. (From *Deutsche Form im Kriegsjahr. Die Ausstellung Köln 1914. Jahrbuch des Deutschen Werkbundes* (Munich: F. Bruckmann, 1915), plate 76.)



collaborate—as is only possible in architecture—in such a way that the whole rings with a magnificent, unified harmony.”²⁹

The *Glashaus* was among the first exhibition buildings designed primarily as a mechanism to create vivid experiences throughout, from exclusively optic to partly haptic (Figures 6 and 7). The circuitous circulation up, around, and down the narrow glass stairs, the pervasive colored light filtering through the colored Luxfer prisms on the interior that simultaneously illuminated the space and closed off all visual contact with the outside, and finally the synaesthetic experience of water, light, stairs, colored tiles, and the cinematograph in the lower floor powerfully commandeered the spectators’ sensory experiences. Ordinary visitors to the *Glashaus* frequently remarked on the profound emotions they encountered, not merely the experiences of the five senses, but of the psychic and often visceral reflexes they had. Unable to move beyond the unfamiliarity of the physical artifact, they commented on the “unearthly,” “unreal,” or “astounding beauty” of the building, or of feelings of “purity” and “luck” that seemed almost to suppress reflections on the architectural or technical merits. Many were

reminded more of a folly or an amusement park fantasy than of serious architecture.³⁰ Some dismissed the *Glashaus* as a joke or a trifle, others saw it as part of an “impossible” ideal.³¹ One critic noted that “the public is estranged from such new form[s],” forms that seemed to proliferate in much of modern art, and life in the metropolis more generally.³² Even when the reviews were more positive, there was an air of exotic abstraction and an unknown future. The socialist critic Felix Linke described the design memorably as a “Temple of Beauty . . . the main attraction of the whole Cologne exhibition . . . one that can be characterized as a giant, half sunken crystal.”³³ Taut’s friend Behne wrote too of a “beautiful cupola room, vaulted like a sparkling skull, or of the unreal, ethereal stair, which one descended as if walking through pearly water, that moves me, and produces happy memories.”³⁴

The goal of the *Glashaus* installation was that architecture would subsume the other arts of painting and sculpture to achieve a new, unified expression. This search for a unity of art and life had been inspired by many sources, including current debates on the *Jugendstil*, the *Gesamtkunstwerk*, as well as architectural sources as diverse as Hedrich Petrus

6. The *Glashaus*, view of upper-level interior, with woven Luxfer prisms set in steel frames, in between concrete ribs of the dome. On the floor, display cases for precious glasswork, round glass blocks in the concrete floor. In the center, the floor opens to the water cascade room below, and a special lantern with colored glass above. (From *Deutsche Form im Kriegsjahr*, plate 80.)



Berlage, and the Gothic Cathedral. Behne cited Richard Wagner's quest for a *Gesamtkunstwerk* as an important precedent for Taut's essay, though he felt Wagner's unity of the arts was outdated, forced, and disjointed. The critic sought more Idealist results, in which artists would feel drawn together to achieve an "inner transformation of all art," and criticized Taut's essay for falling short of this ideal.³⁵ Following the lead of the painters, Behne sought to transform architecture from an externally driven "Impressionist" approach, to an inner-motivated "Expressionist" approach that created psychologi-

7. The *Glashaus*, view of lower level, with water cascade at center, mirrored balls on parapet, bright-colored tiles on the side walls, floor and domed ceiling, and backlit stained glass in the apse-like space at rear, with inlaid commissioned artworks. (From *Deutsche Form im Kriegsjahr*, plate 78.)



cally and sensorily rich experiences.³⁶ Rather than a *Gesamtkunstwerk* that synthesized diverse arts, he sought an *Einheitskunstwerk* (unified art work) that achieved unity through a common inner-cause and artistic principles, the emergence of a single new art form, not merely a fusion of interrelated discrete arts.³⁷

Echoing Behne's earlier proclamation that Expressionist artists were defining "a new age of intuition, of metaphysics, of synthesis," Taut pronounced that he was overjoyed to work with artists so intently striving for "synthesis, abstraction and what everyone is calling the construction (*Aufbauen*) of paintings . . . There is a secret architecture that goes through all this work that unifies them."³⁸ His reference to architecture was more than metaphorical. As in Gothic cathedrals, Taut felt this architectural sensibility was not analogically, but literally, at the root of all the new art. With this reference to construction and building at the foundation of modern art, Taut shared the language and theories of Kandinsky, Marc, Worringer, and others. In the

absence of a represented subject matter, construction was used as a means to justify and explain the increasingly abstract forms of modern painting, as well as the transition from iconic object to experienced installation.

The *Glashaus* as Functionless Installation

As built, the *Glashaus* was a collaborative creation between Taut, Behne, and the Expressionist poet Paul Scheerbart.³⁹ Scheerbart provided Taut with a "program" for the *Glashaus* as well as much of the formal inspiration for the built work. The poet's extensive published work over the previous twenty years had sought to release architecture from the burdens of constricting rationality, pompous style, and inhuman seriousness.⁴⁰ He had conjured up a utopian, visionary "glass architecture" (*Glasarchitektur*) that was flexible and mobile, floating and towering, gleaming and transcendent, and that was allied with a modern political and social agenda calling for

internationalism, pacifism, and a greater equality of the sexes.⁴¹ Behne summed up Scheerbart's belief in the power of architecture to transform culture when he wrote later in 1918: "The idea of a glass architecture is simple . . . It is not just a crazy poet's idea that glass architecture will bring a new culture. It's a fact! . . . Building as elemental activity has the power to transform people. And now building with glass! This would be the surest method of transforming the European into a human being."⁴² A poetic fantasy, translated through an architect's designs, was to transform an entire continent's society and culture.

A close analysis of Taut's and Behne's work reveals that the two worked increasingly symbiotically, each developing and expanding upon commonly held ideas, especially with regard to Expressionist theory. Taut designed the building, and Scheerbart provided much of the inspiration, but Behne's role as critic, as primary interpreter, reviewer, and propagandist, was equally important. Whereas most visitors and critics were unable to overcome the unfamiliarity of the forms that Taut created in the *Glashaus* installation, Behne, with language varying from precise technical description to poetic prose and popular slang, was able to analyze the material artifact and the dynamic experiences of the building far more potently. His theoretical musings placed the building within the varying architectural, social, cultural, technological, historical, and philosophical contexts.

Behne's most thought-provoking essay on the *Glashaus*, "Thoughts on Art and Function," was published in the popular arts and crafts journal *Kunstgewerbe* (Applied Arts) a year after the pavilion closed.⁴³ His analysis framed the glass building as an Expressionist synthesis of function and art, as an installation-like experience. Taut had set the tone for the interpretation when he stated in the first line of the visitor's guide, "The *Glashaus* has no other purpose than to be beautiful."⁴⁴ But these words essentially repeated Behne's earlier contention that Taut's Leipzig pavilion had "no other purpose than an

inner-artistic one."⁴⁵ Behne realized that slogans such as these were more extreme than true. Taut's pavilion had a definite use: as a temporary marketing pavilion for the glass industry at an exposition full of new products and ideas. For the critic, it was precisely the pavilion's purpose as an ephemeral exhibition building that made a certain "functionlessness" possible and appropriate.⁴⁶

Much like Scheerbart and Taut, Behne believed that temporary exhibitions represented a unique opportunity for architects to experiment and leave aside constraining functions and even all social obligations in order to create pure and ideal expressions of art.⁴⁷ He argued that exhibition pavilions had to reach beyond their pragmatic function of advertising and representing an industry to contain "a little bit of extravagance . . . freedom . . . and the fantastical."⁴⁸ Later the critic suggested further that "when the pressures of economics, commerce and industry are removed, the passion and love of creating should simply be explosive . . . [Exhibitions should be] a kind of folk festival, an eternal Sunday . . . something celebratory."⁴⁹ Exhibitions, he insisted, demanded the spectator experience "an artistic rush." By defining Taut's exhibit pavilion in this way, Behne proposed a fundamental shift in exhibit design away from both the object and the pragmatic exhibit hall, and toward the purely artistic installation.

Behne was unique in being able to see beyond the physical construction to interpret and thereby determine the understanding of the building, and with it the direction of modern architecture. Through his writing, he tied Taut's glass pavilion fully to higher philosophical and Idealist meanings that could lead to a new architecture:

The longing for purity and clarity, for glowing lightness and crystalline exactness, for immaterial lightness and infinite liveliness found a means of its fulfillment in glass—the most ineffable, most elementary, most flexible and most changeable of materials, richest in

meaning and inspiration, fusing with the world like no other. This least fixed of materials transforms itself with every change of atmosphere. It is infinitely rich in relations, mirroring what is above, below, and what is below, above. It is animated, full of spirit and alive . . . It is an example of a transcendent passion to build, functionless, free, satisfying no practical demands—and yet a functional building, soulful, awakening spiritual inspirations—an ethical functional building.⁵⁰

With these nostalgic words written at the beginning of World War I, Behne made the *Glashaus* into an installation, a symbol, a mystical sign, and a guidepost for a new world view and future architecture.⁵¹ Borrowing from Taut's building and Scheerbart's writings, Behne transfigured glass from a transparent modern technical material to a crystalline expressive spiritual force that could transform culture. The simultaneous perceptions of functionless freedom and functional practicality, of fluid change and crystalline clarity, of spirited life and of death and resurrection, of the sparkling heavens above and descent into an ethereal world below, set the tone for future interpretations of this building. These paradoxes and juxtapositions of contrary images revealed in the *Glashaus* became part of the very definition of Expressionism, and a key to the emotional force it had with those who encountered it or promoted it as the beginning of modern architecture in Germany.

Although the *Glashaus* was a public, fully functioning, and self-contained exposition hall designed according to existing building codes in conjunction with a consulting structural engineer, the architect Bruno Taut had from the beginning intended the *Glashaus* to be more of an experimental "installation" than a functional building. The temporary nature of exhibit pavilions, their limited functional complexity, and the fact that Taut paid for the *Glashaus* in large part out of his own pocket allowed him to create a monument that was more theoretical and inspirational than practical. Freed

from the strictures of permanent, functional, or comforting architecture, Taut and his colleagues hoped to reveal through the building an evanescent spiritual and artistic ideal. By focusing on the building primarily as an environment that creates illusive experience and elusive meaning, rather than as object or mere backdrop for display, they hoped to make manifest for the populace (*Volk*) a “higher passion to build” that could inspire the way to a brighter, reformed, unified, and eventually “socialist” European culture. In the best spirit of innovative “installations,” Taut intended his *Glashaus* not only to provoke radical change in art and architecture, but also to give inspiration for massive social, cultural, and political change promised by his vision of a new light-filled world.

Notes

1. On Taut and his pavilions, see most recently Winfried Nerdinger et al., *Bruno Taut 1880–1938: Architekt zwischen Tradition und Avantgarde* (Stuttgart, Germany: DVA, 2001); Manfred Speidel, *Bruno Taut: Natur und Fantasie, 1880–1938* (Berlin, Germany: Ernst & Sohn, 1995); and in English, Rosemarie Haag Bletter, “The Interpretation of the Glass Dream—Expressionist Architecture and the History of the Crystal Metaphor,” *Journal of the Society of Architectural Historians* 40, no. 1 (March 1981): 20–43.
2. The *Glashaus* was frequently discussed in articles on exhibition architecture in the period; see Annette Ciré, *Temporäre Ausstellungsbauten für Kunst, Gewerbe und Industrie in Deutschland 1896–1915* (Frankfurt, Germany: Peter Lang, 1993), pp. 482–86. It is illustrated in the chapter on “Market Halls, Conservatories, and Exhibition Buildings,” in Nicholas Pevsner’s *A History of Building Types* (Princeton, NJ: Princeton University Press, 1976), p. 253. Among the earliest exhibit buildings were those built for the “Premier Exposition” held in Paris in 1798, whose pragmatically designed main hall was, like Taut’s pavilions, dubbed a “temple of industry”; see Franziska Bollerey and Kristiana Hartmann, “Bruno Taut und die Tempel der Industrie,” *Archithese* 10, no. 4 (1980): 38–42. On world’s fairs and exhibit buildings generally, see Erik Mattie, *World’s Fairs* (New York: Princeton Architectural Press, 1998); and insightfully Kenneth Luckhurst, *The Story of Exhibitions* (London: Studio, 1951).
3. See for example Felix Linke, “Die neue Architektur,” *Sozialistische Monatshefte* 20, no. 18 (October 1914): 1133–39; Adolf Behne, *Der Moderne Zweckbau* (Vienna, Austria: Drei Masken, 1926), p. 50; and Konrad Schulze, *Glas in der Architektur der Gegenwart* (Stuttgart, Germany: Zaugg, 1929), pp. 9–13.
4. See for example the many articles on the pavilions by Adolf Behne, starting with “Bruno Taut,” *Pan* 3, no. 23 (March 7, 1913): 538–40; discussed in Kai Gutschow, “The Culture of Criticism: Adolf Behne and the

- Development of Modern Architecture in Germany, 1910–1914” (PhD diss., Columbia University, 2005), with complete bibliography in Appendix III.
5. Reyner Banham, *Theory and Design in the First Machine Age*, 2nd ed. (New York: Praeger, 1967), pp. 57, 81; Ulrich Conrads and Hans Sperlich, *The Architecture of Fantasy* (New York: Praeger, 1962); as well as Wolfgang Pehnt, *Die Architektur des Expressionismus*, 3rd ed. (Ostfildern: Gerd Hatje, 1998); and Timothy O. Benson, ed., *Expressionist Utopias* (Los Angeles, CA: LACMA, 1993).
 6. See, for example, Kenneth Frampton, *Modern Architecture*, 3rd ed. (London: Thames & Hudson, 1992), pp. 116–17; and William Curtis, *Modern Architecture since 1900*, 3rd ed. (London: Phaidon, 1996), pp. 106–7.
 7. See, for example, George Dodds, *Building Desire: On the Barcelona Pavilion* (London: Routledge, 2005); and Josep Quetglas, *Fear of Glass: Mies van der Rohe’s Pavilion in Barcelona*, translated by John Stone and Rosa Roigl (Basel, Switzerland: Birkhäuser, 2001).
 8. The growing literature on “Installations” includes Claire Bishop, *Installation Art* (New York: Routledge, 2005); Nicholas Oliveira et al., *Installation Art in the New Millennium* (New York: Thames & Hudson, 2003); Jennifer Gonzalez, “Installation Art,” in *Encyclopedia of Aesthetics* 2 (New York: Oxford University Press, 1998), pp. 503–8; Nicolas de Oliveira et al., *Installation Art* (London: Thames & Hudson, 1994); and Andrew Benjamin, ed., *Installation Art* (London: Academy, 1993).
 9. The literature on installations invariably see its origins after World War I, in the first Dada evenings in Zurich and Berlin (1916–20), Kurt Schwitters’ “Merzbau” in Hanover (1923–37), El Lissitzky’s “Prounenraum” in Berlin (1923), van Doesburg’s Café Le Aubette in Strasbourg (1926–28), and the first Surrealist exhibit in Paris (1938). These early experiments are said to have led to the Happenings and Environments after World War II, and much of the Minimalist, Conceptual, Landscape, and Performance art of the late 1960s and 1970s. A first apotheosis came in the large installations featured in spaces such as the Guggenheim addition and the Tate Modern beginning in the 1990s. See Bishop, *Installation Art*; and Gonzalez, “Installation Art.”
 10. See for example Bonita Ely, “The Ancient History of Installation Art,” in <http://home.iprimus.com.au/painless/space/bonita.html> (accessed November 19, 2005).
 11. See Werner Oechslin, *Festarchitektur: der Architekt als Inszenierungskünstler* (Stuttgart, Germany: Hatje, 1984).
 12. William Morris, Richard Wagner, Oscar Wilde, Stefan George, and Peter Behrens all called for collaboration and unification of the arts through opera, theater, music, poetry, and above all architecture. On the *Gesamtkunstwerk* more generally, see, for example, Gabriele Bryant, “Timely Untimeliness: Architectural Modernism and the Idea of the *Gesamtkunstwerk*,” in Mari Hvattum and Christian Hermansen, ed., *Tracing Modernity* (London: Routledge, 2004), pp. 156–72.
 13. On the Träger-Kontor, see most recently Nerdinger et al., *Bruno Taut*.
 14. The photos of the *Glashaus* were likely taken by the important photographer Franz Stodtner, though all negatives and original proofs of the images were lost in the war.
 15. See Stanford Anderson, *Peter Behrens and a New Architecture for the Twentieth Century* (Cambridge, MA: MIT, 2000); Gisela Moeller, *Peter Behrens in Düsseldorf: Die Jahre 1903 bis 1907* (Weinheim, Germany:

- VCH, 1991); and Tilmann Buddensieg and Henning Rogge, ed., *Industriekultur: Peter Behrens and the AEG, 1907–1914*, translated by Iain B. Whyte (Cambridge, MA: MIT, 1984).
16. On advertising practices surrounding Taut and the Werkbund, see Frederic Schwartz, *The Werkbund: Design Theory and Mass Culture before the First World War* (New Haven, CT: Yale University Press, 1996), pp. 164–91.
 17. “*Monument des Eisens*” was the name of Taut’s competition entry, even though it was made of steel and meant to advertise the latest products of Germany’s modern steel industry; on this pavilion, see the catalogue entry in Nerdinger et al., *Bruno Taut*, pp. 329–330, and note 1 above.
 18. Taut, *Die Neue Baukunst in Europa und Amerika* (Stuttgart, Germany: J. Hoffmann, 1929), p. 28.
 19. Two years earlier Taut had designed one of Berlin’s earliest purpose-built cinemas in his Kottbusser Damm 2-3 apartments in Berlin-Neu-Kölln; see Gutschow, “The Culture of Criticism,” chapter 5.
 20. On Behne (1885–1948), see most recently Gutschow, “The Culture of Criticism”; Magdalena Bushart, ed., *Adolf Behne. Essays zu seiner Kunst- und Architektur-Kritik* (Berlin, Germany: Gebr. Mann, 2000); Frederic J. Schwartz, “Form Follows Fetish: Adolf Behne and the Problem of *Sachlichkeit*,” *Oxford Art Journal* 21, no. 2 (1998): 45–77; Detlef Mertins, “Transparencies Yet to Come: Sigfried Giedion and Adolf Behne,” *A + U* 97/10, no. 325 (October 1997): 3–17; and Rosemarie Haag Bletter, “Introduction,” in Adolf Behne, ed., *Modern Functional Building* (Santa Monica: Getty, Oxford UP, 1996), pp. 1–83.
 21. Behne, “‘Ein neues Haus!’” *März* 8, no. 1 (January 1914): 323; republished as Behne, “Bruno Taut,” *Der Sturm* 4, no. 198/199 (February 1914): 182–83.
 22. Behne, “Die Säule,” *Kunstgewerbeblatt* 25, no. 8 (May 1914): 144. For comparative descriptions and photos of Taut’s and Kreis’ pavilions, see *Der Industriebau* 4, no. 7 (July 15, 1913); and 4, no. 11 (November 15, 1913). On Kreis, see, Winfried Nerdinger and Ekkehard Mai, ed., *Wilhelm Kreis: Architekt zwischen Kaiserreich und Demokratie, 1873–1955* (Munich, Germany: Klinkhardt & Biermann, 1994).
 23. Behne, “‘Ein neues Haus!’”; Behne, “Das Monument des Eisens,” *Allgemeiner Beobachter* 3, no. 12 (October 15, 1913): 167; and Behne, “Das Monument des Eisens,” *Kunstgewerbeblatt* N.F. 25, no. 5 (February 1914): 86–88.
 24. Behne, “‘Ein neues Haus!’,” p. 33.
 25. On the *Glashaus*, see especially Angelika Thiekötter, ed., *Kristallisationen, Splitterungen: Bruno Tauts Glashaus* (Basle, Berlin, Germany: Birkhauser, 1993); and Wulf Herzogenrath and Dirk Teuber, et al., eds., *Die Deutsche Werkbundausstellung Cöln 1914* (Cologne, Germany: Kölnischer Kunstverein, 1984), as well as the Taut literature cited above.
 26. Taut had taken his ideas for a glass pavilion around to the glass industry but found only a few minor sponsors. Werkbund organizers left the controversial pavilion off the first two master plans, delayed, and then reduced funding to such an extent that Taut was forced to put up large amounts of his own money to see his glass dreams realized. When Taut’s friend Karl Ernst Osthaus finally intervened to assure Taut permission to build, the Werkbund assigned Taut a site right at the entry to the exposition, far from both the large and popular exhibition halls by

Fischer, Hoffmann, and Muthesius, and such icons of modern architecture as Gropius' model factory and Henri van de Velde's Werkbund theater. To add insult to injury, the City of Cologne and the Werkbund asked him to pay for its removal when the German army needed the grounds in 1916 for troop preparations. See Thiekötter, *Kristallisationen*, pp. 15, 158–159, 168; and Kristiana Hartmann, "Ohne einen Glaspalast ist das Leben eine Last," in Nerdinger et al., *Bruno Taut*, p. 56.

27. Bruno Taut, "Eine Notwendigkeit," *Der Sturm* 4, no. 196/197 (February 1914): 175; translated in Rose-Carol Washton Long, ed., *German Expressionism: Documents from the End of the Wilhelmine Empire to the Rise of National Socialism* (New York: Prentice Hall, 1993), p. 126; and more accurately in Timothy O. Benson, ed., *Expressionist Utopias* (1993), pp. 282–83. Behne arranged that the essay appeared in the same issue of *Der Sturm* as his own article about the architect as a kind of "artist's statement" that the editor Herwarth Walden always favored. On the essay, see Marcel Franciscano, *Walter Gropius and the Creation of the Bauhaus in Weimar* (Champaign, IL: University of Illinois Press, 1971), pp. 91–100; and Iain Boyd Whyte, *Bruno Taut and the Architecture of Activism* (New York: Cambridge University Press, 1982). Bletter describes the essay as "the earliest manifesto calling for Expressionist architecture" in Washton Long, ed., *German Expressionism*, p. 124.

28. Brian Hatton argues that Taut stressed collaboration, more than total control by a single artist; Hatton, "Kandinsky and Taut: the Total Work of Art," *Issues in the Theory and Practice of Architecture, Art and Design* 1, no. 1 (Spring 1990): 15–36, esp. p. 18.

29. Taut, "Eine Notwendigkeit," p. 175.

30. This association was not altogether spurious. When visitors arrived at the exposition via city tram, they had the option of entering into an actual amusement park the Werkbund had set up to attract visitors and to make money, or of proceeding down a long dusty path toward the exhibit halls, at the very beginning of which stood the *Glashaus*. On the amusement park at the Werkbund exposition, connections to the *Glashaus*, and a site map, see Thiekötter, *Kristallisationen*, pp. 10, 19–22; as well as Herzogenrath and Teuber, *Die Deutsche Werkbundsstellung*, pp. 62–63, 337ff.

31. As reported in Adolf Behne, "Das Glashaus," *Arbeiter-Jugend* 6, no. 20 (September 26, 1914): 293. Behne, "Das Glashaus," *Die Umschau* 18, no. 35 (August 29, 1914): 712–16; Behne, "Gedanken über Kunst und Zweck, dem Glashause gewidmet," *Kunstgewerbeblatt* N.F. 27, no. 1 (October 1915): 1–4.

32. Behne, "Bruno Taut," *Pan*, p. 540; and Behne, "Fortschritte in der Kunstkritik," *Kunstgewerbeblatt* 24, no. 3 (December 1912): 46.

33. Felix Linke, "Die neue Architektur," *Sozialistische Monatshefte* 20.2, no. 18 (October 14, 1914): 1133ff.

34. Behne, "Gedanken," p. 4.

35. Adolf Behne, *Die Wiederkehr der Kunst* (Leipzig, Germany: Kurt Wolff, 1919), pp. 39–40; also translated in Franciscano, *Walter Gropius*, p. 115.

36. Adolf Behne, "Impressionismus und Expressionismus," *Der Zeitgeist* [Beil. *Berliner Tageblatt*] 42, no. 39 (September 29, 1913); later revised in Behne, "Expressionistische Architektur," *Der Sturm* (January 1915); and in Behne, *Zur neuen Kunst* (Berlin, Germany: Der Sturm, 1915), pp. 18–28.

37. For this distinction more generally, though in relation to Mies' New National Gallery, I am indebted to Detlev Mertins, "Event Space," *Grey Room* 20 (Summer 2005): 63.

38. Behne, "Der Maler Franz Marc," *Pan* 3, no. 26 (March 28, 1913): 617. See also Taut, "Eine Notwendigkeit," p. 174.

39. Behne first discussed Scheerbart's contribution in [Behne], "[Das Glashaus]," *Zeit im Bild* 12.1, no. 5 (January 29, 1914): 280; and Behne, "Das Glashaus," *Königsberger Hartungsche Zeitung* (January 30, 1914). On Scheerbart (1863–1915) and his relationship to Expressionism and Taut, see in reverse chronological order: Ralph Musielski, *Bau-Gespräche. Architekturvisionen von Paul Scheerbart, Bruno Taut und der 'Gläsernen Kette'* (Berlin, Germany: Reimer, 2003); Rosemarie Haag Bletter, "Mies and Dark Transparency," in Terence Riley and Barry Bergdoll, ed., *Mies in Berlin* (New York: MoMA, 2001), pp. 350–57; John Stuart, "Introduction," in Paul Scheerbart, ed., *The Gray Cloth and Ten Percent White* (Cambridge, MA: MIT Press, 2001), a translation of Scheerbart's most important architectural fantasy *Das graue Tuch und zehn Prozent Weiß* (1914); Mechthild Rausch, ed., *70 Trillionen Weltgröße. Eine Biographie in Briefen 1889–1915* (Berlin, Germany: Argon, 1997); Leo Ikelaar, *Paul Scheerbart und Bruno Taut: Geschichte einer Bekanntschaft* (Paderborn, Germany: Igel, 1996); and Rosemarie Haag Bletter, "Paul Scheerbart's Architectural Fantasies," *Journal of the Society of Architectural Historians* 34, no. 2 (May 1975): 83–97.

40. For summaries of Scheerbart's works that relate to architecture, see Musielski, *Bau-Gespräche*; and Bletter, "Paul Scheerbart's Architectural Fantasies."

41. Scheerbart, *Glaskonstruktion* (Berlin, Germany: Sturm, 1914), was republished recently with a postscript by Mechthild Rausch

(Berlin, Germany: Gebr. Mann, 2000), from which all citations here are taken.

42. Behne, *Wiederkehr der Kunst*, p. 65. Behne quoted Scheerbart's lines from *Glaskonstruktion*: "Our culture is to a certain extent a product of our architecture. If we want to bring our culture to a higher level, we must, for better or for worse, change our architecture," in Behne, "Bruno Taut," *Neue Blätter für Kunst und Dichtung* 2, no. 1 (April 1919): 13–15.

43. Behne, "Gedanken," pp. 1–4.

44. Taut, *Glashaus* (Cologne, Germany: Werkbund, 1914), p. 289.

45. Scheerbart had also expressed a generalized aversion to all that was overly functional, pragmatic, in favor of an artistic glass "paradise." Scheerbart condemned the "Sachstil" and expressed hope for a glass paradise in his novel *Glaskonstruktion*, chapters 13, 18. See also Scheerbart's short story "Der Architektenkongreß: Eine Parlamentsgeschichte," first in *Der Zeitgeist* n. 1 [supplement to *Berliner Tageblatt* 48, no. 8] (January 6, 1913), pp. 1–2, later reprinted in *Frühlicht* 1 (Fall 1921, republished 1963). See also John Stuart, "Unweaving Narrative Fabric: Bruno Taut, Walter Benjamin, and Paul Scheerbart's *The Gray Cloth*," *JAE* 53, no. 2 (1999): 61–73.

46. Behne was careful to remind his readers that this emphasis on art and spiritual ideals did not mean that good architecture ignored function. Rather, he felt that through art, the architect should be able to animate even the most trivial of functional requirements. Function should not constrain the architect, he suggested, but rather the architect should use it as yet another material to bring his creation to life. Resorting to a more Idealist vocabulary, Behne wrote that the true architect does not degrade forms to functions, but rather elevates functions to forms; Behne "Gedanken," p. 4.

47. Scheerbart had great hope that exhibition pavilions, especially in America, would help spawn a true glass architecture; Scheerbart, *Glaskonstruktion*, chapters 74–76. In his novel *Münchhausen* (1905), Scheerbart described a world's fair in Melbourne that served as an example to Behne; see Behne, "Die Ausstellung des Deutschen Werkbundes," *Dresdner neueste Nachrichten* (June 20, 1914).

48. Behne, "Gedanken," p. 2.

49. Behne, *Wiederkehr der Kunst*, pp. 53–54.

50. Behne, "Gedanken," p. 4.

51. See also Regine Prange, *Das Kristalline als Kunstsymbol: Bruno Taut und Paul Klee* (Hildesheim, Germany: Georg Olms, 1991), pp. 78ff.