Entangled

Technology and the Transformation
of Performance

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Foreword by Peter Sellars

Space 1: Scene/Machine (1876–1933)

"What distinguishes modern architecture is surely a new sense of space and the machine aesthetic."

REYNER BANHAM, *THEORY AND DESIGN IN THE FIRST MACHINE AGE*[1]

Wagner's Theater of the Future

Our story begins not in the age of the CPU, but on August 13, 1876, the opening day of German composer Richard Wagner's fabled *Festspielhaus* (festival theater) and *Bühnenfestspiel* (theater festival) to which thousands of Europe's and America's royalty, artists, and critics made their pilgrimage to witness a spectacle of historical proportion. Descending on the small, rural town of Bayreuth in northeastern Bavaria, the audience of luminaries included Tchaikovsky, Edvard Greig, and Mark Twain. The Viennese music critic Eduard Hanslick announced "an extraordinary musical theatrical experience and much more! This four-evening-long music drama is a remarkable development in cultural history, not to mention the construction of a special theater solely for its production and the pilgrimage of thousands of persons from half of Europe to this remote, half-forgotten little town whose name is now indelibly recorded in the history of art" (Hartford 1980, 72).

The catalyst that brought both elite and bohemian societies together in Bayreuth that summer was none other than the world premiere of Wagner's colossal fifteen-hour opera *Der Ring des Nibelungen* (*The Ring of the Nibelung*)—the music-theater work for which the entire theater building and festival had been conceived and constructed. Beginning its composition around 1851, Wagner knew early on that *The Ring* would be the epiphany of his compositional genius; a work so vast in musical and theatrical ambition that it could not be staged in any conventional theater but required a new kind of space of illusion to cradle it. Even if Wagner was not an unknown composer for his day (the

commission for *The Ring* came from King Ludwig II of Bavaria), the development of the opera and endless pursuit to create a theater specifically designed for its presentation was to lead him through a twenty-five-year odyssey of failed attempts, exile, and even bankruptcy, until its completion in 1876.

Wagner's penning of *The Ring* emerged as a response to what the composer perceived as a deep decadence plaguing nineteenth-century culture. Torn away from its Greek origins in the festivals of Dionysus, where the stage served as the "expression of public conscience," drama itself had become severed from both its civic and sacred origins and split into discrete artistic components: rhetoric, sculpture, painting, and music. In Swiss exile after participating in an aborted 1849 revolutionary uprising in Dresden, Wagner set out in writing his theoretical counterparts to *The Ring*: "Das Kunstwerk der Zukunft" ("The Artwork of the Future," 1849) and "Oper und Drama," ("Opera and Drama," 1850/1851). In "Das Kunstwerk der Zukunft," a text that already explored the perceptual experience of the spectator in relationship to the dramatic event, the eye perceived not only the visual setting but also the inner life of the performer, while dramatic action drove the need to bring all of the arts together in a total synthesis of elements: staging, image, music, and text.

The synthesis of art forms, what Wagner labeled the *Gesamtkunstwerk* (the total artwork) was "to include all phases of art and in doing so to consume, to destroy each one, so to speak, in favor of the total purpose of them all" (Wagner 1912, 115). For the composer, reason, intellect, and a rational worldview played no role in the audience's experience of the *Gesamtkunstwerk*'s utopian synthesis. Instead, the fusion of artistic forms would communicate directly to the senses and through them, exclusively to the emotions.

Based on the Romantic notion of the artist as a conveyer of the sublime, Wagner's interest in appealing to the deepest emotions by way of a fusion of media elements is also surprisingly contemporary. In a strange way, Wagner already had command over what many contemporary creators are still trying to sort out: the design of media carefully choreographed within a specifically defined architected space to create a complete and total immersion of the spectator's senses, literally sweeping them into an emotional, hypnotic vertigo; what Wagner scholar and editor Albert Goldman so aptly called a *theater of narcosis* (Wagner 1964, 29).

We need not, however, dwell on Wagner the composer or as the theorist of the *Gesamtkunstwerk*, although obviously such a concept plays a key role in making sense of our utterly confusing, multisensory, audiovisual media society of the present. I want here to focus on Wagner as an experience architect of a machine that utilized the technologies of the time to create unprecedented control over the perceptual and affective experience of his spectators.

The illusion technologies of the stage arts form a history in themselves, ranging from the Greeks' *deus ex machina*, the moving wagons of the mystery cycles of medieval times

and the mechanical birds and fountains of Byzantine court spectacles to Serlio's theatrical perspective in the mid-sixteenth century and Inigo Jones's elaborate masques for the Stuart royalty in the seventeenth century. But Wagner's *Festspielhaus* included the first full-scale use of modern technologies of lighting, acoustics, and architectural transformation specifically manipulated to create a powerful and cumulative effect on the senses that would "place you in a new relation to the play you are about to witness" (Wagner 1964, 358).

The architectural plan for the theater that would place the spectator into an unheard-of relationship with the onstage spectacle was nothing short of radical for its day (figure 1.1). Resorting to a Greek amphitheater-like arrangement for the seating configuration, Wagner first and foremost removed any trace of stage machinery that would shatter the spell of illusion. By sinking the orchestra pit below the stage and partially covering it, Wagner guaranteed that the spectator's eye would not be distracted by stray light and movement from the "mystical abyss" filled with conductor and musicians between the *theatron* and the stage. "With a dramatic representation, on the contrary, it is a matter of focusing the eye itself upon a picture; and that can be done only by leading it away from any sight of bodies lying in between, such as the technical apparatus for projecting the picture" (Wagner 1964, 365).

To further enhance the seamlessness of the effect, Wagner took an idea from his earlier collaborator on the project, the architect Gottfried Semper, in creating a second, wider proscenium frame that served to distance the stage even further from the spectators. The construction of this double proscenium created a kind of "mystical gulf" between the audience and the stage in which "the stage image was reduced to the form of a 'picture.' . . . Between him [the spectator] and the picture to be looked at there is nothing plainly visible, merely a floating atmosphere of distance, resulting from the architectural adjustment of the two proscenia; whereby the scene is removed as it were to the unapproachable world of dreams" (Wagner 1964, 366). To complete the distancing effect, Wagner plunged the entire house into almost total darkness by way of gas lighting during the performances.[2]

If the framing of the stage image was reduced to the equivalent of a two-dimensional screen, Wagner's precise acoustic shaping of the auditorium had the opposite effect, enveloping the spectators in a continually transforming sea of sound. Slightly fan-shaped to reduce *standing waves* and with a reverberation time of just under 1.55 seconds, both auditorium and structural interior of the building were constructed of wood, allowing the space to become an efficient receiver and diffuser of acoustic energy. Additional innovations, such as hollowing out the space beneath the ramped seating area to serve as a low-frequency *resonator* and the addition of numerous columns running along the walls to create irregularly shaped surfaces, all enabled Wagner to carefully compose and tune *The Ring* and his last work, *Parsifal*, to the exact acoustics of the *Festspielhaus* in a manner unheard of at the time.[3]
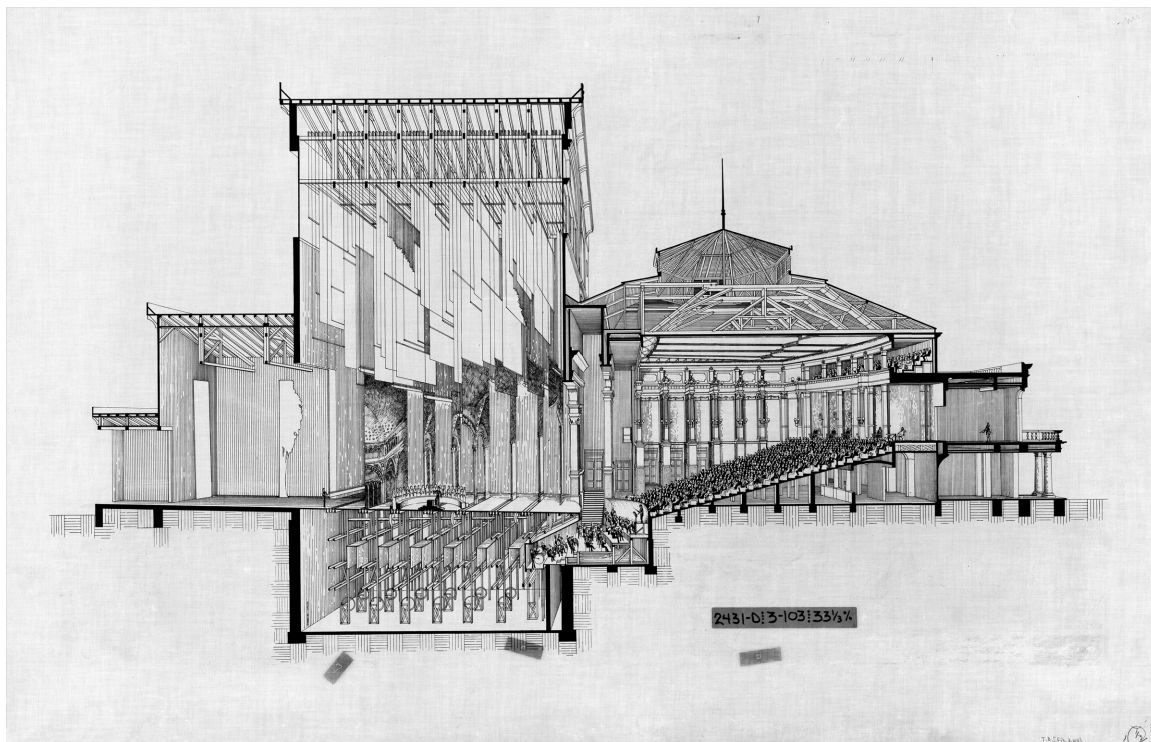
Figure 1.1 Longitudinal Perspective Drawing, Bayreuth Festival House, George Izenour Collection. Reproduced with the permission of the Special Collections Library, The Pennsylvania State University Libraries.

The overall vision of Wagner's *theater of illusion* set an important future precedent for later attempts at synthesizing architecture, drama, music, and technology in utopian spaces dedicated to the performance of singular works, including the Russian composer Aleksandr Skryabin's proposal for a cathedral in the Himalayas to exclusively house his spiritual, seven-day synesthetic music-theater work *Mysterium* (1903); Le Corbusier's, Iannis Xenakis's, and Edgard Varèse's Philips Pavilion at the 1958 Brussels World's Fair; or the custom-constructed theaters for Cirque du Soleil's Las Vegas spectacles *O* and *Ka* in the 1990s. With the shaping of space by artificial means and the construction of architecturally controlled aural and visual perception, the event of Bayreuth marked a first at the dawn of modernism that the ontology of performance was transformed not only because of its dramatic content but also by its technoarchitectural setting.

Appia, Light, and the Responsiveness of Space

As the monumental event of Wagner's Bayreuth rippled through the cultural structures of Europe and North America, perhaps no other artist was as influenced at the time by the "master of hypnotic tricks" (Nietzsche 1967, 166) than the Swiss theater designer Adolphe Appia. Born in 1862 in Geneva, Appia ostensibly studied music in Geneva, Paris, Leipzig, and Dresden, but increasingly became absorbed with stagecraft by his early twenties. Attending Wagner's *Parsifal*, the composer's last production at Bayreuth before his death, Appia was left deeply disappointed, convinced that Wagner's greatness as a composer was severely marred by his clunky design, particularly in the use of pseudonaturalistic, *tromp-l'oeil* scenery—flat, pictorial representations that contradicted the symbolic and sonorous intensity of Wagner's unparalleled musical abstraction. "The master," Appia later wrote in 1925, "set his work into the conventional framework of the period; and if everything in the auditorium at Bayreuth expresses his genius, on the other side of the footlights everything contradicts it" (Bablet 1982, 67).

Returning to Switzerland in 1890, Appia commenced an artistic quest to articulate his own scenic interpretations of *The Ring* cycle. In *La mise en scène du drame Wagnérien* (*The Staging of Wagnerian Drama*, 1895) and *La musique et la mise en scène* (*Music and Stage Setting*, 1899), he swept away centuries of staid scenographic practice by shifting emphasis from the pseudo illusionism created by two-dimensional, painting-based representation toward spatial arrangements of abstracted, rhythmic forms: simple geometric scenic elements such as raked stairs and platforms (figure 1.2). The key to a true realization of Wagner's vision, Appia claimed, lay in the musical score; the mise-en-scène was already embodied in its tone color (timbre), rhythm, duration, and other abstracted sonic elements. Second, and more important, the plasticity of both performer and stage objects could emerge only through their interaction with light.[4]

Appia's vision for a living, responsive space constructed by the materiality of the human figure and the immateriality of light and shadow was not to remain the stuff of theory but instead given physical life through the artist's acquaintance with the Swiss composer and music education teacher Emile Jacques-Dalcroze. An accomplished composer by the age of twenty-seven, Dalcroze had developed a unique series of physical whole-body exercises borne out of his frustration in teaching musicians who had little sense of rhythm or expression.

A series of postures and études intended at structuring better eye/hand/body coordination, Dalcroze's rhythmic plastiques, named *eurhythmics*, caught Appia's eye in 1906, providing the missing link for his new conception of the stage. Through eurhythmics, the body would become the organizer of a new kind of *rhythmic space*, one sculpted by its movement through such a space and subsequently, shaped and expanded by the technology of light.
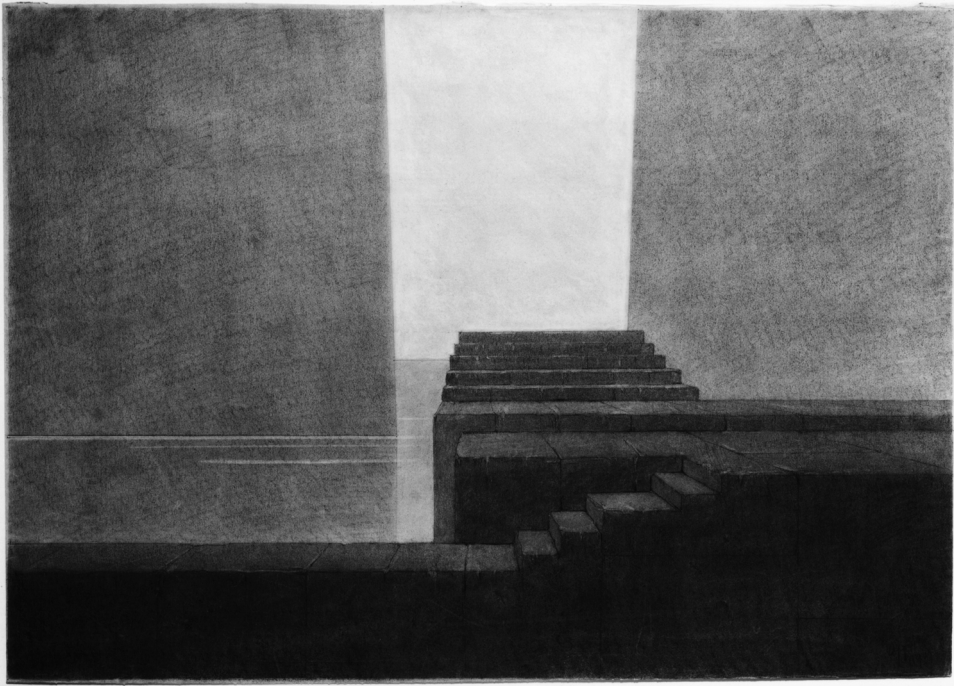
Figure 1.2 Adolphe Appia, "Escalier en face," 1909, Charcoal on drawing paper. Inventory IV, Nr. 749. Courtesy of Deutsches Theatermuseum München.

Dalcroze's enthusiasm for Appia's ideas of rhythmic spaces staged through eurhythmics led to an invitation for the designer to help conceive a new kind of artistic institute for eurhythmic exploration in the German garden city of Hellerau, outside of Dresden. Financed by the young German industrialist and German *Werkbund* (Work Federation society) member Wolf Dohrn, Hellerau would become a major center of research into new concepts of the body.[5] In arguing for the new school, Dalcroze wrote that rhythm should become the basis of a new society and raised to the status of a social institution; an idea that clearly was being played out through the increasing interest in *Körperkultur* (body culture), in general, and new performance possibilities with such trained, perfected bodies.

Between 1910 and 1912 under Appia's direction, the theater space at Hellerau was to become as aesthetically and technologically groundbreaking as Wagner's reformation of opera at Bayreuth. Collaborating with the architect Heinrich Tessenow and the Russian painter and lighting whiz Alexander von Salzmann, Appia designed what he called a *hall of syntheses*: a massive 50 m × 16 m × 12 m open space in which both

performers and spectators occupied the same spatial volume, without any barrier between them.

In direct collaboration with Salzmann, Appia began implementing his lighting concepts. Working with the principle of space projecting light rather than using it to directly highlight the performers' bodies, the team installed massive, cedar-oil-covered white linen drops on the ceiling and walls, behind which were hung thousands of instruments whose light was diffused through the almost transparent fabrics. Centrally controlled from a console that functioned like a light organ, light became active and responsive, a transformer of space. "Light is conveyed through the space itself," wrote Salzmann, "and the linking of visible light sources is done away with" (Beacham 1987, 67).

Taking full advantage of the new technical possibilities, Appia and Dalcroze's staging of Gluck's *Orpheus and Eurydice* at Hellerau in 1913 met with similar astonishment as Wagner's *The Ring* premiere some thirty-six years earlier. In a continual series of *coup de théâtre*, the two artists created sweeping scenochoreographic effects, and in one case represented the God Amor only through a sharply focused beam of light, causing a theatrical sensation that Paul Claudel called "a union of music, the plastic sense and light, the like of which I have never seen" (Beacham 1987, 78). In Appia's hands, light had successfully created an environment that both amplified the human body in sculptural form and became itself "a creation animated by an unencumbered vitality" (78).

Abruptly interrupted by the start of World War I in 1914, Appia's short-lived experiments at Hellerau already anticipated the many mise-en-scène of transformable media and bodies that would repeatedly haunt the twentieth century. Moreover, Appia's interest in artistic and social reform materialized in the design of a performance environment in which stage and spectator were united, transforming the audience from passive onlooker to active participant. "Sooner or later we will come to what will be called simply the hall (*salle*), the cathedral of the future, which, in a free, vast, and variable space, will play host to the most diverse activities of our social and artistic life. This will be the ultimate setting for dramatic art to flourish in—*with or without spectators*" (Bablet 1982, 88; emphasis in original).

Stage/Machine: Futurism and Performance

At the same time as Appia's experiments at Hellerau, the radical cultural and socioeconomic change wholeheartedly embraced by the Futurist movements, first in Italy in 1909 and slightly later in the twilight of Czarist Russia, was fomenting, transforming infatuation with technology into full-scale aesthetic-political programs. Announced with cataclysmic intensity in 1909 on the front page of the French daily *Le Figaro* by the wealthy, Sorbonne-educated Filippo Tommaso Marinetti, the artistic movement and ideology of Futurism would claim a new world where "time and space died" (Marinetti 1973, 22).

It would not be an exaggeration to claim that the Italian Futurist movement, which ran from 1909 into the early years of World War I, when the group's desire for war brutally materialized into reality, was the first artistic movement in the twentieth century to exaltedly embrace the coming machine technologies. Since much has been made of the Futurists all-out rapture with automobiles, airplanes, electricity, and other machines, it is important to understand the roots of such ecstatic reaction. In his seminal *Theory and Design in the First Machine Age*, architectural historian Reyner Banham discussed how the historical context of the early twentieth century, where "the sense of the overriding of an old, tradition-bound technology unchanged since the Renaissance," met with new inventions "without tradition," particularly in Italy where people were suddenly confronted "on the doorsteps of their ancestral palaces" with technologies that radically reshaped urban environments (Banham 1960, 100–101).

For younger, radical intellectuals like Marinetti and his artistic acquaintances, simultaneity, noise, speed, and rupture catalyzed a new poetics of the day through the recently pervasive technologies of radio, electricity, telegraph, and telephone. These wireless inventions were rapidly assimilated as telephonic technologies that, as the social theorist Paul Virilio described, already succeeded in creating "presence at a distance" (1997, 16). Long celebrated for their work in painting, sculpture, music, and architecture, the Futurists were also one of the first movements in twentieth-century industrial modernism to explicitly acknowledge the total impact of machines in transforming performance environments into dynamic, sensory-technical apparatuses.

Early Futurist performance between 1909 and 1914 was largely driven by Marinetti's concept of the *serate*, a kind of public, guerilla-like provocation designed to break down the separation between stage and audience space.[6] Gradually intoxicated both by the newfangledness of the technomachine age as well as by influences from the music halls, circuses, cabarets, burlesque reviews, and variety shows that he had experienced in visits to Paris, London, and Berlin, Marinetti's "Manifesto of Variety Theater" (1913) declared his disgust for the contemporary theater and his interest in a variety theater "born . . . from electricity . . . having no tradition, no masters, no dogma and it is fed by swift actuality" (Marinetti 1971b, 179). Attempting to articulate a theater of speed and effects utilizing the tools of the day to create "the futurist marvelous produced by modern mechanics" (179) it was not until teaming up with Bruno Corra and Emilio Senttimelli that technology for Marinetti became an explicit material instrument for shaping the experience of performance.

Declaring that "the only way to inspire Italy with the war like spirit today (of Futurism) is through the theater," Marinetti, Corra, and Senttimelli's "The Futurist Synthetic Theater" (1915) was a rant against the deadliness of Western dramatic traditions since the Greeks due to theater's mimetic/representational role (Kirby and Kirby 1971, 41–65). The manifesto, however, also imagined a new kind of performance that would produce astonishing relationships between the event and the spectator through deployment of

technical apparatuses. Describing a new Futurist performance of "dynamic, fragmentary symphonies of gestures, words, noises, and lights" (Berghaus 1998, 8) as a labyrinth of sensations, the theater would become life itself through scenic events that, in the words of the Futurist theater critic Günter Berghaus, "were unique and unrepeatable aggregates of energy and sensations that closed a circuit between stage and audience" (179).

Stage/Machine: Futurism and Performance—Scenodynamics

The largest conceptual shift followed World War I, when the Futurists finally sought to transform scenographic space directly through electrical and material means. Already in 1917, the painter Giacomo Balla undertook an early attempt at realizing what would soon be labeled the *scenodynamic* stage—a five-minute audiovisual choreography of objects and lights for Sergei Diaghilev's Ballets Russes accompanied by Igor Stravinsky's *Feu d'artifice* (*Fireworks*) at the Teatro Constanzi in Rome. Having translated concepts of speed and dynamism into painting and eventually sculpture, Balla turned to directing a large-scale synesthetic media-performance event that would embody Stravinsky's music through strictly abstract geometries of 3D shapes and light. Constructed from wood and lit from inside, Balla's forms generated a formal landscape of cones, half disks, triangles, pyramids, and prisms.

To set this landscape in motion, Balla composed a detailed score of fifty lighting cues, made possible by the recent introduction of electrical lighting systems into theaters. Balla's experiment proved to test the technical limits of the Teatro Constanzi, particularly when disputes between him and the theater's technical crew left the creator himself alone to run the lighting console for the last 2.5 minutes of the work.[7] Despite the production being neither an artistic or commercial success (after its two Rome performances, Diaghilev subsequently dropped it from the Ballets Russes' repertoire), it nonetheless materialized the Futurist's theoretical notions of dynamism.

It is also almost certain that the then-twenty-year-old Enrico Prampolini influenced Balla's ballet of objects and light. Originally trained as a painter but moving to architecture and scenic design, Prampolini had real-world performance experience, having painted sets and built costumes to support himself. Establishing contact with Balla in 1913, he was under the influence of Wagner, the Symbolists, and Wassily Kandinsky's theories of the total artwork as expressed through a synesthetic relationship between sound, color, form, and movement. An exhibition of the Futurist Boccioni in 1913, however, led Prampolini away from Kandinsky's interior world of expression and toward a more external plastic and dimensional paradigm.

Upon reading the manifestos "The Futurist Stage" and "Futurist Scenography," we might first get the impression of a mind subsumed by electronic fantasies, but we should remember that Prampolini was partially reacting based on his practical theater experience. Prampolini's concept of *scenodynamic architecture* attempted to embody the way artists

such as Balla painted speed and motion onto the 2D canvas in 3D and 4D space, concentrating on the three-dimensionality of performance space rather than the representational aspects of the picture frame that had troubled theater spaces since the sixteenth century.

Directly energized with the modern technologies of electricity and mechanics, Prampolini banned fake, painted scenery and in place of "a colored backdrop" imagined a new kind of "colorless electromechanical architectural structure, powerful vitalized by chromatic emanations from a luminous source" (Prampolini 1971b, 204–205). Such a structure would erase centuries of representational baggage in the form of so-called realism from the stage and, more important, imbue performance with the same dynamism now rendered real by machines.[8]

Despite numerous attempts, it would be several years before Prampolini had the opportunity to realize his scenic ideas, which finally occurred in 1918–1919 when Prampolini arranged for a demonstration of his theories at the Teatro Odescalchi in Rome.[9] The production of Albert-Birot's *Matoum et Tévibar* was described by Prampolini as a proof of concept of his "plasto-dynamic scenographic system, of the dynamism of colored lights that create a stage architecture, with the stylization of the plasto-dynamic marionettes" (Berghaus 1998, 283). Although this prototype project could by no means be called a commercial success (it ran for a mere two days), it finally secured Prampolini's international reputation, helping him to become one of the main forces in the world of avant-garde European scenography at the time.

The scenographer's 1924 "Technical Manifesto for Futurist Scenic Atmosphere" repeated the principal themes articulated in earlier writings, but also delved further into the concept of a *polydimensional scenic space*—the breaking up of the horizontal plane and the introduction of rhythmic plastic shapes or *polydimensional* forms. But Prampolini now wished to go much further, calling for the total elimination of the human actor–performer and her replacement with what he called "a personification of space . . . as a dynamic and interacting element between the scenic environment and the public spectator" (1971a, 230). Like so many Futurist writings, this elimination of the human was in the service of a much larger spiritual quest that rapidly approached the level of mysticism. By removing the human form, the audience would no longer be distracted by the banality of the everyday and be liberated to enter into a world of spiritual abstraction—one where the dynamics of space itself ultimately would transcend matter.

The other major voice in the Italian Futurists scenographic revolution was Fortunato Depero. Working at the same time and competing with Prampolini, Depero went even further with his concept of a totalized mechanical, synesthetic mise-en-scène. In the 1916 "Notes on the Theater," Depero already described a stage embodying the characteristics of film as a fluctuating space composed of mobile scenery, oscillating objects and moving architecture: "everything turns-disappears-reappears, multiplies and breaks, pulverizes and overturns, trembles and transforms into a cosmic machine that is life" (Depero 1971,

208). Although Depero's as well as Prampolini's visions went largely unrealized, their work paralleled a common theme that would continually arise in Europe during the early part of the twentieth century: the construction of a stage machinery where the human element was integrated into, made equal with, and ultimately subordinated to a technical apparatus.

Stage/Machine: The Origins of Russian Futurism

As an artistic and political movement, Futurism had an even larger impact in Russia with the publication of Marinetti's *Le Figaro* manifesto there, creating a buzz among an entire generation of writers, painters, poets, playwrights, and eventually, performance practitioners. Distinct from its Italian counterpart, Russian Futurism further elevated artistic forms such as painting, sculpture, literature, the graphic arts, and poetry over the performing arts as media in which to force new radical links with other modernist movements. Influenced by post-Impressionist experiments like Cubist painting over the Italian Futurist's dreams of war machines, the crucial players of Russian Futurism sought to distance themselves from the Italian's overarching fetishism for technology, and sought instead to brand the movement with a distinct Russian stamp.

If the Russians claimed conceptual and ideological distance from their Italian counterparts, their first manifesto, "A Slap in the Face of the Public," jointly written in 1912 by the playwright Vladimir Mayakovsky, the poet Velimir Khlebnikov, and the painters David Burlyuk and Benedikt Livshits, sounded in tone and argument suspiciously like Marinetti's opening salvo just three years before. Similarly, Mayakovksy's brief manifesto "Theater, Cinema, and Futurism" ([1913] 1980) published in the periodical *Kine-zhurnal*, posed the question of whether theater made sense in a world increasingly dominated by the cinema. Even though it distanced itself from Italian Futurism, Mayakovsky invoked the same kind of argument as Marinetti's and Prampolini's early writings against the enslavement of performance's dynamism brought about by the actor by the "dead backgrounds of (theatrical) decoration" (Mayakovsky [1913] 1980, 182). Here, cinema's concentration on movement would eventually force performance space to become dynamic as well.

Futurism Performed: Victory Over the Sun

Victory Over the Sun, the first highly organized, multimedia performance event that would test the hypotheses of Mayakovsky and other Futurists, was also their most notorious. Premiered at the Luna Park in St. Petersburg in 1913 and billed as "The First Futurist Spectacle in the World," this *cubo-futurist opera*—with a libretto by Khlebnikov and Alexei Kruchenyk, settings and costumes by the painter Kazimir Malevich, and an atonal score by the composer Mikhail Matyushin—elicited such a strong reaction from the public

during its sole two performances that according to reports, it was difficult to separate the music from the loud rioting of the audience. Deeply misogynist in tone and employing a dizzying variety of theatrical shock effects, *Victory Over the Sun* was set in a dystopian future and told the story of a group of Strong Men (i.e., Futurists) who kidnap the sun and imprison it inside a concrete lock box in order to destroy the past. The opera ended with a *coup de théâtre*: the crash of an airplane into the stage.

The opera itself was, at the very least, a significant sonorous experience. Consisting of quarter-tone arias, Matyushin's score was banged out on an out-of-tune piano and accompanied by an equally out-of-tune student choir, while Kruchenyk's libretto was written in what he and Khlebinikov dubbed *zaum*, a nonsensical, transrational glossolalia composed of decomposed, purely phonetic Russian stripped down to its fundamental sonic substructure to reveal the primitive essence of the actual sound of the language itself.[10] What is more intriguing is how Malevich's visual environment consisting of large, abstractly painted backdrops and geometrically constructed costumes already presaged the black-and-white minimalism of his early Suprematist paintings.[11]

Costs prevented Malevich from realizing his originally intended 3D sculptural scenography, but he innovatively compensated with the use of flat 2D backdrops contrasted with the sculptural volumetry of his wire and cardboard costumes—worn constructions that engendered particular kinds of physical movements from the performers who wore them. The backdrops themselves acted as a kind of introduction to the fragmented chaos of an increasingly technologically transformed but just-begun twentieth century: Cubist shapes, a singular black-and-white square within a square divided in half, a painted iconography of symbols, words, signs depicting images of bombs, pieces of machinery, architectural T-squares and bits of airplanes.

If Malevich's painted backdrops were not real 3D, they were certainly enhanced and transformed by his cutting-edge lighting design that took full advantage of the Luna Park's existing technological infrastructure. Large mobile spotlights were used like weapons, sweeping the stage space and randomly picking out objects and performers. As described by witness Benedikt Livshits, the lighting distorted the performers' bodies and painted backdrops beyond recognition, giving the impression of "figures cut up by the blades of lights and deprived alternately of hands, legs, heads, etc. . . . out of the primordial night the tentacles of projectors seized on parts of this object, now of that and saturating them with colors" (Baer 1991, 105).

Victory Over the Sun marked a high point in the Russian avant-garde of the time, its early vision of depersonalized, mechanized humanity later reaching an apogee in the influential artistic movement of Constructivism. The opera's overall emphasis on physicality also introduced a new concept to Russian avant-garde performance: that movement was as essential as voice and scenic atmosphere in the "creation of a three-dimensional, kinetic, interactive totality" (Baer 1991, 41).

Artists like Malevich, Vladimir Tatlin, and Aleksandr Rodchenko began to look toward performance as a vehicle to explore their ideas of three-dimensional materials that assisted in the formation of dynamic space. Furthermore, Malevich saw the possibility of using the stage as a 3D, real space realization of the principals of cubist painting. "Art is the ability to create a construction that derives not from the interrelation of form and color and not on the basis of aesthetic taste in a construction's compositional beauty, but on the basis of weight, speed, and direction. Forms must be given life and the right to individual existence" (Bowlt 1976, 122–123).

Tatlin's Transformation of Space

Another major figure that emerged from Futurist circles at first but quickly turned toward the rapidly developing movement of Constructivism was Vladimir Tatlin. Trained in painting, sculpture, and architecture and deeply influenced by Picasso after a journey to Paris in 1914, Tatlin began to develop what he called *counterreliefs*, which were architectural objects made of real materials such as metal, wood, and iron that hung inside wall corners or were suspended in space, appearing to defy gravity. Like Malevich, Tatlin too wished to explode painting from its flat, 2D surface—to recover the lost connections between painting, sculpture, and architecture through the discovery of a new volumetric art with its objective basis in "materials, volume, and construction" (Zhadova 1984, 239).

In technologizing space through the use of real material in his counterreliefs, Tatlin's work pointed to a major cultural shift away from composition and toward construction. "It is a respect for the *faktura* (texture) of material itself that makes the difference," wrote the modernist critic Marjorie Perloff, in that "the material dictates the form" (1989, 69). Given his utter fascination with the material essences of real objects that could transform space, it only makes sense that Tatlin quickly turned to performance contexts in which to realize his ideas. Becoming occupied with stage projects on and off throughout his career in addition to unrealized and monumental architectural commissions [Movement, chapter 3], none of his original designs remain except for a single production.

In 1923, long after Constructivism had become the de rigueur movement of the avant-garde, Tatlin staged, designed, and performed in Khlebnikov's science fiction play *Zangezi: A Supersaga in 20 Planes* for a single performance at the Museum of Artistic Culture in Petrograd. Described by Khlebnikov as "construction units . . . an architecture composed of narratives," *Zangezi* tells the story of the prophet and speechmaker Zangezi, who understands the languages of both humans and birds and who descends to humanity to translate these transrational languages to the masses (Khlebnikov 1990, 191). Staged in memory of Khlebnikov's premature death a year earlier, Tatlin's production amplified the primitive acoustic materiality and deeply embedded spirituality of the poet's transcendental *zaum* language in architectural form.

Even though little visual record of the production remains with the exception of two photographs (figure 1.3), a set drawing, and one woodcut, we can still glean a sense of the direction that Tatlin was heading in; one where "different surfaces of different physical materials which have been treated in different ways" would incarnate Khlebnikov's sonic architecture of *zaum* (Lodder 1983, 209). "Parallel to his (Khelbnikov) word constructions, I decided to make a material construction. . . . I have had to introduce machinery which by its movement forms a parallel to the action and fuses into it" (Tatlin 1988, 248).

For the scenography, Tatlin erected an impressive, tower-like structure composed of over-dimensional shapes poised on an acute axis such that the edifice appeared to be frozen in the moment of toppling over. At the top, representing Khlebnikov, Tatlin himself appeared while a piercing light focused attention on the scene "to guide the attention of the spectator, the eye of the projector leaps from one place to another, creating order and consistency. The projector is also necessary to emphasize the properties of the material" (1988, 248–249). Thus, in Tatlin's work, construction and texture were set into motion through the dynamic medium of light.
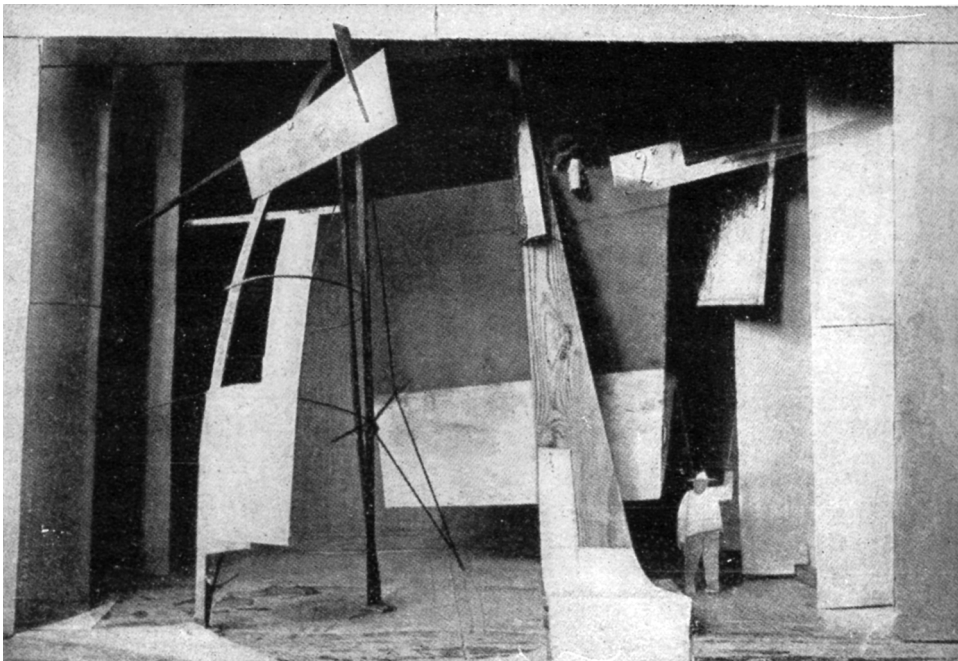

Figure 1.3   Vladimir Tatlin. Stage Model for *Zangezi*. Petrograd 1923. Whereabouts unknown.

The October Revolution and Constructivism

Even with the basic tenets of the growing movement of Constructivism already planted before 1917, they received a major push in the October Bolshevik revolution. With the total economic and social chaos that followed the final deposition of Czar Nicholas II's regime in Russia, the revolution began to instantiate Vladimir Lenin and the Bolsheviks' dream of a proletarian revolution while sympathetic artists searched for new aesthetic vocabularies, techniques, and forms that would serve to express the revolution's spirit.

What exactly Constructivism was and who was in charge of it is still a major debate among historians, particularly as there were several movements that labeled themselves with the word. It is undeniable, however, that the movement in its various facets marked an unprecedented break with Russia's political past. From 1913 onward, a group of experimental artists from theater, music, architecture, sculpture, painting, and cinema sought new ways of materially expressing rather than representing life's meaning and situations through a regenerated culture seeded by industrial production that unified the disparate arenas of science, industry, and art under the banner of socialism.

The Constructivists' initial goal was precisely the implementation of the ideals of the new Bolshevik state through its own creative agendas, incorporating cultural production into daily life. One group of artists led by the artist Aleksandr Rodchenko, his partner, and painter Varvara Stepanova, and artist Alexei Gan argued for a new breed of revolutionary cultural worker whose site of practice would no longer be the studio but the industrial factory. Articulated in the manifesto of the First Working Group of Constructivists in 1921, Rodchenko and company declared war on "art for art's sake" as well as on work that primarily focused on the sensory or mystical life of the individual, instead proposing a new, *objective* form of cultural production—a form of anti-art that would mirror the new technoindustrial reality of socialism.

With the triad of *tektonika* (techniques of construction), *faktura* (material texture), and *konstruktsiia* (the process of structuring and organizing the materials), Rodchenko's group sought the transformation of reality through the expression of material elements where such characteristics as line, color, space, volume, plane, and light formalized their use. "Construction," wrote Rodchenko, "is the system by which an object is realized from the utilization of material together with a predetermined purpose" (Lodder 1983, 27).

Developing after 1921, a second group led by Naum Gabo and his brother Antoine Pevsner transcended the narrow confines of art entirely, focusing on much broader areas of societal production. The shift away from purely artistic applications led to a break between the group represented by Tatlin and Rodchenko and by that of Gabo. Partly the result of debates among party functionaries, bureaucrats, critics, and artists on how proletarian cultural production could mirror the parallel transformation of social-economic

structures, the central question of how radically formal avant-garde movements could express the role and position of the working class became a topic of heated debate throughout the twentieth century.

Constructivism's Technologizing of Performance Space: Meyerhold and Popova

The Constructivists had the ambitious aim of a total transformation of the post-1917 society through design and architectonic fantasies but one of the few arenas that pragmatically connected to such visionary experimentation was the "synthetic" realm of theatrical performance. In her well-known book *The Russian Experiment in Art: 1863–1922*, historian Camilla Gray noted that "deprived at first of their natural field of exploration in architecture, the Constructivists turned to the theater" (1971, 265). Not unlike the new media's shifting interest from the screen to physical, media-augmented space, the stage too offered the Constructivist's machine imagination the possibility to explode the surface of the easel and the painting's frame.

Constructivists who entered the performance arena perceived the stage as a micro laboratory to test out social experiments and disseminate new formal ideas within a totalized, artificially designed technological environment. Following the dictates of Rodchenko's First Working Group, the Constructivist approach to the stage focused on a functional, utilitarian model of theatrical space, dismantling the trappings of traditional theatrical décor such as curtains or painted scenery and nakedly exposing all technological mechanisms to the audience.

Erected in its place were stage environments announcing the birth of a new industrial, mechanized age by way of their material constitution—skeletal frameworks of exposed wood and steel, freely suspended staircases and precipitously perched girders, hanging projection screens and searchlights, ladders, cranes and ramps, jungles of blinking displays, signs, posters, slogans and text, moving walls, wheels and gears, and, in some cases, real cars, motorcycles, and trucks.

Theater artists problematized the cultural divide between stage and street, audience and event, with stage action invading the sacredness of audience space, suspending the passive role usually attributed to spectators and placing them in an oscillating position between observer and performer. In its stage context, Constructivism intended no less than a radical architectonic and material reimagining of volumetric space, theatrical event and social life by bringing the political urgency of the street inside and onto the stage.[12]

Although many theatrical experiments of the period between roughly 1918–1928 featured such architectural tropes, the most notorious work originated in the productions of Russian theater director Vsevolod Meyerhold. Arguably one of the most influential twentieth-century directors, Meyerhold's work from the period between 1919 and 1927 radically transformed stage performance. The controversial director had already achieved

fame as early as 1909, directing and acting within a large number of formally conventional productions, but it was not until after 1920 that his work would become infected with Constructivist techniques.

A devout socialist who had been further ignited by the October revolution, Meyerhold wanted to construct the ultimate participatory experience, perceiving the stage environment as a necessary site for the creation of new aesthetic methods and a new public to carry the political revolution into the staid annals of cultural contexts. As early as 1913, he began developing a suite of techniques such as the use of lighting and fluid, dynamic staging that would result in what he called a *cinefication* of the theater. This proclamation foreshadowed a wave of experimentation that was to later take place, particularly at a time when the cinema itself was a primitive art form, being little more than a filmed version of the theater.[13]

Meyerhold's earlier work already attempted to experiment with formal techniques that had little historic precedent. The German theoretician Georg Fuchs's 1905 *Die Schaubühne der Zukunft* (*The Stage of the Future*) had a major influence on the young director's aesthetic, prompting him to explore a theater where the actor would be only one part of a larger scenic picture (Fuchs 1905). For Fuchs, acting was the expression of a much broader choreographic environment; a rhythmic exploration of organizing stage space with the human body as one crucial but not singular element. Such an expressive approach demanded a completely different type of performer, physically agile and equipped with split-second timing; something that motivated Meyerhold's interests in the gestic qualities found in Asian performance forms and low-brow entertainment genres such as circus, vaudeville, music hall, and mystery/pageant plays.

With Meyerhold's lead, an entire generation of successive directors including Sergei Eisenstein, Aleksandr Tairov, Nikolai Evreinov, Nikolai Foregger, and Yevgeny Vakhtangov would contribute to what was seen as one of the most remarkable developments in the Russian theater after 1917: the expansion of performance to include cinema, cabaret, vaudeville, circus, and public spectacle.[14]

Despite the fact that Meyerhold's earlier work contained the seeds of his subsequent formal theatrical experimentation, the 1917 revolution marked a radical break with previous productions. After serving in the Red Army during the Crimean Civil War in 1920, the director turned with a furious zeal toward transforming the theater into an instrument of political propaganda and media communication. Taking over the dilapidated Zon theater in Moscow, he assembled a young company of performers dubbed Theater R.S.F.S.R. No. 1.

His first production, a controversial interpretation of the 1920 Belgian symbolist play *The Dawn*, was more akin to a political meeting with the performance continually interrupted by real-time news reports from the Crimean front brought by messengers. Like earlier projects, *The Dawn* transformed the audience space into a participatory event, exposing the entire theatrical apparatus in plain sight. Using ramps to connect stage to

auditorium, designer Vladimir Dmitriev's set attempted to create a space that was non-representational, referring to nothing other than its own material form.

More likely, the Constructivist theatrical revolution reached its apex with Meyerhold's and stage designer Lyubov Popova's 1922 production of a little-known boulevard farce, *The Magnanimous Cuckold*, by the Belgian writer Fernand Crommelynck. As one of the few women involved in the history of technoscenographic practice, Popova is critical to an understanding of the machine transformation of theatrical space. Trained first as a painter, she moved to stage design upon meeting Meyerhold. Hired by him as teaching staff in the State Higher Theatrical Workshop (later renamed GITIS) after seeing her painting work in the legendary 1921 Moscow Constructivist exhibition *5 × 5 = 25*, Popova's set for the Crommelynck production was a textbook example of Constructivism *in situ*.[15]

Aesthetically, Popova's interest in machinism strongly resonated with Meyerhold's approach—a joint quest for a functional model of scenographic space that embraced the machine but reduced it to its most essential, skeletal form. In a purely pragmatic sense, such a skeletal, freestanding set could be moved from the confines of the theater into the open air so that the results obtained in the stage laboratory could be transferred into everyday life without relying on the institutionalized theatrical machinery.

Popova's stripped-down installation machine for *The Magnanimous Cuckold* exemplified the best features of Constructivist architectonics for the time (figure 1.4). Gone were the painted backdrops and fake scenery of the past. In their place, Popova erected a labyrinth of ramps, steps, ladders, painted wheels with the words CR-ML-NCK (for Crommelynck, the author's last name) and sails that at times appeared as windmill blades and at other times, as abstracted mechanized forms. Dressed in everyday workers' overalls, Meyerhold's acrobatic actors executed a set of technically precise movement exercises labeled *biomechanics* [The Machine Body, chapter 6]. Biomechanics enabled Meyerhold's actors to use Popova's installation as a kind of performance instrument—what the Russian Meyerhold expert Konstantin Rudnitsky later called "Popova's keyboard for the performers" (1981, 290).

Popova's environment (and Crommelynck's text) were essential catalysts for Meyerhold's theatrical inventiveness, with the scenography enlarging the choreographic possibilities of the performers and thus fulfilling the desire to create a "workplace for the actors" and not a space of decoration. By opening the door for Constructivism to exert its influence in the realm of performance, the painter and designer were forever banished from the theater, with the engineer and the constructor taking their place.

Later, Meyerhold claimed as much when he stated that Popova's construction effectively attempted to create a situation that would not be different from the technological phenomena of real life. "The play (*Cuckold*) develops in close interpenetration with that which permeates our contemporaneity: technological achievements" (Baer 1991, 102).[16]
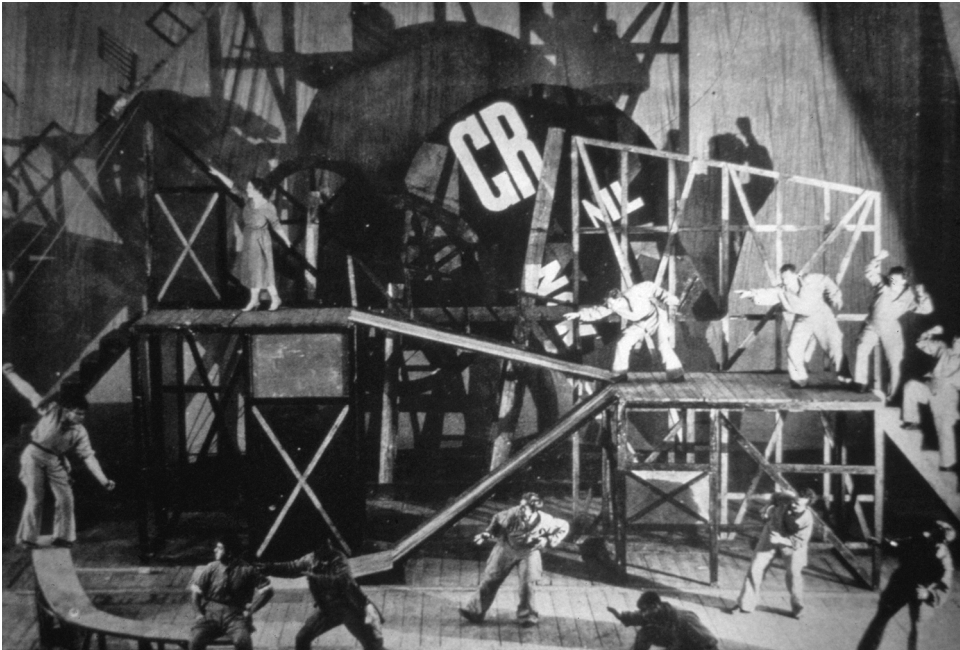
Figure 1.4 Vsevolod Meyerhold's and Lyubov Popova's production of Crommelynck's *The Magnanimous Cuckold*, Moscow. Meyerhold State Theater, Revival, January 1928.

Meyerhold's numerous subsequent projects also mapped out new performance territory. His 1923 production of the Russian revolutionary writer Sergei Tretyakov's *Earth Rampant* or *The Earth in Turmoil*, continued the dream of bringing an advanced technologized society into the theater. Also designed by Popova, the centerpiece of the production was a massive wooden crane crowned with a hanging projection screen (dubbed by one critic as a "machine-photo poster") onto which revolutionary slogans and titles announcing scene changes were projected [Cinefication and the Stage, chapter 4]. In a production that stood theatrical conventions on their head, real cars, motorcycles, and trucks were continually driven onto a large-scale gangway built directly through the audience space (Rudnitsky 1981, 314). Furthermore, Meyerhold took full advantage of new lighting technologies, including centralized dimmers, using large spotlights to create cinematic close-ups—the stage equivalent of camera movements.

His next production entitled *D.E.* (1924), an amalgam of several sources, featured projections of signs, slogans, and "comments from the director" onto three hanging projection screens, as well as a remarkable series of lacquered wooden screens with casters which the director choreographed into a ever-shifting sequence of complex scenic changes. Although Meyerhold's greatest theatrical works were still to come, the period of his

intensive preoccupation with Constructivist stage principles and their technologies effectively ended after *D.E.*

El Lissitzky's Electromechanical Peep Show

Together with Meyerhold and Popova, no other figure sums up the radical direction of Constructivism's reach into performance practice better than that of Lazar (El) Lissitzky. Born to Jewish parents near Smolensk, Russia, he was trained in architecture and engineering in Darmstadt, Germany, between 1909 and 1914 and later in Moscow. After working in several architecture bureaus, Lissitzky met Malevich and became deeply influenced by Suprematism but later—by the mid 1920s—he too shifted to Constructivist ideologies. With his command of the German language, working experience in several different disciplines, and frequent travels, Lissitzky became the main artistic conduit for avant-garde thought between Russia and Western Europe from the mid to late 1920s.

Like many other artist–designers of the period, Lissitzky was strongly influenced by the proposed unity of art and technology embraced by socialist ideology and the fusion of science, technology, and the machine. The transformation of society through the utopian, potentially democratic possibilities of a new kind of human molded by socialism helped drive the development of Lissitzky's practice and potent impact in the more than half a dozen disciplines in which he worked: architecture, graphic and product design, typography, theater, exhibition design, photography, and painting.

Like other Constructivists, Lissitzky also viewed the stage as an ideally controlled aesthetic milieu in which to rehearse the birth of a New Man within an artificially constructed technological environment. Even if his contributions to performance were relatively few, Lissitzky's theoretical treatise on "the electromechanical peep show" as well as an unrealized set design for Meyerhold were important landmarks in the history of technoscenography (Lissitzky [1923] 1967, 351).

With solid technical and artistic training, it only made sense that Lissitzky would eventually collaborate with Meyerhold. Asked by the director between 1926 and 1928 to design the scenic environment for a proposed production of Tretyakov's propagandistic *I Want a Child*, Lissitzky's stage design aimed at what Meyerhold had only described in rhetoric: a radical transformation of the inherent relationship between spectator and event. "If Meyerhold needs the stage settings for a new play—then I design the lay-out, transforming the whole interior architecture of the theater with its traditional picture frame stage" (Lissitzky 1967, 330).

Interested in creating new democratic possibilities for interaction between people and their spatial environment, Lissitzky's architectural surround amounted to a complete transformation of theatrical space, progressing beyond the rickety, wooden and mechanical, erector set–like environments of the other Constructivists. Lissitzky fused stage and
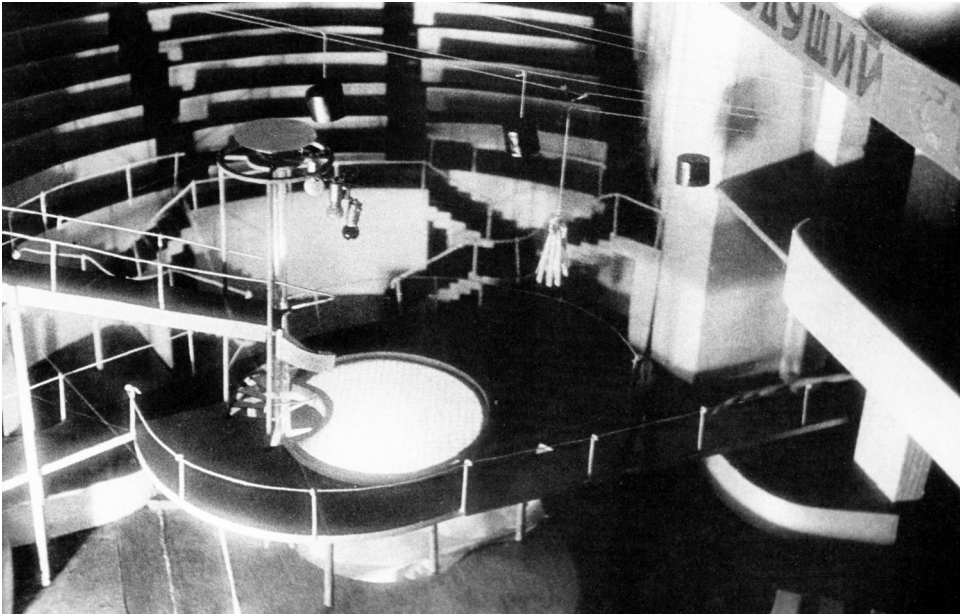
Figure 1.5 El Lissitzky. Set model for Sergei Tretyakov's *I Want a Child*, Meyerhold Theater, 1929 (unbuilt).

audience space by constructing a kind of amphitheater in which a ring of concentric circles rising out of the floor in the center would serve to create a new acting area directly inside the audience space (figure 1.5).

With the audience surrounding the performance on all sides, the performers would enter and exit the space by coming out of the depths of the floor below the concentric circles. The floor would be constructed out of transparent glass and lit from below, while lighting and props would enter and exit the space by manner of a system of pulleys and ropes. Attempting in architectural and spatial form to embody what the playwright Tretyakov was trying to do in written form, Lissitzky sought to create a performance space akin to a debate, where different members of the audience could intervene during the course of event, ask questions and suggest solutions to the contemporary issues of utopianism posed by the play. Like many of the Constructivist projects, however, the complexity of the design coupled with the fact that the play itself had to be revised numerous times because of censor complaints, prohibited the work from ever being realized.[17]

Lissitzky's theoretical ideas on the merging of electromechanical technologies and performance were expressed much earlier in a short 1923 essay entitled "The Plastic Form of the Electro-Mechanical Peep Show: Victory Over the Sun." Written in German to accompany his lithographs for a children's puppet show–like version of *Victory Over*

the Sun, Lissitzky described the construction of a new kind of event that he termed the *electro-mechanical peep show* (Lissitzky [1923] 1967).

The imagined performance would involve a series of artificial bodies becoming animated within a completely transformable environment—a stage offering "the bodies in play" all possibilities of movement. Lissitzky's choreography of both these machine-like bodies and the environment itself would be conducted from a central control table in the hands of a master director or "show creator" who through electromechanical means orchestrated not only the direction of movement but also sound, image, and light. The electromechanical peep show would also feature such technological innovations as "beams of light, refracted through prisms and mirrors, following the movement of bodies" as well as acoustic transformations of the show creator's voice, which would serve as the voice of the mechanical bodies and triggers for lighting (Lissitzky [1923] 1967, 351–352).

Certainly Lissitzky's vision of choreography between mechanical figures and media elements was far beyond the possibility of technical implementation, yet he had already laid down (albeit symbolically) the conceptual groundwork for thinking about the *mapping* or transduction of input from one media domain (e.g., voice) into another (light). Specifying that the realization of such an environment was a task that should be left to others, his idea of the electromechanical stage had a major impact outside of Russia, particularly in Germany with the later formation of Bauhaus performance practice.

Constructivist Performance: Beyond Meyerhold

It is widely accepted that Meyerhold's *The Maganimous Cuckold* was the only realized production that singularly embodied Constructivist principles in toto. The deification of the machine aesthetic, however, surfaced in the work of other artists as well. Aleksandr Tairov, who as director of the Kamerny Theater ranks along with Meyerhold as one of the key theater artists of the era, also experimented with Constructivist ideas, albeit in a far more aestheticized and representational manner. In his 1923 production of G. K. Chesterton's *The Man Who Was Thursday*, the architect and scenic designer Aleksandr Vesnin constructed a towering scaffolding incorporating platforms, moving conveyer belts, flashing signs, and projections that attempted to outdo Popova herself.

An equally influential director was Nikolai Foregger. After a brief apprenticeship with Tairov in 1917, Foregger became acutely interested in the mechanization potential inherent in the human body. Simultaneously influenced by circus, *commedia dell'arte* and the Soviet revolution, Foregger's MASTFOR STUDIO, a workshop founded in 1921, pioneered new forms of mechanized performance. Counting among its students the former apprentices of Meyerhold and future filmmakers Sergei Eisenstein and Sergei Yutkevich, one of MASTFOR's legendary productions was the 1922 theatrical review *Be Kind to Horses*. With costumes designed by the twenty-two-year-old Eisenstein, the scenography

concocted by Yutkevich created a "mobile 'urban' environment:" a spectacle of new mechanization replete with moving escalator-like steps, suspended trampolines, flashing electric signs, spinning sets, and a treadmill (Baer 1991, 49).

Foregger's 1922 production of the old melodrama entitled *The Kidnapping of Children* went even further in combining the frenetic pace of circus and music hall with Foregger's own technological interventions. Here, Foregger introduced his own notions of *cinemazation* and *electrification* of performance through the transformation of static space into a filmic space, achieved by placing rapidly spinning disks in front of spotlights to give the impression of running film projectors in the live performance environment.[18]

This "circusification" of the theater was carried to its extreme by one of Foregger's foremost apprentices: Sergei Eisenstein. Before going on to define cinema history, the young Eisenstein developed a theory of what he labeled a *montage of attractions* in an essay of the same title. For Eisenstein, performance did not consist of a linear narrative, a self-contained illusion of reality, but rather an assemblage of images designed to elicit specific affective responses from the audience. An attraction constituted the molecule of a theatrical event—"any aggressive aspect of the theater; that is, any element of it which subjects the spectator to a sensual or emotional impact" (Carlson 1993, 356).

The montage of attractions would liberate the theater from "the weight of the illusory imitativeness and representationality," because one would no longer experience performance solely as an unfolding of a given narrative but as a "construction that has impact"; a free montage of arbitrarily selected independents . . . effects (attractions) with a view towards establishing a certain final thematic effect" (Eisenstein 1974, 79). In this sense, the attraction was like a shock to the spectator's system, jolting them into action.

In search of methods to construct this fragmented yet narrative assembly of attractions, Eisenstein turned toward circus and film techniques. His 1924 production of Ostrovsky's *Enough Simplicity in Every Wise Man*, adapted by Tretyakov, materialized the theory of attractions, featuring tightropes, the raising and lowering of performers by means of harnesses, clowning, somersaults on an imaginary horse, and general circus pandemonium. Assembled out of series of twenty-five attractions or scenes, the production also debuted Eisenstein's first film: the short (four-minute) *Glumov's Diary*.

The show ended with the final astonishment of an actor crashing through the projection screen holding a reel of the actual film. Here, this culminating attraction encapsulated Eisenstein's theoretical aim to fracture and distance any sense of illusion that might have been produced in the audience's mind. Soon to abandon the stage entirely for cinema, Eisenstein's 1937 essay "Through Theater to Cinema" detailed his film theory of montage claiming that *Wise Man's* circuslike framework and composition of "separate numbers" formed "into a single montage according to the image and likeness of a music hall," where the theater moved down to circus and "was brought to the brink of cinema" (Eisenstein 1949, 8).

Constructivism's "The Ideological End"

As Foregger stated in 1926, "A future historian of art will call our years the years of prophecy," yet the visions of the Russian avant-garde were alas only to be realized in the realm of performance, and for only a brief flash (Foregger [1926] 1975, 77). By 1932, as Josef Stalin consolidated power as the head of the Communist Party, Constructivism and other avant-garde movements accused of "formalism" were outlawed in the wake of the newly defined aesthetic doctrine of socialist realism. The experimentalism that had once prevailed was now banned and art was required to submit to a program of political conformity to help support the Communist Party's goals of industrialization and collectivization with the task of "ideological transformation and education of the working man in the spirit of Socialism" (Londre 1999, 547).

The shift implied suggested that technology no longer was sufficient as an aesthetic instrument but rather should be put to quotidian use, harnessing it to construct the industrial infrastructure of the new Communist society. In the climate of Stalinist Russia in the late 1930s and 1940s, artists who were former aesthetic revolutionaries were either silenced, or in the case of Meyerhold and others, machinated into the Stalinist show trial spectacle to be imprisoned, tortured, and executed for their formalist sins.

It is undeniable that Constructivist principles are still at work today in our quest for performances in which stage and spectator disappear in a blur of technological wizardry. Still, a kind of blatant irony existed in the Constructivist endeavor to present sophisticated technology within the comfortable isolation of the theater when the Soviet economy was in shambles. Furthermore, during its heyday there was a sense that the theater had become technologized not for the sake of the greater society but for the fetishism of technology itself. The emphasis on mechanical systems, structures, gadgets, and organization was ultimately seen to be the work of artists removed from the political realities of the world outside of the theater: "so absorbed in the creation of systems that for a long time he gave no thought to those he was creating for—to the people of the future" (Brodsky 1987, 81).

Weimar's Machine Aesthetic

With the political-aesthetic revolution making its way through Russian society after the October revolution, the fledgling German Weimar Republic was also paving the ground for a similar cultural transformation, under very different political circumstances. The bitter aftermath of the German defeat in World War I, the unstable economy and constant political fighting between left and right political factions, the unfulfilled hopes among many for a similar Bolshevik Revolution as in Russia and the devastating human impact left by the war all contributed to a fractured climate of overwhelming uncertainty and, simultaneously, frenzied creative output between 1919 and 1933. The question of

whether a post–World War I Germany would retain traces of its former monarchial past in the form of a bourgeois, albeit democratic republic or move instead toward socialism or communism on the Russian model provided the backdrop for an almost endless continuum of aesthetic exploration—a laboratory for a future technoculture.

After aborted attempts at establishing a socialist government in the revolution of November 1918, the years following the founding of the Republic were singularly characterized by an increasing politicization of aesthetic expression by way of formal exploration across architecture, design, urban planning, visual art, music, and performance. Between 1919 and 1923, the greatest change in the cultural climate was the shift from Expressionism, the dominant artistic force in the periods immediately leading up to and after World War I, toward the machine-age utopianism predicated by Cubism, Futurism, and Constructivism.[19]

The predilection toward what the founder of the Dutch De Stijl movement Theo von Doesburg called "the mechanical aesthetic" in 1921 was already operating full force in certain cultural millieus. The *Deutscher Werkbund* (German Work Federation)—a state-supported federation founded in 1907 by architect Hermann Muthesius—coupled artistic and design activity with industry in an effort to ensure a competitive role for Germany in the mass industrial production of the early twentieth century against the encroaching economic dominance of the United States. Embracing socialist ideals, the *Werkbund* attempted to establish a feeder system for artists to be trained as craftsmen in the context of mass production, exerting a major influence on the establishment of the Bauhaus, an institution that sought the ultimate machine-age fusion of artist and craftsman in the service of industry.

The growing mechanization of the visual and performing arts was also deeply affected by Weimar's art and industry mix.[20] Underwritten by the new ideology of art's fusion with engineering, the transformation of stage into machine accelerated in the 1920s as directors and designers rapidly incorporated *hydraulics*, revolves, screens, moving parts, and complex lighting and projection apparatuses into their mise-en-scène. As the machine dreams of practitioners quickly outgrew the outmoded theater infrastructures of the nineteenth century, artists and architects began to reimagine the apparatus of the theater building itself, integrating new projection, light, and material technologies to catalyze the mediated spectacles predicted to arise in the future.

In what the historian Stephen Mansbach called *visions of totality*, the utopian imaginings for total theaters—particularly those influenced by Constructivism—were part of a general social-cultural desire for the creation of worlds, where the aesthetic and the social, the extraordinary and the everyday would fuse into a gigantic quotidian *Gesamtkunstwerk*.[21] Finally, as a means of communicating political propaganda, performance based on machine-age aesthetics and cinematic principles would serve documentary and informational functions. The technologizing of the stage would thus animate the so-called masses to political activation and media would rapidly be incorporated into the spectacle,

something that the National Socialists would turn on its head for even more mass effect after 1933.

Reinhardt's Expressionist Spectacles

In contrast to the call for electrification in the face of industrial age modernization, Expressionism was resolutely opposed to contemporary technology's encroachment into cultural forms. Driven by an anarchistic individualism, it sought to expose subjective internal emotions and mystical inner experience, rather than focus on constructing an accurate representation of the outside world.

Although not driven by technology at a formal or conceptual level, it is still critical to note the work of the expressionist Austrian director Max Reinhardt, one of the leading theatrical creators of the time. The Vienna-born Reinhardt, whose interpretations of classical Western dramatic texts were staged as mass spectacles in unusually proportioned spaces involving hundreds of performers, was also acutely interested in exploiting the most sophisticated advances in contemporary lighting and stage machinery to achieve a total spectacle in which the lines between event and spectator would dissolve. As early as 1905, he began to explore new *reflective lighting* techniques developed by the Italian lighting inventor Mariano Fortuny [Architectonic, chapter 4] as well as to utilize the mechanically driven revolving stage, a technique derived from Japanese Kabuki theater (*mawari butai*) in the mid eighteenth century. With scenery built on a turntable, Reinhardt could choreograph a theatrical spectacle in which not only could new scenographic perspectives be achieved, but also, more important, actor and stage environment could be seamlessly united, flowing into and out of each other.

Owing much to Wagner's techniques at Bayreuth, Reinhardt's theatrical work fluctuated in scope and ambition between mass theatrical illusion and the use of machinery for the express purpose of spectacle construction. This formula is no better exemplified as in the example of the immense *Grosses Schauspielhaus* built for Reinhardt by the architect Max Poelzig on top of a former circus in Berlin in 1919. Originally named *The Theater for 5000*, but in actuality seating "only" 3000, the *Grosses Schauspielhaus* was designed with Reinhardt's spectacles in mind through its wide, arena-like shape and its deeply set *thrust stage* that literally jutted out into the audience space.

Berlin critics never accepted the space as appropriate for serious drama due to its unusual interior of thousands of hanging plastic stalactites designed for acoustic dampening and the space's gargantuan proportions (the proscenium itself measured some 24 meters across in width and 22 meters deep), but the theater was outfitted with the most recent lighting equipment as well as a turntable: a technical apparatus constructed for Reinhardt's great theatrical pageants. Unfortunately, the combined attitude of unease from critics and audiences alike toward the bizarrely decorated and colossal space

led Reinhardt to leave Berlin and return to his native Austria and the theater was then converted over to popular entertainments.

Bruno Taut's *Der Weltbaumeister*

Derived from the mind of an architect and not a theater designer, another intriguing example of Expressionist performance was the work of the German architect Bruno Taut. Known for his large-scale social housing projects in Berlin in the 1920s, Taut's utopian imagination had arguably been shaped by his experience from the real world horrors of World War I. Heavily influenced by the German writer Paul Scheerbart, Taut's ideas originated in concepts focused on the separation of man and nature and the encroaching technologizing of humanity. In science fiction–like novels, Scheerbart imagined utopian cathedrals of glass and performances that would take place at a scale unbeknownst at the time to most performance practice. One of Scheerbart's proposed events, the *Oratory for Balloon Gondalas* (1910), suggested an almost Futurist scenario for an orchestra and chorus in a series of gondolas attached to balloons that would float up into the skies above the Germany city of Dresden.[22]

Like his mentor Scheerbart, Taut imagined transcendent architectures that would unite normal, everyday people (*Volk*) with an infinite, mystical, transcendental reality connected by way of spirit (*Geist*), seeking a new, spiritual role for architecture. But, the stage, Taut wrote, would also provide a place where, if only for a short time, the ideal *Glanzwelt* (literally, the shining world) of inner imagination and the real world could come together.

In describing his ideal of an endless theater in the summer of 1919, Taut already imagined the kind of theatrical space that Poelzig's *Grosses Schauspielhaus* would soon characterize. Taut's theater would feature a constant interplay between stage and auditorium utilizing material technology such as glass in combination with colored light. The proscenium arch, which Taut saw as preventing the fusion of the infinite stage with the audience space, would be completely removed. "The auditorium," wrote Taut in his essay "Zum Neuen Theaterbau," "through its articulation, extends itself into the stage, so that during the performance one senses no division. The auditorium must already appear limitless, but the stage must be truly limitless, not simply in its spiritual multiplicity but sometimes without an actual end" (Taut 1919, 208).

In order to fulfill these ideas, Taut resorted to the development of a theatrical work called *Der Weltbaumeister* (*The World Builder*) or what the architect labeled an "architectural drama for symphonic music." *Der Weltbaumeister* was composed of a series of thirty black-and-white drawings accompanied by music depicting the gradual emergence and transformation of an architectural form traveling through infinite space—an architectural performance without actors. Beginning in a kind of tinted *ganzfeld*, a space without edges

lying beyond the realms of perception, the architectural form appeared and then shattered into atomic pieces, dancing as particles through Taut's mystical, cosmological universe and then eventually coalesced into a sparkling glass cathedral—the ultimate embodiment of the *Glanzwelt*.

Published by the Folkwang house in 1920, Taut's drawings depicted his synesthetic, cosmic architecture cum symphony drama; a theatrical experience where "colors and form would sound and carry their tone as pure undisturbed elements of the infinite" (Taut 1920, xii). The disappearance of the human being is by no means an antihumanist gesture but in typical Expressionist style, brought about a synesthetic fusion between the observer and the spectacle itself. Like many utopian projects of the early twentieth century, *Der Weltbaumeister* generated a metaphysical and spiritual experience for the spectators; an experience radically distinct from the visions of an electromechanical stage yet, at the same time, pointing toward future Bauhaus performances where the human figure was only part of a larger play of media effects.

Dada

Dada (the French word for rocking horse)—the slowly growing movement in the latter part of the 1910s—was certainly Expressionism's direct antithesis. Influenced by Futurism as well as the cabaret culture of pre–World War I Germany and Switzerland, Dada's official founding date was the opening of the infamous Cabaret Voltaire bar on the Spiegelgasse in Zürich in spring 1916. With the founding of the Cabaret Voltaire and the publishing of the first Dada manifestos, the movement's participants quickly became opposed to Expressionism's mystical yearnings for inner experience and its factory of interior illusions in the shadow of a World War I–shattered Europe.

Composed of a mix of Futurist shock techniques and genres ranging from cabaret performance, sound poetry, absurdist manifestoes, live readings, spoken word, and in general, events designed to shock the staid Zürich bourgeoisie, Dada took both a nihilistic and ironic view of a world overcome by absurdity and meaninglessness. Having seen the Futurist dreams of mechanization find their quintessential expression in the mechanized horrors of the first World War's trenches, artists like Tristan Tzara, Hugo Ball, Richard Huelsenbeck, and Raoul Hausmann embraced the mechanized, the artificial, the anti-establishment, and the senseless.

There is no argument that the initial Swiss Dada group (as well as subsequent manifestations in Berlin, Paris, and New York) was a critical moment in the avant-garde of the twentieth century. Yet, at the same time, Dada was never particularly interested in the techno-utopias being established in Russian, German, and Dutch Constructivist circles. Performance constituted a major artistic vehicle for the Dadaists, but its form highly resembled the decidedly low-tech, prank-like street interventions and *serate* of early Italian and Russian Futurism.

The connection to Futurism (which eventually Dada would also oppose, if not for the simple reason of competition) is made apparent by founder Tristan Tzara's comments in his 1922 essay "Dadaism and the Theater," which similarly called for the end of stage illusionism. Here, Tzara opened the way for a new kind of spectacle in which its instruments of effects (e.g., scenography and lighting) would be fully exposed to the spectators and where the performers would be liberated from the "cage of the proscenium" (Carlson 1993, 343). Regardless of the fact that Dada acknowledged the machine aesthetic, particularly in the works of the Berlin Dada group formed around Georg Grosz, the movement contributed little to formal spatiotechnical innovations.

Schwitters's *Merzbühne*

Kurt Schwitters, another German artist influenced by Dada's modus operandi, also developed his own utopian imaginary blending architecture and performance. Branding his own Dada-esque, lifelong artistic project in order to maintain independence from Dada's Zurich and Berlin manifestations, Schwitters's *Gesamtkunstwerk Merz* was more a total vision of the world than a specific work. Sprawling across multiple media, from collage composed of newspaper bits and other material to sound and concrete poetry experiments, its most famous component, *Merzbau*, was a massive, strange, and grotto-like architectonic environment constructed from paper, cardboard, and other materials that occupied the studios and room of Schwitters's homes, first in Hannover, Germany, in the 1920s and later in Norway and England during his World War II exile.

In search of the ideal composite work fusing all branches of art into an artistic unity, Schwitters also turned to the stage. His 1923 text *Merzbühne* (meaning "Merz stage") proposed a similar kind of total scenario to serve as a platform for the performance of *Merz* drama, a nonliterary event that would be a Wagnerian fusion of set, score, and text. The *Merzbühne*, however, went far beyond Wagner's rather old-fashioned reliance on dramatic narrative and music, instead imagining a performance of matter itself—a kind of living *Merzbau* made of three-dimensional objects interacting with other materials. A "fusing of all factors into a composite work," the *Merzbühne*'s "actors" would range from liquid, solid, and gaseous substances while the environment would be constructed from materials as diverse as "white wall, man, barbed wire entanglements, blue distance, light cone" with noise-generating materials such as "violin, drum, trombone, sewing machine, grandfather clock, stream of water, etc." (Schwitters 1989, 62).

Naturally, such a staged choreography of substances also involved a stage set that moved, shifted, fell backward and forward into relief, and morphed. "Use is made of compressible surfaces or surfaces capable of dissolving into meshes; surfaces that fold like curtains, expand or shrink. Objects will be allowed to move and revolve, and lines will be allowed to broaden into surfaces" (Schwitters 1989, 62). Here, the *Merzbühne* betrayed

not just a passing resemblance to Tatlin's ideas for his production of *Zangezi* but also to the other Constructivist's interests in matter becoming kinetic. On a stage where things like strings, gasses, and space took on movement, matter no longer represented something but was *itself* by virtue of its material constitution. The *Merzbühne* hence tried for no less than the creation of a performance context where the inanimate could become animate.

Frederick Kiesler's Endless Stages

No one managed to articulate the utopia of a transformable stage within the technical constraints of the time better than the visionary scenic designer and architect Frederick Kiesler. Born into an Austrian family in Romania, Kiesler studied architecture, painting, and printmaking in Vienna between 1908 and 1913. His entrance into the pantheon of European avant-garde theater performance took place in Berlin in 1923, when—without experience in stage design—the thirty-three-year-old created an unusual electro-optical-mechanical scenography for Karel Čapek's dystopian science fiction robot drama *R.U.R.* (*Rossum's Universal Robots*). From what is known of Kiesler's set from two singular photographs and descriptive texts that remain, it appears to have been a massive, Rube Goldberg contraption whose surface consisted of a dizzying array of painted and real objects: electrical machinery, metallic forms, doors and screens that opened, wheels and gears, and other abstracted techno-emblems.

Kiesler's *control wall* apparatus featured a large, 3-foot (1 meter)-wide lead constructed mechanical iris that when opened, revealed a flickering film projected onto its surface, a kind of seismograph in the middle that moved back and forth, a system of flashing light-bulbs, and a continually rotating turbine-like wheel. Most impressive was his inclusion of the Tanagra device, a nineteenth-century optical illusion system installed mainly in European Luna (theme) parks, which consisted of a series of concave mirrors that helped to produce an almost television-like effect by reducing the size of the performers behind the set and projecting them at micro sizes onto another mirror inset into one of the mechanical frames in the wall.[23] The Tanagra device allowed the audience to see what was going on behind the scenery, albeit in spatially manipulated scale.[24]

Like many similar artists working in the stage arts at the time, Kiesler's design sought to rid the theater once and for all of painted backdrops and incorporate cinematic media into the stage environment. "No more stage painting! . . . The stage," wrote Kiesler, "is not a buttonhole that should be decorated. It is a completely independent organism with its own theatrical laws of its time" (Lesák 1988a, 42).

His next venture moved toward an even more extraordinary formulation of machine scenic construction described as the *Raumbühne* (literally "space stage") and realized in prototype form at the International Exhibition of New Theater Techniques in Vienna in 1924. As artistic director of the exhibition, Kiesler curated a smorgasbord of the most
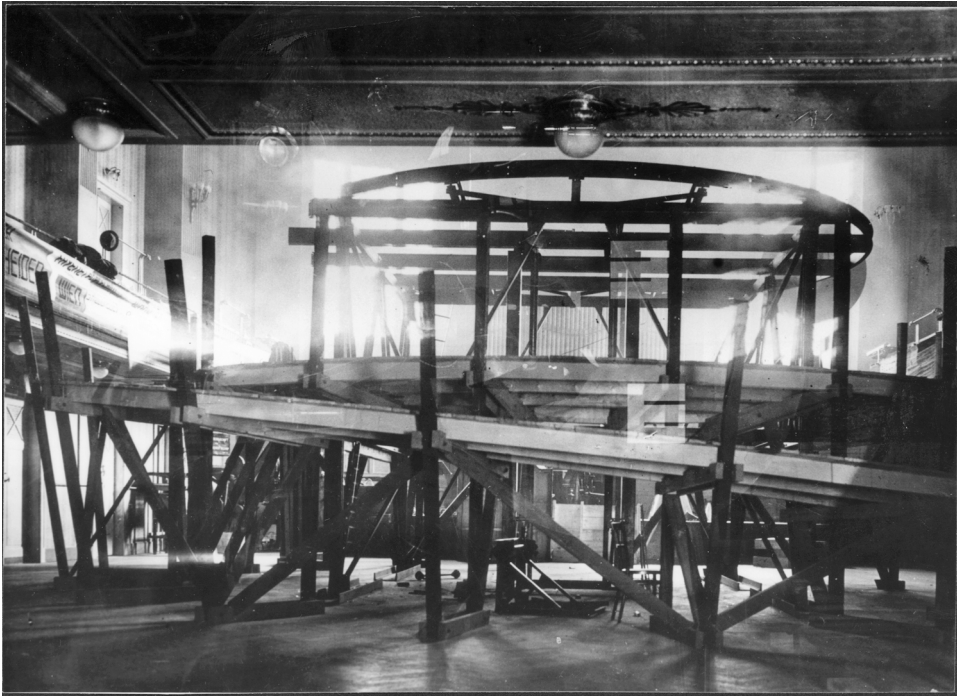
Figure 1.6 Frederick Kiesler. General view of the *Raumbühne* (Space Stage), 1924. © 2008 Austrian Frederick and Lillian Kiesler Private Foundation, Vienna.

radical mechanized European theatrical experiments of the day, from the Russian Constructivist set designs of Popova, Moholy-Nagy, and the Bauhaus to Schwitters's *Merzbühne* and Prampolini's Futurist scenographic concepts.

"The stage is space . . . the new need is to blow up the flat image on stage in order to dissolve it into space . . . this creates the space stage, which is not an a priori space but rather appears as space itself" (Lesák 1988a, 43). Conceived as an element of a much larger project that Kiesler called the *railway theater*, at first sight the structure, which was constructed as an open tower in the center of the Vienna Konzerthaus, invoked the competing visions of a tower, a parking garage driving ramp, and a boxing ring construction: a multistory set of platforms joined together by a spiral formed ramp traveling upwards from the floor (figure 1.6). Each platform held a separate space for acting/performing areas, of which the top area was made accessible to the performers only from ladders and steps. Although not realized, Kiesler's original plans also included the use of an elevator that would travel up and down the center axis of the structure to transport the performers through the structure's eight various levels.[25]

Based partially on the overall success of the exhibition, Kiesler was invited to Paris and then emigrated to the United States in 1926, where he became an American citizen and began exploring multiple avenues for his creative output, including theater and exhibition design, writing, cinema and theater design, as well as visionary architectural projects, only one of which was eventually realized.[26] While Kiesler's later performance projects researched the creation of a series of unique and utopian *endless* theaters (the unbuilt Universal Theater and the conceptual *endless theater*), he also continued practical work in the theater as a central avenue for his aesthetic philosophies.[27] As head of the Juilliard School Drama Division's department of scenography from 1934–1956, for example, Kiesler carried forth his radical experimentation in using the new media of the time, such as lighting, film projection, and architectural materials, as well as his first experiments working with biomorphic sculptural forms within a stage context.

In the same period, Kiesler also formulated a radical theory named *correalism*, a word play on the statistical term *correlation*, meaning an interrelationship between two or more sets of variables or observations. Essentially reinforcing ideas already developed in the 1920s by the Constructivists, Kiesler defined *correalism* as a theory of design in a 1939 essay entitled "On Correalism and Biotechnique: a Definition and Test of a New Approach to Building and Design."[28] Correalism was seen as the "exploration into the dynamics of continual interaction between man and his natural and technological environments," specifically, the interaction between different built forms of matter and their interaction with human beings (Kiesler 1939, 61). As founder and director of the short-lived Laboratory for Design-Correlation at Columbia University from 1937–1941 he explored concepts of intuition, perception (specific work on a so-called vision machine), and dreams as well as issues of human–environment interaction. A new scientific theory of design, Kiesler wrote, was needed to understand how aesthetic practice could be harnessed to create the conditions for a new kind of socialized human in constant contact with an environment increasingly embedded with technology.

As increased technologization would bring aesthetic practice in line with the realms of quotidian life, designer–artists like Kiesler saw a moral and ethical imperative intertwined with design, particularly in formulating new ways by which aesthetic practice could deal with real-life problems. In bringing his performance background to bear on new situations of interaction design, Kiesler thus sought to develop total and organic environments where the separation and dualities between vision and reality, image and environment could be dissolved, leading to experiences "where there are no borders between art, space, and life" (Phillips 1989, 114).

Propaganda Machines I: Erwin Piscator

In contrast to Kiesler's elevation of technology directed to creating a new kind of human, other theater artists working in Berlin during the Weimar period utilized machine-age

aesthetics for different ends. Born in Southern Germany at the tail end of the nineteenth century, the German director Erwin Piscator became a staunch advocate of what he dubbed "the proletarian theater"—an *agitprop* (agitational propaganda) theater fundamentally preoccupied with raising class consciousness for the working class in preparation for the coming socialist revolution. During the political unrest of the Weimar Republic, Piscator rose to become one of its central theatrical creators, making his early reputation with a series of politically uncompromising and outspoken productions, many of which took place outside of the domain of the institutional theater in locations such as meeting halls with amateur actors.

At the famous *Volksbühne* (people's stage) in Berlin between 1924 and 1927, Piscator made a name for himself with stagings that were as controversial for their novel use of slide and film projections as for their explicitly political and ideological bent. His 1924 production of *Fahnen* (*Flags*), a second-rate propaganda play about a Chicago workers' uprising by the German journalist Alfons Paquet, used the theater's massive 20-meter revolving stage, a large-scale projection screen placed behind the proscenium, and two projection screens mounted on both sides of the proscenium at the same level as the balcony. Because Piscator's plans to use film did not materialize in *Fahnen*, projected slides with the title texts of scenes were substituted to comment on the action of the play; the director referred to these as *blackboards*.

His next production, a mammoth historical pageant entitled *Trotz Allem* (*Despite Everything*) was produced for the German Communist Party's first official convention in Berlin and staged in Poelzig's *Grosses Schauspielhaus*. Here, Piscator progressed with his use of media through the direct incorporation of film sequences with live performers. Essentially a documentary pastiche of historical events in Germany between the years 1914–1919, *Trotz Allem*'s greatest achievement was Piscator's intersplicing of filmic sequences choreographed with live action, a first in the history of live performance.[29]

Acting as a formal device used to present what the director called "political and social mechanisms," the filmic sequences were also reported to have had a surprising and stunning emotional effect on the audience's experience. "The momentary surprise when we changed from live scenes to film was very effective. But the dramatic tension that live scene and film clip derived from one another was even stronger. They interacted and built up each other's power and at intervals the action attained a *furioso* that I have seldom experienced in theater" (Piscator 1978, 97).

Piscator's next *Volksbühne* production, Paquet's play *Sturmflut* (*Tidal Wave*) advanced further the use of film integrated into stage action. Specifically shot for the production, Piscator diffused filmic sequences from a battery of four film projectors onto the main set piece: a large hanging transparent screen termed a "living wall." Here, the combination of documentation footage depicting cities, forests, naval battles, strikes, and street fighting once again reinforced Piscator's use of film as "the theater's fourth dimension . . . living scenery" (Willett 1978b, 60). Like his Russian counterpart Meyerhold at the same time,

Piscator appropriated the visual apparatus of cinema not only from a technical standpoint but also a dramaturgical one—a way of reaching an audience whose visual vocabularies were rapidly changing as a result of moving images.[30]

Piscator's "phenomenal technical imagination" was to reach its peak, however, only after he left the *Volksbühne* in 1926, founding his own series of short lived (1927–1931) companies eponymously named the *Piscator Bühne*. Collapsing into bankruptcy after the first season in 1928, the director's eight precedent-setting productions would have untold influence on the creative use of technological systems in theatrical performance later in the twentieth century. Working with his set designer Traugott Müller, Piscator's opening project, a massive production of Ernst Toller's political drama *Hoppla, wir Leben!* (*Hurray, We Are Alive!*) featured an 8-meter high, multilevel, scaffolding-like structure: a cutaway house divided into cubicle sections and integrated with transparent screens for rear projection.

The *Piscator Bühne*'s next production, a documentary adaptation of Count Alexei Tolstoy's post-revolution Russian melodrama *Rasputin* upped the ante with a revolving hemispheric dome set constructed out of iron pipe and divided into inhabitable sections with hinged flap doors that opened to reveal distinct acting areas (figure 1.7). With the constantly shifting architecture of designer Müller's dome, as well as suspended but flyable screens, Piscator essentially obtained a series of overlapping dynamic surfaces upon which he projected a running visual counterpoint of around 6,000 feet of documentary film footage acquired from Russia together with textual commentary during the performance.

Piscator enhanced his reputation for technological innovation with his next two productions, a new adaptation of the Czech writer Gustav Hašek's comic antiwar novel *The Adventures of the Good Soldier Schweyk* and the Berlin writer Walter Mehring's inflation-era drama *Der Kaufmann von Berlin* (*The Merchant of Berlin*) through the use of mechanically driven treadmills that carried the main performers across the stage (*Schweyk*) and a multitiered set on a revolve with two treadmills, flying brides, and catwalks raised and lowered by *gantry cranes* and no less than four simultaneous projections designed by László Moholy-Nagy. The 1929 *Der Kaufmann von Berlin* was to be a watershed in Piscator's career, his most complex and final mammoth production in pre–World War II Germany.[31] After the second *Piscator Bühne* became financially insolvent due to insufficient funds, Piscator directed several smaller, more traditional agitprop productions before leaving Berlin entirely for Russia in 1931. Due to the takeover of the Nazis in 1933 and the imposition of Stalin's socialist realism cultural policy in Russia, Piscator fled to the United States, where he remained until after World War II.

Accused of favoring technological apparatuses over dramatic storytelling, Piscator continually maintained that technology was not an end but rather an instrument to promote a revolutionary political agenda through a new kind of dramaturgy. Like Meyerhold's work, formal aesthetic practice and political activism went hand in hand; the

Figure 1.7 Erwin Piscator. Stage Model for *Rasputin* (Scenography Traugott Müller, 1927.)

"technicality" of Piscator's stage, with its integration of media machinery, would have been "unthinkable" without his total and utter commitment to "revolutionary socialism" (Piscator 1978, 220).[32] As Piscator repeatedly made clear in his writings, technology was as an instrument used to enlarge the sense of historical events themselves—to construct a dialectical relationship with an audience in order to catalyze a Marxist political revolution.

Deploying the latest machinery, Piscator's technological–dramaturgical innovations pushed the traditional theater apparatus to its technical and organizational limits. By using technology to invoke a new form of revolutionary agency in the audience, politically motivated artists like Piscator and Meyerhold helped generate the need for a radical mode of cultural production within a formally experimental context. Nowhere is this goal more apparent than in Piscator's desire for a new kind of production environment, a goal that he pursued with the architect and Bauhaus founder Walter Gropius to build an audacious but ultimately unrealized flexible and populist "total theater" that could be fully adaptable while incorporating the latest innovations.[33]

Such an ideal theater suggested a new kind of infrastructure, with all of the instruments and apparatuses of the laboratory, a point made patently clear in a statement by Piscator's production manager Otto Richter that resonates perhaps even more in our present moment: "Workshops should be attached to the acting and rehearsal areas to enable us to get down to some real work, and they should be equipped with every possible machine: for technical work behind the scenes is so complex and varied that it is impossible to work without the very best machinery . . . Instead of luxurious auditoriums made of iron, concrete, glass, and fine materials, build us workshops and a stage which is equal to modern production techniques and much more money and precious time will be saved" (1978, 193).

Propaganda Machines II: Bertolt Brecht

It was through one of his chief collaborators, the dramaturg, playwright, and director Bertolt Brecht, that many of Piscator's more radical notions were popularized, albeit under Brecht's own name. One of the most influential stage directors, and playwrights in twentieth-century performance history, Brecht began to formulate his theories of the so-called epic theater during his work with Piscator, incorporating ideas such as the use of film and projection as commentary [Cinefication and the Stage, chapter 4], as well as the creation of theatrical performances more akin to demonstrations.

In fact, Brecht's greatest influence had less to do with the kind of technological wizardry practiced so successfully by Piscator but rather in his writing and directing, where he further articulated technology's role through the context of a political theater of action. In a 1932 interview, Brecht pointed out the necessity of utilizing technology, even under adverse conditions. "It's an effort (to use technology), particularly when you come up against such disastrous shortcomings on the technical side as Piscator and I did. The flies collapsed when heavy objects were hung from them, the stage broke when we put weight on it, the motors driving the various essential machinery made too much noise . . . [O]f course we had to make use of complicated machinery if we were to show modern processes on the stage" (B. Brecht 1978, 66).

For Brecht, Piscator's advances in the use of media and the mechanization of the stage were a critical development in the quest to bring theater into resonance with modern life. The device of projected commentaries, for instance, operated as a "primitive attempt at literarizing the theater," making performance operate on a meta level of critical commentary in which the audience became aware of the apparatus at play and were provoked to take a critical stance about the technopolitical practices of modern capitalism depicted on stage (B. Brecht 1978, 43).

Not surprisingly, Brecht's model of performance was resolutely opposed to the immersive aims of a Wagnerian *Gesamtkunstwerk*, with Wagner's all-encompassing fusion of artistic elements becoming, in Brecht's opinion, a nightmare come true that "degrades"

the individual elements into a muddling soup. Whether visual, sonic, or textual, each media element in Brecht's model maintained its independence from one another by way of a radical separation (*Trennung*).

Wagner's theory, however, presented a far greater threat to Brecht's instructive model of performance, for the very immersion of the spectator in a torrent of sensations would drastically mitigate her ability to take a critical stance to what she saw. "The process of fusion extends to the spectator, who gets thrown into the melting pot too and becomes a passive (i.e., suffering) part of the total work of art. Witchcraft of this sort must be of course fought against. Whatever is intended to produce hypnosis, is likely to induce solid intoxication, or creates fog, has got to be given up" (B. Brecht 1978, 38).

The Bauhaus: Preliminaries

Under the title *Kunst und Technik—eine neue Einheit* (*Art and Technology: A New Unity*), the German Bauhaus opened its first public exhibition, the Bauhaus Week, in Weimar Germany in 1923. Founded by the architect Walter Gropius as both a teaching institution and ideology, the Bauhaus was a distinctly modern phenomenon and one of the first to emphasize the conceptual and practical fusion of art and design, handicraft, and mass industrial production. Gropius's motto of "unity as diversity" focused on pragmatic, hands-on learning in which architects, sculptors, and painters would abandon their ivory-tower stance toward craftspeople and go back to the shaping of materials in the workshop.[34]

As part of this direction, Gropius sought out master artists and craftsmen of the time such as painters Paul Klee and Wassily Kandinsky and the sculptor Oskar Schlemmer, in addition to others. The central defining characteristic of the Bauhaus approach was a one-year intensive *Vorkurs* (preliminary course), a kind of boot camp for all students involving basic questions of material form. Initially under the leadership of the Austrian designer Johannes Itten, the *Vorkurs* specialized in what we now take to be the fundamentals of basic design education: studies in materials, form, color, and composition.

In a continual spirit of transformation throughout its fourteen-year existence from 1919–1933, much of the early Bauhaus work was slanted toward more mystical directions. With its emphasis on individual artistic expression, Itten's view of art did not ultimately coincide with Gropius's pragmatic, art-technology-industry direction, and in 1923, the artist, theoretician, and educator László Moholy-Nagy took Itten's place, retooling the *Vorkurs* with a broader liberal arts approach emphasizing the intersection of art, technology, and biology.

This direction was made even more manifest by the Bauhaus's move from Weimar to a specially designed building by Gropius in the German city of Dessau in 1926. As the Bauhaus reputation was cemented in Germany and rapidly spread internationally, the emphasis on the unity of art and technology not only demonstrated a shift in the Bauhaus

pedagogical direction, but also reflected the larger transformations taking place across the European cultural landscape.

From Material to Architecture: Moholy-Nagy's Theater of Totality

Similar to El Lissitzky, the Hungarian artist, theoretician, and educator László Moholy-Nagy also saw the future of mankind dependent on scientific and technological progress and the necessary role of education as liberating the creative potential of the whole human being. Appointed to the Bauhaus in 1923 by Gropius as part of the heightened interest in Constructivism, Moholy-Nagy took over the metal shop from Paul Klee, seeking a reform of the *Vorkurs* specifically based on Constructivist principles that combined the exploration of materials with new technologically augmented forms of expression. Although he remained at the Bauhaus for only six years, Moholy-Nagy's impact as both ambassador and policy creator put an undeniable stamp on the institution.

To get a sense of Moholy-Nagy's pedagogical and artistic directions, one need only look to his major 1923 book *Von Material zu Architektur* (*From Material to Architecture*) and later republished in English as *The New Vision*, a work that functions like an encyclopedia of early–twentieth-century avant-garde creation, from Cubism, Futurism, Dadaism, Constructivism, and Surrealism to the beginnings of the so-called International Style in architecture. The book also revealed Moholy-Nagy's fascination with the aesthetic impulses provided by the mechanized world, as well as his command of its visual vocabularies.

Illustrated with a dazzling narrative of images from his own as well as his students' work combined with archival photography, Moholy-Nagy moved quickly from the structural, textural, material, and sensorial qualities inherent in materials to an exploration of volumetric forms made manifest through sculpture and concluding with kinetic explorations of light and space.

The book culminated in the exploration of space as a dynamic material through built (i.e., architectural) form. It is here that he articulated his central concept of *Raumgestaltung* (literally, the design or ordering of space)—an idea that encapsulated Moholy-Nagy's interest in the application of new materials for the exploration of kinetic form. "Space," he wrote, "is a reality of our sensory experience," both a medium of expression as well as a shapeable material (Moholy-Nagy 2001, 195). This almost Futurist-tinged, dynamic vision of space perhaps explains why the book's conclusion is preoccupied with endless images of elevator shafts, conveyer belts, smokestacks, aerial street intersection shots, and other building structures—images not only of the industrial transformations of spatiality but also the modernist visions of overlapping materials and structures in the architectonic shaping of the human environment.

The stage also provided Moholy-Nagy with a concrete example for his spatial explorations that would take place during his time with the Bauhaus and afterward as a freelance stage designer in Berlin before his exile to the United States. This transformation of static

space into dynamic space was an idea that Moholy-Nagy began to explore over several projects, one a model of a kinetic stage environment entitled *Kinetisches Konstructives System: Bau mit Bewegungsbahnen für Spiel und Beförderung* (*Kinetic Construction System: Building with Conveyors for Play and Transportation*) (with Alfred Kemeny) and the second, a larger concept for a so-called theater of totality.

As a kinetic theater environment, Moholy-Nagy and Kemeny's *Kinetic Construction System* was envisioned as a huge, vertical cylinder in which audience and performers alike would be kept constantly in motion by a series of spiral formed conveyer belts and escalators mounted on the structure's exterior and interior (figure 1.8). With a central elevator, the performers could ascend and descend through the tube or slide from top to bottom via a fire station–like pole. Additionally, through large rings, the entire structure itself would turn in circular motion, thus providing several different simultaneously operating dynamics. While an actual scale model appears to have been built by architecture student Stefan Sebök in 1928, the intriguing aspect about Moholy-Nagy's theoretical conception was the shifting role of performer and actor enabled by the dynamic behavior of the building itself [Performative Architecture, chapter 3].

This concept of an electromechanical theater was further developed in Moholy-Nagy's article "Theater, Circus, Variety," published in 1923 in the first Bauhaus book dealing with stage work, alongside essays by Gropius, Oskar Schlemmer, and the Hungarian architect and teacher Farkas Molnár. "Theater, Circus, Variety," laid out Moholy-Nagy's own vision of a machine age *Gesamtkunstwerk*: the theater of totality (Moholy-Nagy 1961, 49). Dissimilar to Wagner's models, Moholy-Nagy's totality deemphasized the role of drama and poetry as well as the human being in favor of the mechanical—what he labeled the *mechanized eccentric*. With total stage action envisioned as a great dynamic–rhythmic process and constructed from "great clashing masses of media," Moholy-Nagy's total theater also yearned for the disintegration of the line between spectator and performer.

Moholy-Nagy was not interested only in the physical shaping of space through hard architectural materials. With a "new action of light" involving "the potential of light for sudden or blinding illumination, for flare effects, for phosphorescent effects, for bathing the auditorium in light synchronized with climaxes or with the total extinguishing of lights on the stage," as well as acoustic phenomena, media could be perceived as that which could define space and create volume (Moholy-Nagy 1961, 67). Equally incorporating the play of both material (mechanics, elevators, optical instruments, airplanes) and immaterial (light, film, and projection) apparatuses, Moholy-Nagy's vision would not only catalyze the turning of passive spectator into active participant but also create the potential for a creative transformation of the human organism.

With the stepping down of Gropius and the takeover by the devout communist Hannes Meyer, Moholy-Nagy resigned from the Bauhaus to make his living as a stage and commercial graphic designer in Berlin until 1933. In the fading twilight of the Weimar
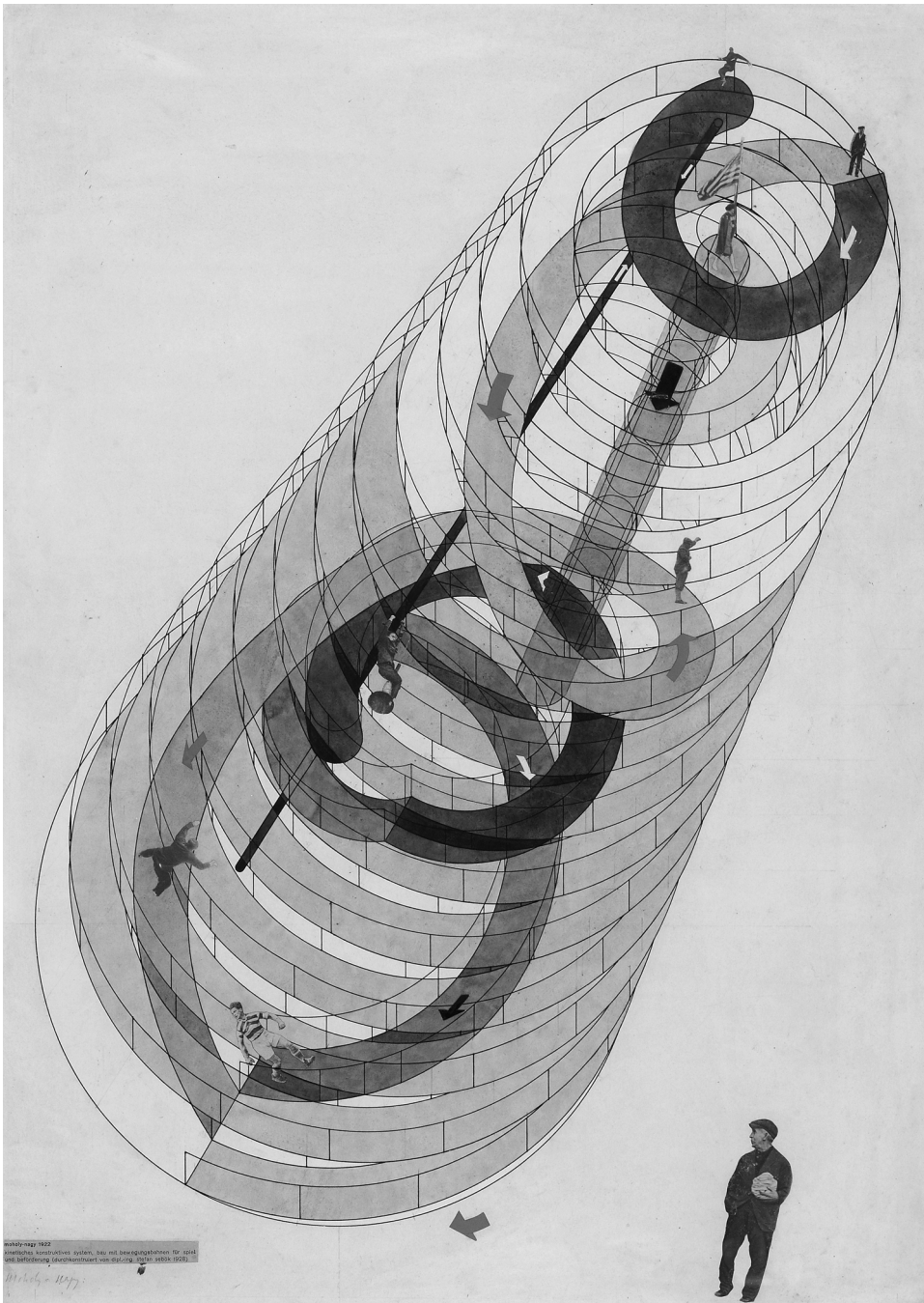
Figure 1.8 Lázsló Moholy-Nagy with Alfred Kemeny. *Kinetic Construction System: Building with Conveyors for Play and Transportation*, 1922/1928. Courtesy of the Institut für Theaterwissenschaft, Cologne.

Republic, it was in Berlin that Moholy-Nagy began to realize some of the ideas expressed in "Theater, Circus, Variety" with a series of extravagant and experimental stage designs that had been already articulated in the chapter on "Space/Architecture" in *Von Material zu Architektur* (Moholy-Nagy 2001, 215–219).

His design for a 1928 production of Jacques Offenbach's *Tales of Hoffmann* at the Staatsoper Berlin attempted to construct a space through the use of light and shadow through a careful choreography of light against a series of translucent architectural surfaces. The scenography for Piscator's production of *Der Kaufmann von Berlin* operated in a far more mechanical manner, deploying moving ramps, bridges, treadmills, elevator stages, and a specially shot film directed by Moholy-Nagy himself. In the hands of Piscator, all of this technical paraphernalia helped demonstrate the play's chaotic portrait of inflation-era Berlin, causing the critic Bernhard Diebold simply to state: "What an apparatus!" (Willett 1978b, 100). Although Moholy-Nagy would work in a stage context for only a short time, his ideas for the theater of totality were to be strongly influential in his subsequent artistic and commercial design work in Europe and, after his immigration after the start of World War II, the United States.

Total Theaters of the Bauhaus

Both Moholy-Nagy and the sculptor and dancer Oskar Schlemmer [The Machine Body, chapter 6] had a major impact not only on the development of new performance forms in the Bauhaus stage workshop, but also machine-based performance environments, no doubt due in part to the stage workshop's interdisciplinary concentration, with the stage design curriculum being one of the few programs in which students from across the Bauhaus could come together in a collaborative research environment.

Picking up on themes from Moholy-Nagy, much of the Bauhaus research into total theaters derived from four specific aims: (1) the removal of the line between spectating and performing by shifting the relationship between stage and viewer, (2) the integration of mechanical and media apparatuses to create a total sensory experience, (3) the exposure of technology as part of the performance itself, and (4) the transformation of static performance space into dynamic space by way of technical means.

Farkas Molnár's concept for a mechanically changeable environment called the *U-Theater* was a series of staging platforms that could be moved in both lateral as well as vertical directions, depending on the staging requirements of a given work. Around these platforms, a series of U-shaped rings formed the central amphitheater, with adjustable and rotating seating for 1200 audience members dispersed across the orchestra and balcony levels (figure 1.9, top left).

In the center of the auditorium, Molnár envisioned a cylindrically shaped elevator-like apparatus upon which a long platform would be connected. As the elevator would ascend and descend during performances, the performers installed on the platforms could be
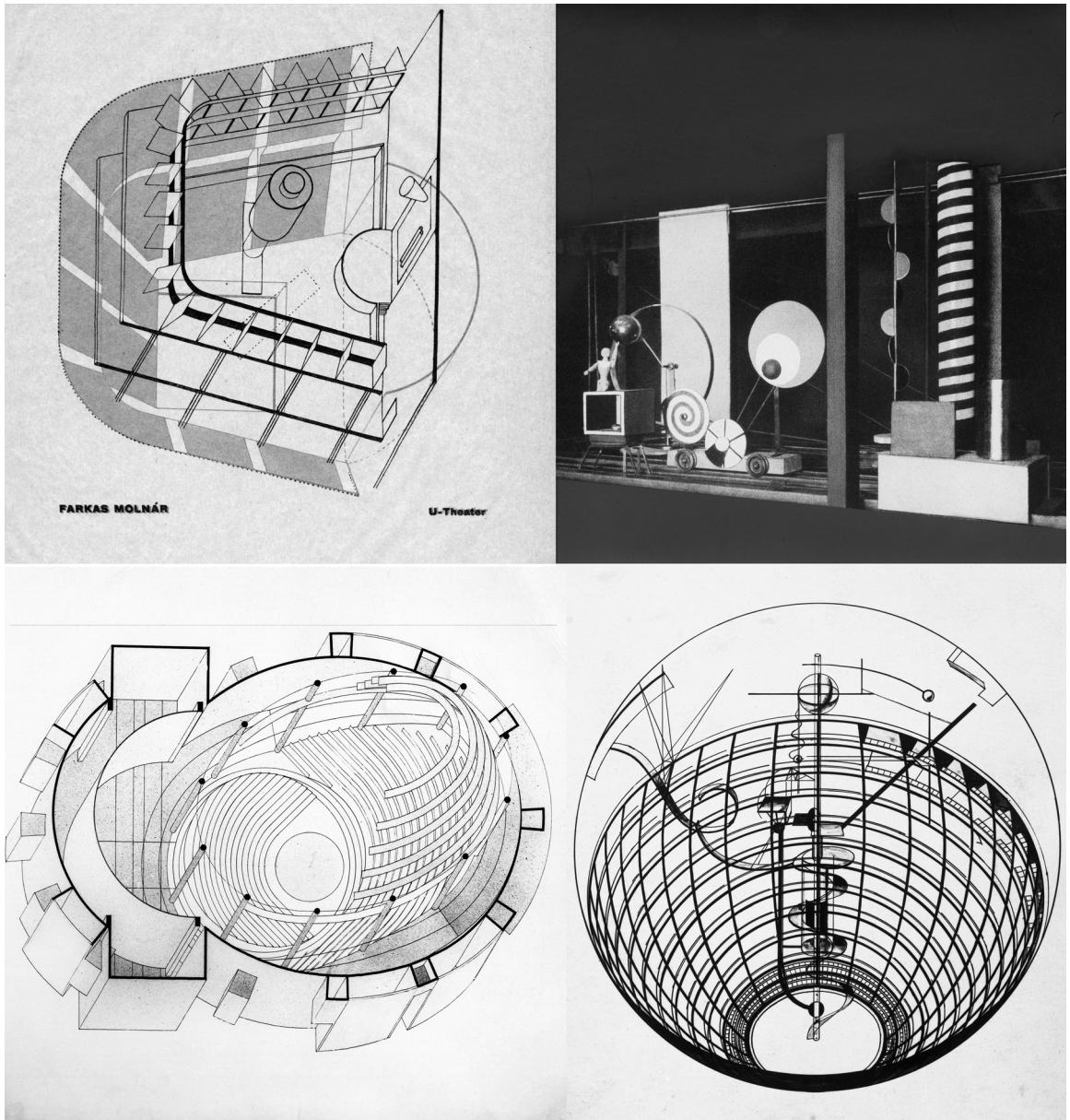
Figure 1.9 Four Bauhaus Theaters. (Clockwise from top left.) Farkas Molnár, *U-Theater*, 1925, © Bauhaus-Archiv Berlin. Heinz Loew, *Model for a Mechanical Stage*, 1927, © Bauhaus-Archiv Berlin. Walter Gropius, *Total-Theater* (designed for Erwin Piscator), 1927, © VG-Bild Kunst, Bonn. Andreas Weininger, *Spherical Theater*, © VG-Bild Kunst, Bonn.

immediately connected to the upper balconies of the theater space, which were to be positioned over the main U-shaped seating areas. "Mechanical aids for the heightening of various effects . . . machines for dispersing odors of various kinds" were also to be installed in the space, along with a series of moving, hydraulically driven drawbridges, ramps, and catwalks, all designed to link the stage with the amphitheater and thus break down the separation between viewers and event (Gropius 1961, 74).

Student Heinz Loew produced a scale model for a completely mechanical stage without the presence of performer or audience. Composed of a structure built on three tracks and with two rotary disks, Loew's mechanical stage set in motion a combination of three-dimensional objects, rectilinear-static forms and translucent surfaces, all mechanically controlled to achieve different compositional effects (figure 1.9, top right). More important, performance in the age of the machine had to acknowledge the presence of the technical operators, putting them on display before the public as performers—yet another nail in Wagner's coffin.[35]

Another equally utopian scheme was Andreas (Andor) Weininger's plan for a massive *Kugeltheater* (*Spherical Theater*), a gigantic globe-shaped room whose aim was to create for the spectators a new relationship to space itself (figure 1.9, bottom right). By placing the audience on the inner wall of the sphere (something that seemed certain to guarantee a sense of vertigo) and transferring the normal flat plane of the stage onto a series of corkscrew-like ramps that scaled up the central, vertical axis of the globe, Weininger's theater proposed to create a radical new set of "psychic, optical, acoustical relationships . . . new rhythms of motion to new modes of observation" (Gropius 1961, 89).

The boldest performance environment to emerge was Gropius's own *Total-Theater*. Asked by Piscator to conceive of a new kind of completely flexible environment that would accommodate his technical visions, Gropius responded with a "great space machine": a mechanically transformable space with seating for 2000, capable of accommodating multiple stage setups during the same performance, such as arena (audience concentrically around all sides), picture frame (i.e., proscenium), and thrust (audience on three sides). By way of gradually moving machinery, the total theater could transform the spectator/stage relationship over the course of a performance by turning the large, revolving stage 180 degrees (figure 1.9, bottom left).

In order to accommodate different geometries as well as Piscator's relentless use of film, Gropius designed a complex projection system capable of rear-projecting onto a series of cycloramas wrapped around the space. Through a series of mobile projectors and twelve fixed rear film projectors fanned across the auditorium, Gropius's integration of the projection apparatus directly into the space's architecture would serve not only to "build with light and project slides and movies of abstract or figurative material to create scenic illusions which render real flats or stage props superfluous," but also make it possible to plunge the spectator's directly into the center of real and filmic action (Piscator 1978, 183). Unrealized due to financial reasons, Gropius's plans would nevertheless have a major

impact on the technological transformation of performance environments into the late twentieth century.[36]

Despite the advanced technological vision demanded of the project, Gropius made clear that technology was not just a means to "accumulate a collection of fanciful technical apparatus and gimmickry," but rather a tool for "the most fantastic experimental creations of a stage director of the future" (Piscator 1978, 183). Similarly, Oskar Schlemmer reiterated the same sentiment of cautiousness in his writing, stating that technology should be tempered first and foremost by aesthetic concerns: "Today's technology already has the necessary apparatus. It is a question of money—and, more important, a question as to how successfully such a technical expenditure can meet the desired effect. How long, that is, can any rotating, vibrating, whirring contrivance, together with an infinite variety of forms, colors and lights, sustain the interest of the spectator?" (Schlemmer 1961, 88).

Beyond Construction: Dadaism and Surrealism in France

As the electromechanical vision of the Constructivists overtook the Dutch-, German-, and Russian-speaking worlds in the period between the two world wars, Dadaism gradually migrated from its Zürich roots to Berlin, Barcelona, New York, Geneva, and Paris. Not particularly interested in the architectural-spatial questions that consumed people like Kiesler, Meyerhold, Lissitzky, Moholy-Nagy, or Gropius, the Dadaists still shared somewhat of a penchant for multimedia events. Indeed, the internecine battles between the French Dadaists, led by Tristan Tzara, who had left Zürich for Paris in 1919, and their antithetical successors the Surrealists, led by André Breton, resulted in one work: the "instantaneous ballet" *Relâche* (translated as *No Performance Tonight!*), which marked the closest that either movement would get to the total performance imagined by machine-age adherents.

The pinnacle of the break between Dada and Surrealism came with former Dadaist Francis Picabia's collaboration on *Relâche* with the French composer Erik Satie. Along with other denizens of the avant-garde, including Man Ray, the young filmmaker René Claire, Duchamp, the choreographer Jean Börlin, and the director of the renowned Parisian Ballets Suédois Rolf de Maré, *Relâche* was a theatrical lashing out against the Surrealists. The result of this retaliation was a media spectacle that not only mocked the pretentiousness and inauthenticity of the Surrealist's sudden love for a classical performance form like ballet, but would also become a landmark event in the history of avant-garde performance.

The word "*Relâche*" was used in theaters to indicate "no performance tonight." Without a doubt, the audience that arrived for the scheduled opening on November 27, 1924, found the theater closed, with a sign hanging on the door stating none other than "*Relâche*." This was not just another Dadaist performance but a reality, in that illness

forced the canceling of the premiere. The audience that returned on December 3 then encountered a media spectacle incorporating frenetic live action and film. *Relâche*, a "BALLET INSTANTANÉISME IN TWO ACTS, ONE CINEMATOGRAPHIC INTER-MISSION, AND THE TAIL OF FRANCIS PICABIA'S DOG" took place on a stage whose scenic spatiality was reduced by Picabia to an enormous wall of 370 silver disks. Appearing like oversized gramophone records, each disk was inlaid with a powerful light-bulb, which had the effect of directly blinding the audience.

As the lights dimmed, the audience was greeted first by a film of Picabia and Satie aiming a cannon at them. The first act, featuring Man Ray and Duchamp, was composed of various simultaneously played-out skits in different quadrants of the stage, including dressing and undressing, all the while accompanied upstage by the Ballets Suédois performing in almost total darkness. Satie's music ranged from a satirical take on a Chopin funeral march to lyrical dances. Those who expected a quiet intermission were jolted by the projection of the young filmmaker René Claire's surrealist film *Entr'acte*, featuring performances by Satie and Picabia as well as a frame-by-frame score composed by Satie.[37] The second act opened with huge banners announcing Satie as the greatest musician in the world (an obvious attack on Breton's camp), more bizarre dances by the Ballets Suédois, and concluded with Satie and Picabia driving onto the stage in a Citroën automobile, smiling and waving to the already riot-prone audience.

Even with scandalized press and an extremely disquieted public, the performance of *Relâche* ran for a year, its success partially attributed to the anarchic humor and madcap antics that Picabia and company had carefully choreographed. As Hans Richter later described it, "The word *Instantaneism* emphasized yet again the central experience of Dada, as Picabia saw it, and as he wanted it to be: the 'value of the instant'" (Richter 1965, 192). The use of multiple media, the rapid-fire spirit of the performance's Futurist-like leanings toward instantaneity, and its use of cinematic vocabularies finally marked a crucial point in Dada's history: its elevation into the age of the machine.

Artaud's Cruel Performance

The interwoven threads of the experiments between the world wars emphasized the tension between the language of theatrical performance as literary text versus a formalized event of color, shape, form, light, image, sound, space, bodies, and machinery. If the Futurists, Constructivists, and the Bauhaus tried to mechanize the stage as the rehearsal room for a new kind of human being inhabiting a technologized environment, the French poet, playwright, actor, and theoretician Antonin Artaud viewed performance from a radically different perspective: a savage exorcism of the darkest latent forces inhabiting human experience.

Wracked by lifelong physical illness, addiction, and chronic depression, Artaud's eventual physical and mental deterioration shaped his existential, pessimistic worldview and

fueled his own creative energies. First through poetry and ultimately with theatrical performance, Artaud searched for the total metaphysical transformation of the human self. Performance, he wrote in a 1927 essay "Manifeste pour un Théâtre avorté" ("Manifesto for a Theater That Failed"), would be no less than magic in which the "inmost motives of the heart" would be laid bare; a place where human anguish would erupt inside the spectator and produce a form operating beyond spoken language and directly on the nervous system (Artaud 1976, 161).

Like others, Artaud dismissed the literary tradition of the theater that he blamed for the public's loss of interest in the art form. Reduced to psychology and drawing-room narratives, the theater had lost its danger and efficacy, as well as "the sense of profound anarchy which lies at the root of all poetry" (Artaud 1958, 42). The ontology of performance lay instead in its direct and concrete physical manifestation; its confrontation with "the revelatory aspects of *matter*." Akin to the plague, the theater would liberate the darkest, repressed desires held inside us, producing radical shifts of consciousness similar to the heightened spiritual states undergone during trance and possession.

Artaud began to articulate such a theater as early as 1924, but it was Asian performance, first his encounter with Cambodian dance in Marseille and then his seminal viewing of Balinese dance at the 1931 Paris Colonial Exposition, which in his eyes "restore[d] theater to its level of pure and autonomous creation, under the sign of hallucination and fear" (Artaud 1976, 215). Transfixed by the elaborate gestural phrases of Balinese movement, Artaud soon discovered a spectacle that replaced words with embodied states of consciousness as a series of gestures in flux. Unfamiliar to Western performance practices, a metaphysics of gesture transformed the dancer's bodies into pure signs and moving hieroglyphs.

Despite the fact that one can read Artaud's trembling at the Balinese other as an extreme form of European exoticism not uncommon for its time, there was something deeper within the almost intoxicating effect of the choreographed spectacle that he witnessed. The Balinese embodied a theater beyond representation, a "double of life, just as life is the double of a true theater." Artaud would pursue this emphasis on the double or the chimera throughout his most famous work, *Le Théâtre et Son Double* (*The Theater and Its Double*) (1958).

In an almost prophetic statement in "Le Théâtre alchimique" ("Theater and Alchemy"), written in 1932 and included in *The Theater and Its Double*, Artaud described theater's relationship to alchemy, the medieval practice of transforming base metals into gold. Whereas alchemy sought to use symbols as stand-ins or doubles for the real process of transformation, the theater also engaged in a similar process of doubleness. The theater was not a representation of real life, but in Artaud's exact words, instead a *la réalité virtuelle* (virtual reality), one that evoked the alchemical processes of transforming matter from mind:

All true alchemists know that the alchemical symbol is a mirage as the theater is a mirage. And this perpetual allusion to the materials and the principle of the theater found in almost all alchemical books should be understood as the expression of an identity (of which alchemists are extremely aware) existing between the world in which the characters, objects, images, and in a general way all that constitutes the *virtual reality* of the theater develops, and the purely fictitious and illusory world in which the symbols of alchemy are evolved. (Artaud 1958, 49)

Ultimately rejecting alchemical, absolute, and metaphysical in describing his ideal theater beyond language, Artaud settled on the controversial word "cruelty." Yet, cruelty did not signify external torture or bloodshed inflicted on the body from without, but rather the unleashing of latent forces within or what writer Susan Sontag described as an "emotional and moral surgery on consciousness" (Sontag 1976, xxxvi). Through its media phantasmagoria "of pile-driven sounds, wildly stamped out rhythms, vibrations and resonances," "flowing and surrounding the organs" of the spectator, the "theater of cruelty" would act as rite of purification of the soul (Artaud 1976, 243–244).

Even if Artaud did not prescribe the direct use of technology as did the Constructivists, it is clear from *The Theater and Its Double* that the theater too should be conceived as a laboratory to investigate psychosensory and spiritual states of consciousness. In arching toward this goal, Artaud, like his predecessor Wagner, pursued the utter immersion of the spectator through the entirely deliberate use of media to create an imagined totalizing space of transformation, and in this sense, his importance in the history of the technologizing of performance space cannot be overestimated.

Distinct from Wagner, however, Artaud sought to break down the separation between viewers and spectacle. The stage and auditorium were to be fused into a single site where the spectator was placed directly in the middle of the action in order to forge a "direct communication between spectator and spectacle" (Artaud 1958, 96). Theatrical action would be diffused across an immense environment, with the audience made mobile through movable chairs, enabling them to follow the spectacle. Space would also be transformed by a media fusion of light, objects, music, and sound, all having the express aim of evoking a sensory onslaught.

It is not an accident that Artaud's totalizing vision of cruelty and transformation developed during the abrupt end of machinic experimentation through the darkening atmosphere of fascism spreading across Europe and Russia in the mid 1930s. The legacy of Artaud would pick up steam only later, after the devastation of Europe in World War II and the birth of an apocalyptic future in the shadow of the atomic bomb. With Brecht's theories of critical distance at one pole and Artaud's immersion at the other, the conceptual tensions of technologized performance and art in general established the roots for the increasingly electronically mediated second half of the twentieth century.