Syracuse University

SURFACE

Full list of publications from School of
Architecture

School of Architecture

12-2006

Organic architecture and direct democracy: Claude Bragdon's Festivals of Song and Light

Jonathan Massey

Follow this and additional works at: <https://surface.syr.edu/arc>

Part of the [Architectural History and Criticism Commons](#), and the [History of Art, Architecture, and Archaeology Commons](#)

Recommended Citation

Organic Architecture and Direct Democracy, Massey, Jonathan, *Journal of the Society of Architectural Historians*, 2006 Dec., v.65, n.4, p.[578]-613, photographs, portraits, drawings, illustrations, elevations, sections, site plans, diagrams, axonometric drawings.

This Article is brought to you for free and open access by the School of Architecture at SURFACE. It has been accepted for inclusion in Full list of publications from School of Architecture by an authorized administrator of SURFACE. For more information, please contact surface@syr.edu.

Manuscripts

Two copies of the manuscript (one without the contributor's name) should be sent directly to the editor. All manuscripts should be prepared to conform with the Notes to Contributors published in the March 2006 issue and at www.sah.org; however, for the initial submission photocopied reproductions (one set without the contributor's name) should be sent.

Book, Exhibition, and Multimedia Reviews

All reviews are solicited by the review editors. Books should be sent directly to the appropriate book review editor. Information on forthcoming exhibitions should be sent to the exhibition review editor. CDs, DVDs, videos, other non-print materials, and information about relevant topics should be sent to the multimedia and website review editor.

Website Reviews

Proposals for website reviews should be sent to the multimedia and website review editor and should include: a functioning URL and the name of the individual or group responsible for the website's content; a short description of the content, approach, and organization of the website; and a brief explanation of the unique features of the website, its contribution to scholarship, and why the *JSAH* readership would find its review of interest.

Advertising Copy

Inquiries about advertising should be addressed to the Executive Director, Society of Architectural Historians, 1365 North Astor Street, Chicago, Ill. 60610-2144. Advertising copy should be sent to the SAH office.

Back Issues

Inquiries about back issues should be addressed to the Executive Director, SAH.

Copyright © 2006 by the Society of Architectural Historians. All rights reserved. Articles and reviews appearing in this journal may not be reproduced, in whole or in part, except for classroom and noncommercial use, including illustrations, in any form (beyond that copying permitted by Sections 107 and 108 of the U.S. Copyright Law), without written permission from the Society of Architectural Historians. Address all such requests to the Executive Director, SAH, 1365 North Astor Street, Chicago, Ill. 60610-2144.

JSAH (ISSN 0037-9808; Volume 65, Number 4) is published quarterly (membership dues are \$115 per calendar year; of this amount \$45 is for a subscription to *JSAH*) by the Society of Architectural Historians, 1365 North Astor Street, Chicago, Ill. 60610-2144. Periodicals postage paid at Chicago, Ill., and at additional mailing office. Postmaster: send address changes to *JSAH*, 1365 North Astor Street, Chicago, Ill. 60610-2144. Copies printed: 4,200.

The Society of Architectural Historians' Scott Opler Endowment for New Scholars provides funds to support publication by emerging scholars in *JSAH* and a *JSAH* editorial assistant's position.

JSAH is designed and typeset by Bessas & Ackerman, Guilford, Conn. 06437, and printed by Cadmus, Lancaster, Penn. 17601, on acid-free paper.

Front cover: Large circular screen designed by Claude Bragdon for his Festivals of Song and Light (see page 598)

Editor

Hilary Ballon
826 Schermerhorn Hall
Department of Art History and Archaeology
Columbia University
1190 Amsterdam Avenue
New York, N.Y. 10027
hmb3@columbia.edu

Book Review Editors

North and South America

Daniel M. Abramson
Tufts University
Department of Art and Art History
11 Talbot Avenue
Medford, Mass. 02155
daniel.abramson@tufts.edu

Europe, Africa, and Asia to 1750

Martha Pollak
Department of Art History
University of Illinois
935 West Harrison Street
Chicago, Ill. 60608
mpollak@uic.edu

Europe, Africa, and Asia from 1750

Eric Mumford
Washington University in St. Louis
School of Architecture
Campus Box 1079
St. Louis, Mo. 63130-4899
epm@wustl.edu

Exhibition Review Editor

Anthony Alofsin
University of Texas, Austin
School of Architecture
1 University Station B7500
Austin, Tex. 78712-0222
alofsin@mail.utexas.edu

Multimedia and Website Review Editor

Edward Dimendberg
Department of Film and Media Studies
235 Humanities Instruction Building
University of California, Irvine
Irvine, Calif. 92647
Dimendberg@cs.com

Managing Editor

Diana Murphy
1140 Chapel Street, suite 405
New Haven, Conn. 06511
dianamur@earthlink.net

Organic Architecture and Direct Democracy: Claude Bragdon's Festivals of Song and Light

JONATHAN MASSEY
Syracuse University

By basing architecture on nature, nineteenth- and twentieth-century American advocates of "organic architecture" hoped to realize democratic ideals that remained only potential in the industrial capitalist United States. For Louis Sullivan and Frank Lloyd Wright, a key component of organic architecture was its promotion of individual character as a basis for self-governance. Sullivan's recurring image of the seed germ growing into a distinctive and functionally coherent organism described the architect's cultivation of a powerful subjectivity capable of enlivening the inert elements of a building with characteristic expression, thereby exemplifying his concept of democracy as "the expression of the individual."¹ Wright, who described democracy as "the highest possible expression of the individual as a unit not inconsistent with a harmonious whole," abstracted botanical forms into constituent geometries, which he made the basis for both planning and ornamentation. The resulting buildings modeled the personal integrity he considered the foundation of citizenship.²

The work of Sullivan and Wright has overshadowed an alternative organicism that embraced communitarian rather than individualist principles. Claude Bragdon (1866–1946), a progressive architect and critic based in Rochester, New York, pursued organic integrity at the scale not of individuals but of groups, societies, even the entire human species. While he was a leading champion of Sullivan's theory and work in professional journals from the 1900s to 1930s, Bragdon developed a version of organic architecture quite different from that of either Sullivan or Wright.

Troubled by the individualism, materialism, and fragmentation he saw in industrial modernity, Bragdon turned to nature for countervailing principles of harmony and social integration, elaborating a communitarian organicism that framed the individual as merely the "branch," "member," or "fragment" of a larger whole. The central lesson of nature, he asserted, was universal order and interrelation, manifest in mathematical patterns underlying the visible forms of organic and inorganic nature. Beginning shortly after the turn of the twentieth century, Bragdon translated his mathematical conception of nature into architecture by regulating building forms and volumes according to principles of harmonic proportion and numerical symbolism.

These divergent ideals of organic architecture reflected different currents within Progressive Era social and political theory. The individualist emphasis shared by Sullivan and Wright derived in part from evolutionary theory, especially as applied to social and political analysis by social Darwinists such as the English sociologist Herbert Spencer. Spencer used the mechanism of natural selection, which he famously summed up as "survival of the fittest," to defend individual rights and market mechanisms against state regulation. Seeing evolution as a process of differentiation and specialization, he used it to explain the increasing complexity and "individuation" of industrial society. While Spencer approached societies as "social organisms," he insisted that a society exists for the benefit of its members, rather than the reverse, because "the claims of the body politic are noth-

ing in themselves, and become something only in so far as they embody the claims of its component individuals.”³ Even though Sullivan’s mystical vitalism and Wright’s spiritual approach to nature were far in tone from Spencer’s systematic sociology, their emphasis on the individual as the basic unit of organization in both biology and society owed much to Spencer’s pervasive influence.⁴

Bragdon’s conception of nature, by contrast, was based on the teachings of Theosophy, the modern “spiritual science” founded in the 1870s in part to oppose Spencer’s social Darwinist doctrine. By combining Hindu and Buddhist cosmological principles from the Upanishads and the Bhagavadgītā with the discoveries of modern Western science, the Theosophical Society aspired to create a comprehensive belief system synthesizing East and West, antiquity and modernity, science and religion. Its members translated this goal into a social program of disseminating esoteric knowledge, investigating human psychic potential, and forming “a universal brotherhood of humanity without distinction of race, color, or creed.”⁵

In the early 1910s, Bragdon overlaid his Theosophical worldview with a pair of mystical ideologies that amplified his communitarian reading of nature: hyperspace philosophy, a body of speculation that used the mathematical theory of n -dimensional space to advocate altruism and ego-renunciation; and the discourse of “involution,” which updated Theosophical doctrine with ideas drawn from Henri Bergson’s vitalist theory of evolution. Together, these scientific theories suggested that humanity was evolving toward mastery of a higher spatial dimension in which it would achieve universal brotherhood and a cosmic unification of consciousness. Rather than evolving toward greater specialization and differentiation, individuals would collectively “involve” to constitute a single organism.

The discourse of involution echoed themes sounded frequently in progressive political theory during the 1910s, when many reformers advocated harmony among members of different classes, cultures, and religions. While some progressives focused on antimonopolistic trust-busting, and others on applying managerial efficiencies to governance, many emphasized the forging of new social bonds adequate to the unprecedented scale of industrial society. Drawing on evolutionary theory and the Christian social gospel, they began to talk of society as an organism in which the boundaries between individuals had dissolved.⁶

This political organicism stimulated reforms that brought electoral practices more closely into line with the new scale of mass society. By introducing direct party primaries, direct initiative, referendum, and recall, reformers substituted plebiscitary modes of mass representation for the

local associations and party machines that had dominated nineteenth-century politics. In reducing the role of intermediary institutions, they shifted the practice of governance toward the ideal of direct democracy. Progressive states such as Wisconsin, Nebraska, and California enacted the referendum and recall, while the Seventeenth Amendment to the United States Constitution, ratified in 1913, substituted direct popular election of senators for election by state legislatures. The four-way presidential race of 1912, meanwhile, marked a shift of emphasis in presidential campaigning from party conventioneering to direct popular address.⁷ These modifications changed the electoral techniques through which the nation represented the popular will.

Through hyperspace philosophy and involutionary theory, political organicism transformed Bragdon’s approach to architectural representation. In 1915, Bragdon developed a new system of ornament, called “projective ornament,” based on the theory of n -dimensional space. By representing space as a series of dimensional “evolutions” leading from two to three to four dimensions, he hoped to accelerate the involution of humanity. At the same time, Bragdon became involved in the community singing movement, a progressive initiative for social integration through choral singing. With two community music leaders, Bragdon staged a series of festivals at which audiences of up to sixty thousand people joined community choral groups in song (Figure 1). In these Festivals of Song and Light, held in city parks between 1915 and 1918, he practiced a form of direct democracy in art by developing architectural strategies for enlisting mass audiences in harmonic song. Using projective ornament and harmonic mathematics to synthesize architectural form with color and music on the model of Richard Wagner’s “music-drama,” Bragdon created moments of cathartic unity among festival participants. As vast crowds comprising members of different classes, nationalities, and religions sang together with one voice, these events momentarily realized Bragdon’s ideal of democracy as “the rule of a people by its *demos*, or group soul.”⁸

In the Festivals of Song and Light, Bragdon’s organic architecture helped to form a communitarian polity scaled to twentieth-century mass society. At its inception in 1915, this polity formed a counter-public distinct from both the state and the mainstream public sphere of newspapers, journals, and other print media.⁹ Its demonstration of social harmony through art gained poignancy from the contrasting spectacle of European nations embroiled in war. Following America’s entry into the war in spring 1917, however, community music leaders integrated their choruses into the national project of military mobilization, and the Festivals of Song and Light incorporated celebrations of troop deployment. Bragdon’s

Figure 1 Festival of Song and Light, Central Park, New York City, Sept. 1916. Lakefront stage with chorus, lanterns, and light-screens

festival work highlights the promise and danger of taking nature as a model for “democratic architecture.”

Nature's Geometry

Bragdon was an outlier in the geography of organic architectural ideals. Apprenticeships in Rochester after high school, followed by work for the New York office of Bruce Price and the Buffalo firm of Green & Wicks during the early 1890s, gave him a good professional footing, but they did not introduce Bragdon to the Midwestern network of progressive architects centering on Chicago.¹⁰ Bragdon first encountered organicist ideals at the turn of the century in architecture journals and at meetings of the Architectural League of America, the professional association formed as a Western alternative to the American Institute of Architects and dedicated to “progress before precedent.” At

an ALA convention in 1901, he became acquainted with progressive colleagues from other cities and gave a paper expressing his conviction that modern architecture would be based on a resurgence of mysticism similar to that which had inspired Symbolists in the visual arts and the theater.

Bragdon found something close to his ideal in Sullivan's “Kindergarten Chats,” a set of dialogues arguing that formative contact with nature would allow architects to develop a natural spontaneity and individuality of expression in their work, and so to realize a latent “spirit of democracy.”¹¹ After reading the “Chats” as they appeared in 1901 and 1902, Bragdon began to adapt organicist ideas in his criticism and architecture.

Bragdon welcomed Sullivan's designs as the product of a “Gothic mind” characterized by “expressiveness, inventiveness, freedom and individuality” sufficient to check the spread of neoclassical “Latinism” from the East Coast.¹²

Figure 2 Analysis purporting to show that all of nature, organic as well as inorganic, is ordered by geometric and mathematical patterns

Over the next decade, he championed the cause of Sullivan and the progressive “Chicago group” over that of a “New York group” that included McKim Mead & White and other firms working in the neoclassical style associated with the École des Beaux-Arts. “Gothic means organic, as opposed to arranged architecture,” Bragdon explained, using the terms interchangeably to describe “a manner of building in which the form is everywhere determined by the function, changing naturally and inevitably as that changes.” In the Latin, classic, or “arranged” approach, by contrast, “the function is made to accommodate itself to a certain extent to forms and arrangements chosen with a view less to their exact suitability than to their inherent or abstract beauty.”¹³

While his writing sometimes suggested that “organic architecture” would be characterized by Gothic informality, Bragdon more often described an ideal resembling Renaissance formality and regularity, notwithstanding his disparagement of “arranged” architecture. This ambivalence reflected Bragdon’s conviction that “the new mysticism” would manifest itself through a return to the Pythagorean tradition of harmonic proportion. “Number is the invisible thread on which the worlds are strung,” he proclaimed in *The Beautiful Necessity*, a treatise serialized in 1902 and published as a book in 1910. “We are all of us participators in a world of concrete music, geometry and number,—a world, that is, of sounds, odors, forms, motions, colors, so mathematically related and co-ordinated that our pigmy bodies, equally with the farthest star, vibrate to the music of the spheres” (Figure 2).¹⁴ According to Bragdon, Western architecture since antiquity had echoed patterns found throughout nature, including numerical and formal symbolism, primary geometries, and proportional relationships.

Bragdon used the techniques of Pure Design, an art analysis and pedagogy method developed by Denman Ross

and Arthur Dow and applied to architecture by Emil Lorch, to abstract harmonic compositional principles from monuments of Western architecture and art.¹⁵ Tracing diagrams over building plans, sections, elevations, and details, he abstracted compositional geometries and formal principles from their specific articulations in material, scale, and style. Bragdon found circular, triangular, and rectangular patterns in the architectures of ancient Egypt, Greece, and Rome, as well as in medieval cathedrals and Renaissance palazzi (Figure 3). He identified formal contrasts, whether between the metopes and triglyphs of a classical frieze or between the arched windows and vertical piers of a Gothic cathedral, as manifestations of universal “polarity,” which Bragdon described using *in* and *yo*, Japanese terms for the feminine and masculine principles (Figure 4). Bragdon proclaimed it the task of organic architecture to reveal this cosmic order anew by representing it in modern formal and spatial terms.

Bragdon’s mathematical organicism was rooted in his enthusiasm for Ralph Waldo Emerson; Bragdon’s father revered the “Sage of Concord,” hanging his portrait in the family stairhall and schooling his son in the wise man’s sayings. At the same time, it was strongly shaped by the “esoteric wisdom” that formed the core of Theosophy. Although Bragdon’s mother was a Congregationalist, his father was a Theosophist, so the young Bragdon absorbed the principles of this new religion during childhood and adolescence. Theosophy remained for Bragdon but one intellectual stimulus among others, however, until the death of his first wife, Charlotte Wilkinson Bragdon, in 1907. Over the following few years, Bragdon embraced Theosophy as a faith and a way of life. By the early 1910s, he had become the Theosophical Society’s most prominent spokesman in Rochester and president of its Genesee lodge.

Bragdon applied Theosophical doctrine to virtually every facet of life, from his personal habits (vegetarianism,

Figure 3 Diagrams supporting the claim that the same geometries underlying natural forms had been manifest in buildings throughout Western history

abstention from alcohol and tobacco, meditation, and yoga) to his practice of architecture. Bragdon published a series of “Theosophical Tracts” through a small press he ran with his sister and office manager, May Bragdon, and he subtitled his treatise “The Theosophy of Architecture.”

Two Theosophical tenets were of particular importance to Bragdon. One was the Hindu concept that the phenomenal world was an illusion, a “veil” or screen onto which the mind projects images that it then mistakes for reality. The other was the ideal of attaining liberation from the will through ascetic practices. Bragdon saw Theosophy as the natural extension of a turn toward the East in Western philosophy initiated by Arthur Schopenhauer, whose *World as Will and Representation* (Leipzig, 1819) had fused ideas from the Upanishads with those of Plato and Kant, and continued by Ralph Waldo Emerson and other Transcendentalists. He embraced the Theosophical Society’s objectives, which included not only pursuing uni-

versal brotherhood but also investigating “the hidden mysteries of Nature under every aspect possible, and the psychic and spiritual powers latent in man especially,” as Society founder H. P. Blavatsky phrased it.¹⁶

Harmonic proportion allowed Bragdon to translate these convictions and goals into architectural terms. By rendering visible “nature’s geometry,” Bragdon aspired to reveal the noumenal reality behind the veil of phenomena. By substituting impersonal mathematics for individual willfulness in design, he sought to promote universal order amid the discord of “the competitive industrial system.”¹⁷

Organic Architecture

During the 1900s and 1910s, Bragdon put his organicist ideas into practice by employing harmonic proportion in building designs. As one of Rochester’s leading architects from the late 1890s through World War I, he built police

Figure 4 Diagrams using the Japanese terms *yo* (masculine) and *in* (feminine) to identify polarity not only in the contrast between the straight and curved lines of leaves and flowers but also in classical, Renaissance, and neoclassical entablatures and console

stations, two YMCAs, club and classroom buildings, and a railroad terminal, as well as numerous houses and domestic renovations. One product of Bragdon's organicist design method was the Rochester terminal of the New York Central Railroad, begun in 1909 and completed in 1913 (Figure 5). This large passenger terminal consisted of a four-story rectangular block, its two end bays flanking three bays containing large arched windows. The end bays housed railroad offices on the second, third, and fourth floors, while the full first floor contained passenger facilities, including the waiting room that extended up through the three central bays (Figures 6, 7).

In designing the train terminal, Bragdon based the proportions of the principal volumes (Figure 8) on the ratios of the consonant intervals within the octave: 1:2 (the octave); 2:3 (the fifth); 3:4 (the fourth); 4:5 (the major third); and 4:7 (the subminor seventh). He later described touring the completed building with Marie Russak, an occultist and

former opera singer. Standing in the second-story gallery of the main waiting room, she sang the notes of the diatonic scale. At one note, Bragdon recalled, "the entire room seemed to become a resonance chamber, reinforcing the tone with a volume of sound so great as to be almost overpowering: the walls, the ceiling, the entire building seemed to cry aloud." Russak exclaimed: "There! Now your railway station has found its keynote—now it is *alive*."¹⁸

In the Rochester terminal, Bragdon synthesized harmonic proportioning with design strategies adapted from a range of contemporaneous sources, ranging from Beaux-Arts neoclassicism to Art Nouveau and Sullivan's recent work. The terminal was symmetrical and regular, with clear divisions between water table, rusticated base, two-story principal block, and attic. Like most other new railroad stations of its era, it centered on a large vaulted waiting room and symbolized its function as the principal entry into the city with a monumental façade that evoked a three-bay tri-

Figure 5 Bragdon, New York Central Railroad Terminal, Rochester, New York, 1909–13, demolished. Postcard showing south façade on Central Avenue and west end on North Clinton Street

Figure 6 New York Central Railroad Terminal, Rochester. First-floor plan

Figure 7 New York Central Railroad Terminal, Rochester. Waiting room viewed from the west end

Figure 8 New York Central Railroad Terminal, Rochester. Diagrams identifying primary geometries and harmonic proportional relationships in section and elevation

umphal arch. Bragdon had designed a temporary plaster triumphal arch in 1900, just before his conversion to the organicist cause, for a parade welcoming General Elwell Otis home from the Spanish-American War (Figure 9). In the railroad terminal, he simplified the battered piers and decorative escutcheons he had used in the Otis Arch, and he reduced the stilting of the arches they framed in order to widen and lower them. By echoing the three big openings with segmental arches in the cornice and parapet above, Bragdon subordinated the specific association with classical and Renaissance triumphal arches to a dynamic circularity.

These forms had antecedents in the large train sheds of the preceding century, especially as they had been echoed on the façades of European stations such as the new central terminals built in Frankfurt-am-Main, Dresden, and Tours in the 1880s and 1890s, but they most likely derived from a closer source: the Palace of Transportation at the Louisiana Purchase Exposition held in St. Louis in 1904. Designed by E. H. Masqueray, the French *École des Beaux-Arts* graduate who served as chief designer of the exposition, the transportation building synthesized the romantic classicism employed in France by Victor Laloux at the Gare d'Orsay and the Gare de Tours with the free lines and expressive curves of Art Nouveau.¹⁹ Bragdon had seen Masqueray's building partially completed when he traveled to St. Louis to attend the ALA convention in 1904 (Figure 10). In designing the Rochester railroad station six years later, Bragdon adapted Masqueray's building, lowering the roof so it disappeared behind the parapet, making the arched openings smaller and shallower, and simplifying the design by removing its lavish ornament and pier finials (Figure 11). The treatment of brick and stone on the station exterior, meanwhile, closely followed that of another exposition building: the Palace of Fine Arts, designed by Cass Gilbert. Ignoring the Roman central volume of Gilbert's building, Bragdon adapted the banded rustication and brick infill of its temporary side wings. Extending this reduced, prismatic palette from the Rochester terminal end bays to the arched center, Bragdon created a sober, even austere building that relied for aesthetic power not on the classical orders or other ornamentation but on mass, form, and proportion.

While formally the train station adapted classical and Art Nouveau precedents, its colors and materials followed a naturalistic palette that Bragdon had developed through his participation in western New York Arts and Crafts circles and the ALA. The station exterior was clad in dark reddish-purple clinker brick and trimmed with brownstone and ironwork, while its grand waiting room was rendered in brick, faience, dark wood, and iron, with a ceiling of buff-colored Guastavino structural tile and a wainscot of glazed

Figure 9 Bragdon, Otis Arch, East Main Street at East Avenue, Rochester, New York, 1900

brown Grueby tile. The prevailing colors were dark brown, russet, ochre, green, and gray, with highlights of yellow, blue-green, green-blue, and gold. Bragdon characterized this "autumnal" scheme as an attempt to re-create the fall colors of a stand of trees in the woods behind his house, much as Sullivan had recreated the "synaesthetic" experience of a landscape through a train window in the colors of his National Farmers' Bank in Owatonna, Minnesota, completed just a year before Bragdon received the terminal commission.²⁰

The techniques of abstraction that Bragdon employed in the New York Central Terminal opened the building to iconographic associations relating to locomotion. By placing the arches between blocky office wings and separating them with battered piers, Bragdon suggested a railroad viaduct spanning a river gorge from one palisade to another. At the same time, by tying the arches together with horizontal bands of stone trim alternating with brick, he suggested the linked driving wheels of a steam engine.²¹ Spoked

Figure 10 E. L. Masqueray, Palace of Transportation, Louisiana Purchase Exposition, St. Louis, Missouri, 1904

Figure 11 Bragdon, New York Central Railroad Terminal, Rochester. Central bay of Central Avenue façade

wheels in the marquee brackets and waiting room ironwork reinforced this association, while circles in the waiting room trim, frieze, and railings further emphasized this motif. Through these devices, Bragdon imbued his terminal with a modern monumentality evoking the railroad's importance as "the arterial system of our civilization," its terminal "the beating heart at the center of modern life." By synthesizing disparate iconographic associations—triumphal arch, viaduct, locomotive—with principles of harmonic proportion and geometric order, in an architectural language that updated classical forms with a touch of Art Nouveau fluidity, Bragdon sought to make his terminal "a monument to the conquest of space through the harnessing of the giant horses of electricity and steam."²²

Projective Ornament

In designing the New York Central Terminal, Bragdon confronted the dilemma of translating into ornament the principles that informed the building's proportions and materials. Though committed to the idea of "employing no ornament which antedated steam transportation," he did not want to emulate the distinctive ornamental patterns of Sullivan or another virtuoso designer.²³ Bragdon's solution was to employ classical ornamental motifs, but to abstract and reinterpret them. He adapted columns, capitals, and

entablatures by replacing canonical forms with unconventional geometrical equivalents, composed according to the symbolic principles outlined in *The Beautiful Necessity* (Figures 12, 13). Dissatisfied with these ad hoc solutions, Bragdon set out to develop “an ornamental mode appropriate to our time and temper.” In 1914 and 1915, he extended the spatial discipline of harmonic mathematics to ornament by creating a system for generating decorative patterns based on a key discovery of modern mathematics: the theory of n -dimensional space.

In 1854, German mathematician G. B. F. Riemann had outlined the post-Euclidean conception of space as a manifold of variable dimensionality, rather than as inherently three-dimensional extension. Riemann’s theory of n -dimensional space asserted only that higher spatial dimensions were theoretically possible, not that they actually existed. It nonetheless fostered widespread speculation on the reality of a fourth dimension of space beyond the range of human sensory perception, including a large parascientific literature that posited a fourth spatial dimension as the explanation for occult phenomena and mystical experiences. Einstein’s general theory of relativity (1915) adopted Hermann Minkowski’s concept, formulated in 1907, of a

Figure 12 New York Central Railroad Terminal, Rochester. Columns and entablature of ticket office alcove at the east end of the waiting room

Figure 13 New York Central Railroad Terminal, Rochester. Analysis of waiting room entablature and capitals in terms of *in-yo* symbolism

space-time continuum to describe the universe, eclipsing for several decades the idea of a fourth spatial dimension. But Einstein's work was not disseminated beyond the specialist literature until 1919, when its partial empirical confirmation gained the theory worldwide publicity. In the meantime, authors writing in a genre that Linda Dalrymple Henderson has called "hyperspace philosophy" made the discourse of "higher space" a vehicle for social critiques and religious convictions, as well as an all-encompassing explanation for spiritualist powers and unexplained phenomena, from clairvoyance and prevision to the ether—the imperceptible universal substance postulated as a transmission medium for electromagnetic waves.²⁴

According to hyperspace philosophy, the fourth dimension was a real space with existential, epistemological, and ethical significance. In *A New Era of Thought* (1888) and *The Fourth Dimension* (1904), for instance, English mathematician Charles Howard Hinton asserted that individual consciousness was merely a three-dimensional fragment of a four-dimensional, communal cosmic consciousness. Recognition of humanity's subjective integrity, Hinton argued, required that each person transcend his or her individual subjectivity by "casting out the self." To stimulate this process, Hinton included diagrams and exercises to help readers visualize otherwise imperceptible four-dimensional shapes, even marketing a set of wooden blocks so that purchasers could build three-dimensional "cross-sections" of the tesseract, the four-dimensional extrapolation of the cube.²⁵

After reading deeply in hyperspace literature and meeting Hinton in 1904, Bragdon adopted Hinton's hyperspace philosophy, synthesizing it with Theosophy in articles such as "Learning to Think in Terms of Spaces" (1914) and books such as *Man the Square* (Rochester, 1912), *A Primer of Higher Space* (Rochester, 1913), and *Four Dimensional Vistas* (New York, 1916).²⁶ The fourth dimension gave spatial articulation to Bragdon's Theosophical convictions. Taking it to be the location of noumenal will, and casting the third dimension as merely a phenomenal veil, Bragdon concluded that individual subjectivity was but a partial experience of cosmic consciousness. "To our ordinary space-thought," he explained in *Four-Dimensional Vistas*, "men are isolated, distinct, each 'an infinitely repellent particle,' but we conceive of space too narrowly. The broader view admits the idea that men are related by reason of a superior union, that their isolation is but an affair of limited consciousness."²⁷ Hyperspace philosophy suggested that this "superior union" was an actual physical interconnectedness in the imperceptible space of the fourth dimension, and that only limitations of the sensory organs prevented broad recogni-

tion of "human solidarity"—the natural basis of democratic communality. Bragdon developed his system of projective ornament to foster n -dimensional space perception, and so to accelerate human evolution toward four-dimensional brotherhood.

In *Projective Ornament* (1915) and other publications, Bragdon explained his decorative system, which was based on numerical and geometric patterns. Its primary source was graphic projection of the Platonic solids and their four-dimensional correlatives, "hypersolids" such as the tesseract. Bragdon "unfolded" these shapes, much as one might flatten a cardboard box by cutting it at certain vertices, or projected them onto a plane using the parallel projection method of axonometry, which represents solids by assigning each dimension a different axis of projection. To represent four-dimensional hypersolids, Bragdon followed mathematical convention and projected the additional dimension along a fourth axis (Figure 14). He supplemented these projective forms with "magic line" patterns created by tracing in ascending numerical order the numbers of "magic squares" (Figure 15). Selectively accentuating and repeating these different patterns and projections, Bragdon turned them into ornament (Figure 16).

By extending spatial order to building surfaces and details, furnishings and decorative accessories, and even posters and other graphic designs, projective ornament allowed Bragdon to regulate two-dimensional surfaces in ways consistent with those he advocated for building volumes (Figure 17). Bragdon hoped that projective ornament patterns would teach viewers to see space as a series of dimensional evolutions: from the two-dimensional space of the page, picture plane, or wall to the three-dimensional space of bodies and building volumes, then on to the four-dimensional space of democratic solidarity.²⁸ In this respect, projective ornament was a unique variation on the modern approach to architecture as a specifically spatial art, an approach that originated in late-nineteenth-century German aesthetic theory, shaped European modernism from the 1900s through the 1930s, and became almost tautological in the years after World War II.

The work of László Moholy-Nagy, an instructor at the Bauhaus, and Sigfried Giedion, secretary of the International Congress of Modern Architecture, established Einstein-Minkowski space-time as a generative and explanatory principle for a modernism characterized by transparency, simultaneity, and spatial interpenetration.²⁹ Because Bragdon based projective ornament on Riemann's n -dimensional space rather than on the Euclidean concept of space as inherently three-dimensional extension or on space-time, however, he emphasized the superficiality of space rather

THE GENERATION OF CORRESPONDING FIGURES IN ONE-, TWO-, THREE-, AND FOUR-SPACE

FIG. 1. THE LINE: A 1-SPACE FIGURE GENERATED BY THE MOVEMENT OF A POINT, CONTAINING AN INFINITE NUMBER OF POINTS, AND 2 FORM ITS BOUNDARIES

FIG. 2. THE SQUARE: A 2-SPACE FIGURE GENERATED BY THE MOVEMENT OF A LINE IN A DIRECTION PERPENDICULAR TO ITSELF TO A DISTANCE EQUAL TO ITS OWN LENGTH. IT CONTAINS AN INFINITE NUMBER OF LINES, AND IS BOUNDED BY 4 LINES AND 4 POINTS

FIG. 3. THE CUBE: A 3-SPACE FIGURE OR "SOLID" GENERATED BY THE MOVEMENT OF A SQUARE, IN A DIRECTION PERPENDICULAR TO ITS OWN PLANE, TO A DISTANCE EQUAL TO THE LENGTH OF THE SQUARE. THE CUBE CONTAINS AN INFINITE NUMBER OF PLANES (SQUARES) AND IS BOUNDED BY 6 SURFACES, 12 LINES AND 8 POINTS

FIG. 4. THE TESSERACTION, OR "TETRA-HYPERCUBE": A 4-SPACE FIGURE GENERATED BY THE MOVEMENT OF A CUBE IN THE DIRECTION (TO US UNIMAGINABLE) OF THE 4TH DIMENSION. THIS MOVEMENT IS EXTENDED TO A DISTANCE EQUAL TO ONE EDGE OF THE CUBE AND ITS DIRECTION IS PERPENDICULAR TO ALL OUR 3 DIMENSIONS AS EACH OF THESE 3 IS PERPENDICULAR TO THE OTHERS. THE TESSERACTION CONTAINS AN INFINITE NUMBER OF FINITE 3-SPACE (CUBES) AND IS BOUNDED BY 8 CUBES, 24 SQUARES, 32 LINES AND 16 POINTS.

NOTE: FIGURE 4 IS A SYMBOLIC REPRESENTATION ONLY—A SORT OF DIAGRAM—SUGGESTING SOME RELATIONS WE CAN PREDICATE OF THE TESSERACTION. FIGURE 5 IS A REPRESENTATION DRAWN ON A DIFFERENT PRINCIPLE IN ORDER TO BRING OUT A DIFFERENT SET OF RELATIONS.

CORRESPONDING DEVELOPMENTS AND PROJECTIONS OF A CUBE AND OF A TESSERACTION IN LOWER SPACES

FIG. 1. THE CUBE, A 3-SPACE FIGURE, CAN BE REPRESENTED IN A SPACE OF TWO DIMENSIONS IN TWO WAYS: BY SHOWING ITS 6 FACES AS THEY MIGHT BE FOLDED DOWN OR DEVELOPED UPON A PLANE, OR BY A PROJECTIONAL DRAWING. THE FIRST METHOD WOULD SHOW THE

SQUARES WITHOUT DISTORTION, BUT WOULD GIVE SMALL IDEA OF THEIR CORRELATION INTO A UNIT (FIG. 1). THE SECOND METHOD INDICATES

THIS CORRELATION, BUT AT THE EXPENSE OF MAKING AT LEAST 4 OF THE 6 FACES APPEAR AS RHOMBIC PARALLELOGRAMS INSTEAD OF AS SQUARES (FIG. 2).

THE TESSERACTION, A 4-SPACE FIGURE, CAN BE FOLDED DOWN, OR DEVELOPED INTO A 3-DIMENSIONAL FIGURE—OR WE MIGHT CONSTRUCT A 3-SPACE PROJECTION OF THE 4-SPACE

TESSERACTION BY MAKING, SAY, A MODEL OF WIRE, IN WHICH THE BOUNDARIES ARE CORRELATED INTO A CONSISTENT FIGURE, BUT IN WHICH AT LEAST 6 OF THE 8 BOUNDING CUBES ARE DISTORTED INTO PARALLELOGRAMS.

THE FOURFOLD REPETITION OF FIG. 4 IS FOR THE PURPOSE OF EXHIBITING THE 8 BOUNDING CUBES OF THE TESSERACTION

PLATE 1 PLATE 4

8 1 6 3 5 7 4 9 2	MAGIC SQUARE OF 3		30 39 48 1 10 19 28 38 47 7 9 18 27 29 46 6 8 17 26 35 37 5 14 16 25 34 36 45 13 15 24 33 42 44 4 21 23 32 41 43 3 12 22 31 40 49 2 11 20	47 10 23 64 49 2 39 6 22 63 48 9 60 5 30 3 11 46 61 24 1 52 7 58 62 21 12 48 8 57 4 51 19 31 25 40 13 44 53 30 26 39 20 35 36 29 14 43 35 18 37 28 41 16 31 54 38 47 34 17 32 55 42 15
-------------------------	-------------------	--	---	---

MAGIC SQUARE OF 4 MAGIC SQUARE OF 7 CHESS-BOARD PATH OF KNIGHT

THE MAGIC LINE IN A MAGIC SQUARE IS DISCOVERED BY TRACING THE NUMERALS IN THEIR ORDER FROM CELL TO CELL AND BACK TO THE BEGINNING NUMBER.

Figure 14 Plate 1 shows line, square, cube, and tetra-act as a sequence of dimensional augmentations; Plate 4 features axonometric drawings of three- and four-dimensional figures.

Figure 15 Diagram introducing magic squares and the magic lines they contain

THE "DICE OF THE GODS": THE PLATONIC SOLIDS

BELOW: THE PLATONIC SOLIDS "UNFOLDED" ON A PLANE

REGULAR POLYHEDROIDS OF FOUR DIMENSIONAL SPACE IN PLANE PROJECTION, CORRELATIVES OF THREE PLATONIC SOLIDS

PLANE PROJECTION OF THE 600 CELL

ORNAMENT FROM MAGIC LINES IN MAGIC SQUARES

BELOW: TEXTILE PATTERN FROM 5x5 SQUARE

VARIOUS ORNAMENTAL PATTERNS: THEIR DERIVATION

Figure 16 Diagrams showing how unfolded and projected three- and four-dimensional shapes can be combined with two-dimensional polygons and selectively inked to create projective ornament patterns

Figure 17 Drawing of a loggia ornamented by projective ornament patterns similar to those adorning the embrasures of Louis Sullivan's Guaranty Building (Buffalo, New York, 1894)

Figure 18 Drawing of a leaded-glass window in which axonometric patterns screen out the exterior view that a window normally provides, replacing a view into three-dimensional space with one into the simultaneously two- and four-dimensional space of projective ornament

than its depth. To denaturalize three-dimensional space, he often closed off three-dimensional views, such as those framed by windows and doors, by screening them with two-dimensional patterns that simulated four-dimensional vistas (Figure 18). These four-dimensional windows were talismans of the subjective transcendence through which individuals could attain cosmic consciousness. Through *n*-dimensional ornament, Bragdon encouraged fellow citizens to see themselves not as discrete individuals but as "members of one body, branches of one vine."³⁰

The crystalline geometry of projective ornament formalized this ethos by updating the allegorical opposition John Ruskin had constructed between Gothic naturalism, which

symbolized the freedom enjoyed within Christian humanist society, and the stylized geometry of Islamic architecture, which represented Muslim servility.³¹ Reversing the poles of Ruskin's architectural ethic, Bragdon created patterns possessing all the regularity and repetitiveness of Islamic ornament. By emphasizing the capacity of geometric pattern to create a consistent and orderly aesthetic totality, Bragdon advocated what he called "exquisite acquiescence": the individual's graceful submission to the demands of social necessity, cast as an insuperable fate.³² He associated this ideal with tragic drama, seeing it exemplified in the death scene from *Hamlet*, in which the prince gracefully yields to his fate with the words "but let it be—Horatio, I am dead." Through a

formal allegory of voluntary conformity, projective ornament affirmed the sacrifice of self-interest to the collective good that communarians considered essential to the practice of democracy.

By 1915, Bragdon's many private and public commissions in Rochester, along with his eloquent criticism, had gained him a wide reputation among the nation's architects. That year, Bragdon represented the progressive cause in a series of lectures at the Art Institute of Chicago, where Thomas Hastings of Carrère & Hastings represented neoclassicism and Ralph Adams Cram of Cram & Ferguson made a case for the Gothic Revival. Hosted by the Cliff Dwellers, Chicago's progressive architectural club, Bragdon presented his theory of organic architecture and new system of projective ornament.³³ With the New York Central Train Station recently completed, the commission for a new Rochester Chamber of Commerce in hand, and the distinction of representing progressive architecture in its home city, he was at the peak of his architectural career.

Community Singing

Bragdon felt that with the development of projective ornament he had finally found a comprehensive way to create "organic architecture." This breakthrough coincided with his involvement in community singing, and the combination stimulated Bragdon to more innovative design practice. "Song and Light...is going to lead me to greater opportunities than I would have as an architect stuck in the mud of the River Genesee," Bragdon confided to a friend. "Here I have never been able to do my best work: no one is willing to let me be radical enough. This is perhaps fortunate because only since I have developed my ornament do I feel that I am ready to be radical."³⁴ Engagement with the mass publics of a large-scale social movement, combined with the freedom of designing an ephemeral festival installation and the new tools provided by his system of projective ornament, transformed Bragdon's approach to architectural representation.

The community music movement was a nationwide initiative in which middle-class reformers from settlement houses, operatic and symphonic musical organizations, and municipal administrations developed new methods of using music to build communal social structures within the industrial metropolis. Community music advocates sponsored symphonic and band concerts on city piers and in neighborhood parks, and they organized "community choruses" that used singing to foster neighborly relations across lines of class, nation, language, and religion. "We are now taking music out of the hands of the few to socialize and democra-

tize it," proclaimed John C. Freund, editor and publisher of the journal *Musical America*. "The noble function of the community chorus is to give voice to the mass soul, to weld the people of America into a common ideal and a common purpose . . . Community choruses mean the getting together of humanity, of the old, the young, the rich, the poor, the leveling of class distinctions, the obliteration of race and religious hatreds, that the world shall be as it should be—one for all and all for one."³⁵

Community singing leaders translated ideas from communitarian political theory into cultural practices. Political theorist and social worker Mary Parker Follett, for instance, imagined a new "unifying state" that would integrate individuals and social groups into an organic whole. "Democracy depends on the blending, not the balancing, of interests and thoughts and wills," she explained.³⁶ Sociologist and social psychologist Charles H. Cooley wrote of "the organic character of the social process" and insisted that individuals be viewed "in living unity with social wholes." Cooley called upon his fellow citizens to develop "a collective life which, without repressing individuality, personal or local, shall afford central emblems that all may look up to and a discipline in which all may share."³⁷ Community singing provided just such a collective life and musical discipline.

Bragdon's involvement in community singing and the Festivals of Song and Light arose through his friendship with two music innovators: Harry Barnhart and Arthur Farwell (Figure 19). Farwell (1872–1952) was a composer, music publisher, and advocate for modern American music who had worked in municipal administration, settlement-house music education, and civic pageantry. At the time of the festivals, he was director of the Third Street Music School Settlement in New York, a Lower East Side institution for childrens' musical education.³⁸ Barnhart (1874–1948) was a singer who had trained for opera and concert performance yet had made his name as a vaudeville performer. He transferred his stage skills to choral organizing, using popular songs to get audience members singing, then forming choruses out of anyone willing to join.³⁹ After establishing the Rochester Community Chorus in March 1914 in this way, Barnhart started community choruses in New York, Buffalo, and Syracuse, as well as in the New Jersey towns of Plainfield and the Oranges. These choruses and their festivals were partially subsidized by W. Kirkpatrick (Kirk) Brice, a wealthy New York clubman.⁴⁰

During his work as supervisor of municipal concerts from 1910 to 13 for the reform administration of New York City Mayor William J. Gaynor, Farwell came to believe that the point of music programming should be social integration based on emotional connection and crowd unification.

Figure 19 Organizers and sponsors of Festival of Song and Light in Highland Park, Rochester, New York, August 1916. Standing, from left to right, are Anita Fox, Arthur Farwell, Rochester Parks Commissioner William S. Riley, and Kirk Brice; seated, from left to right, are Bragdon and Harry Barnhart.

He developed the concept of “mass-appreciation” to describe a condition in which the many individuals in a large crowd are mentally joined through their shared transport by the emotional resonances of music in a hypnotic process of “community auto-suggestion.”⁴¹ Barnhart similarly characterized community singing as “the mass-consciousness finding itself and finding its voice.”⁴²

These ideas were reflected in the singing techniques of Barnhart’s community choruses. Existing choral societies typically sought to uplift their working-class members by instilling technical skills such as voice training and music reading, graduating them from unison singing to more complex four-part harmonization. Barnhart, by contrast, encouraged singers with no prior choral training or musical literacy to join and spent little energy training them. While he made some use of antiphony and part singing, he often simplified arrangements for two-part harmonization or unison singing, which he favored for its effectiveness at “getting people out of their self-consciousness.”⁴³ Whereas the goal of most choral societies was to wean their members from popular musical fare and school them in the repertory of classical ora-

torios, Barnhart downplayed complexity and sophistication in favor of popular standards, national anthems, and religious hymns. He made particularly effective use of Stephen Foster’s popular “down-home” or “plantation” songs, such as “Oh, Susanna!,” “Old Folks at Home,” and “My Old Kentucky Home.” In 1915, as critic Van Wyck Brooks popularized the terms “highbrow” and “lowbrow” to describe in evolutionary terms a growing schism between elite and commercial cultures, the repertory of national anthems and Foster songs provided middlebrow fare that could be shared by many classes and ethnic groups.⁴⁴

In January 1913, Bragdon began to discuss community singing with Barnhart and Farwell, rapidly integrating their ideas about the unifying role of pageants and music festivals with his own ambitions for organic architecture. A year later, he proposed that Rochester stage a pageant to “unite the arts of poetry, the drama, music and the dance in one synthesis of beauty” and called on its Chamber of Commerce, the primary local forum for progressive reform activity and source of Bragdon’s patronage, to construct a civic theater within which citizens could portray “the drama of democracy find-

Figure 20 Festival of Song and Light in Highland Park, 1916. Plan and elevation of bleachers, stage, and proscenium. The previous year, Bragdon had used a similar configuration with two fewer circular and two fewer rectangular light fixtures.

ing itself.”⁴⁵ When neither of these initiatives took hold, Bragdon instead worked with Barnhart and the Rochester Community Chorus to stage an ambitious garden party in the backyard of his house, which he decorated with colorful lamps and light-screens in projective ornament patterns. By providing a demonstration of the distinctive beauty resulting from the combination of harmonic form, colored light, and choral song, the garden party convinced the city’s civic leadership to support a song festival in Highland Park at the end of that summer, again employing projective ornament light fixtures. Deemed a success by organizers, municipal administrators, and reporters alike, this festival set the model for subsequent Song and Light events, including events in Highland Park and New York’s Central Park the following summer as well as festivals in 1917 and 1918 (Figure 20).⁴⁶

The Art of Democracy

The Festivals of Song and Light tested the potential for projective ornament to elicit “exquisite acquiescence” on a mass scale. The organizers saw the community music event

as a democratic cultural form capable of uniting a crowd of individuals into a unified polity expressing itself with one voice. Farwell described Song and Light as a foundation for “the stupendous art of the *creation of Democracy*,” while Bragdon understood it as a way of accessing the *demos*, the democratic “group soul.”⁴⁷ The festivals were a means of “summoning *demos*,” in the apt phrase of cultural historian Wayne Carr Willis: creating conditions under which the popular will could express itself. “By singing,” one festival program explained, “the emotions of a people can be fused into a great national organism.”⁴⁸

In 1897, at the age of twenty-five, Farwell had traveled to the Bavarian town of Bayreuth to experience Richard Wagner’s art of music-drama, which became the primary model for his vision of festival as a democratic art form.⁴⁹ Farwell and his associates exploited the power of the *Gesamtkunstwerk* to elicit powerful surges of shared emotion and create a seemingly organic unity in the festival audience. They followed Friedrich Nietzsche in seeing Wagner’s operas as a modern rebirth of ancient Greek tragedy that fused Apollonian measure, order, and restraint

Figure 21 Festival Song and Light in Central Park, September 1917. Plot plan and axonometric of stage with proscenium, light fixtures, and decorations. The stage is at upper right in the plot plan.

with Dionysian ecstasy and passion. Like Nietzsche and other Romantic thinkers, the festival organizers believed that the political communality of the ancient polis had depended on the persuasive power of tragedies presented at dramatic festivals.⁵⁰ The community singing festival was geared toward replicating for mass society the political effect of classical drama: securing political consensus by uniting audience members in a shared catharsis capable of bridging ethnic and class divisions.

Guided by this concept of festival as an art of democratic persuasion, the Song and Light planners orchestrated dramaturgy and design to cultivate moments of spontaneity, participation, and audience initiative. Critic Lewis Mumford, who attended the 1917 New York festival, later recalled with wonder this “democratic opera with the audience as an active participant.”⁵¹ The Song and Light approach to “summoning *demos*” was exemplified by the first New York festival, held in Central Park in 1916. On a mild Wednesday evening in September, sixty thousand residents of New York City gathered on the south shore of the lake in Central Park, filling the lawn adjacent to the Bow Bridge and spilling over around the lakeshore onto the nearby Bethesda Terrace. Facing the crowd across the lake was a wooden stage projecting out over the water. A podium at its center bore a circular shield, and tall pylons at either side supported large hexagonal lanterns. Vines and branches garlanded these elements and the low rail that stretched

between them. Overhead stretched cables bearing an array of seven circular screens alternating with six vertical rectangles, all bearing the unfamiliar patterns of projective ornament. These colored light fixtures were echoed by similar lanterns hanging from trees and nestling in shrubs around the lake and along the paths, and even the park lamps had been transformed by ornamented shades (Figure 21).

As night fell and the crowd grew, a sixty-five piece orchestra seated itself on the platform while a throng of eight hundred singers clad in white robes assembled on the shore behind. Shortly after eight o’clock, Barnhart, dressed in a white suit, stepped onto the podium, raised his arms, and held them poised in the air. The crowd quieted down. At Barnhart’s signal, the chorus began to sing “America”: “My country, ‘tis of thee, sweet land of liberty, of thee of sing. . . .” At the first note, the light fixtures were electrified. The chorus was illuminated by clear white light tempered for the eyes of the audience by colored lanterns and shields that glowed like stained glass windows.

After “America,” the chorus continued with Romantic compositions by Wagner, Offenbach, and Strauss. Then Barnhart initiated a phase of community singing, the focus of the festival. He led the chorus in a set of Stephen Foster songs, turning toward the invisible audience across the water and signaling them to join in these familiar tunes. Falteringly at first, then more strongly, thousands of additional voices swelled the sound of the chorus. The peak of

Figure 22 Festival of Song and Light in Central Park, 1916. View from the Bethesda Terrace showing stage (at top center), dispersed Japanese lanterns and light fixtures, and audience members in straw boats

the evening came “unexpectedly,” Bragdon later wrote, in “an effect unpremeditated and unrehearsed. Under the influence of the place, the lights, the music, favored by friendly darkness, the invisible audience found its voice and sang.” Barnhart cued his singers to start “Old Black Joe,” one of Foster’s most popular compositions, then after a few lines silenced the chorus with a gesture, leaving the audience to carry the song on its own. At that,

a great voice, the voice of the people, rose out of the darkness and rolled out across the water, to be finally taken up, echoed and reinforced, by the waiting chorus and orchestra. This was done again and again, with ever-increasing success, in subsequent numbers, and when “Nearer My God to Thee” was rendered in this fashion, deep calling to deep, the light to the darkness, the crowd was wrought up to such a pitch of emotional excitement that many an eye was dimmed by involuntary tears, and many a heart was invaded by a new, great, and impersonal love for all those others, brought suddenly inexplicably near, become suddenly inexplicably dear.⁵²

After this cathartic moment, Barnhart launched the chorus into a set of “people’s hymns” written by Farwell expressly for community choruses, followed by classical

material, including the “Hallelujah” chorus from Handel’s *Messiah*. The festival closed with the first public performance of Augusta E. Stetson’s “Our America,” a new hymn that told the singing crowd: “Thy planted seed of potent good / Shall grow to world-wide brotherhood / Man’s true estate.” Reporting on Song and Light the next morning, the *New York Times* focused on the climactic moment when Barnhart had silenced the chorus so that the audience could hear itself sing: “As the song rolled across the water from the absolutely invisible thousands, it had a strangely stirring effect, something that could not be duplicated in a thousand years of concert halls and opera houses. . . . It seemed as if all the 60,000 were trying their best.” *Musical America* exulted, “New York has found its voice!”⁵³

Cathedral without Walls

As “Master of Light,” Bragdon furnished the park landscapes of New York, Rochester, and other festival cities with physically minimal but perceptually maximal installations that created temporary environments defined by color, light, sound, and ornament (Figure 22). The elements that constituted the Central Park installation recurred in the other festivals, adapted to fit the site and the scale of each

Figure 23 Construction-paper stencil for a Song and Light lantern, ca. 1915. While this branching axial design evokes a conventionalized floral pattern, its diagonal lines suggest axonometrically projected solids and hypersolids.

Figure 24 Two workers hold one of the large circular screens Bragdon designed and fabricated for the Festivals of Song and Light.

gathering. Together, they constituted an ephemeral “temple” dedicated to “brotherhood through beauty,” a new technique for engendering what Frederic Law Olmsted, designer of the parks in which Song and Light festivals convened, had called “communitiveness.”⁵⁴ Bragdon used the principles of Pure Design to abstract and synthesize elements of several Eastern and Western architectural traditions into a universal architecture adequate to the globalizing trend of American modernity. Combined with an artificial color palette and the new technology of electric illumination, this ecumenical synthesis constituted modernist architecture for a civil religion of democracy.

To make lanterns and light-screens for the Song and Light festivals, Bragdon layered colored tissue paper between sheets of heavy black construction paper stenciled in projective ornament designs, then set them into frames of wire or wood, metal, and glass (Figures 23, 24). In these decorative light fixtures he deployed a new color palette based on correspondences between musical and chromatic harmonies. Rejecting the Ruskinian naturalism he had employed in the train terminal, Bragdon used vivid oranges, acid greens, rich purples, and bright yellows and pinks, selecting and combining them based on transposition of musical chords into chromatic terms using Louis Wilson’s ophthalmic scale (Figure 25), a twelve-tone color-scale in which royal purple corresponded to the tonic of C.⁵⁵ He arranged the circular screens or “shields” in a carefully composed series of color-chords: each shield displayed a selection of colors based on a chromatic chord, and they were hung on the overhead “proscenium” according to the positions of their key colors in the spectrum, from red to violet. In Central Park, Bragdon placed an eighth circular shield below the conductor’s platform and complemented it with two pylon lanterns, one at each end of the stage, to augment the spectrum of colors with an inverted triangle in the primary color-chord of red, yellow, and blue. Color harmony also governed Bragdon’s selection and arrangement of the Japanese lanterns that dotted the festival landscapes.⁵⁶

When illuminated by electric lights, Bragdon’s stenciled screens became geometric stained-glass windows—particularly the circular screens, which evoked the rose windows of medieval cathedrals. Indeed, Bragdon described his festival design as a “cathedral without walls” reproducing the visual effect of a Gothic cathedral, its “vast shadowy interior lit by marvelously traceried and jeweled windows, which hold the eyes in a hypnotic thrall.”⁵⁷ The key element of the festival, for Bragdon, was “the psychological effect of the lighting on the people: it seemed to hypnotize them into a peace and quiet most favorable for the reception of the ever-changing message of the music. . . . The great

Figure 25 Diagram of Louis Wilson's ophthalmic color scale

wheels of color, relieved against the dark background of the woods, seemed to act upon consciousness as does the mesmerist's crystal ball."⁵⁸ By framing the festival chorus with glowing screens of projective ornament in harmonic color combinations, Bragdon aspired to induce a subjective transcendence in audience members comparable to the "mystic raptures" of religious ecstasy. These virtual windows were portals to the subjective transcendence that Bragdon saw as a fleeting experience of four-dimensional solidarity.

By synthesizing elements drawn from many different sources, Bragdon created a transnational architecture that reflected both his Theosophical universalism and the social organicism of communitarian reformers. In an article on this first New York festival, he reported that "the scene savored of Watteau; the shields, with their bizarre designs and bright colors, might have been windows in Aladdin's palace; Japan was suggested in the lanterns among the trees, and Venice in the light effects mirrored in the still water."⁵⁹ By evoking Jean-Antoine Watteau's paintings of *fêtes galantes*, Bragdon attempted to cast Song and Light as a democratized version of eighteenth-century aristocratic gatherings, a "latter-day *fête champêtre*." His mention of the mythological palace imagined in Scheherazade's tale of Aladdin and his lamp in *The Thousand and One Nights*, meanwhile, suggested both the role of Islamic architecture as a source for projective ornament and the magical translation of the park into an exotic "fairylane."⁶⁰

As a highly developed yet largely preindustrial nation with a strong Buddhist ethos and caste tradition, Japan represented an Eastern counterpoint to American commercialization and modernization. The late-nineteenth-century Japonisme seen in European and American painting and

decorative arts carried forward into the work of many architects of Bragdon's generation, including figures as different as Wright and Cram. Bragdon had mastered the Japanese graphic technique of *notan*, or light-dark contrast, under the tutelage of architect and draftsman Harvey Ellis, and he employed its principles in poster designs, illustrations, and projective ornament patterns. In addition to suggesting rose windows, the Song and Light shields echoed Japanese *mons*, heraldic emblems adorning aristocratic and samurai accoutrements and identifying the dynastic house to which a courtier or warrior belonged. Set next to the Japanese lanterns scattered in the bushes and trees of festival landscapes, Bragdon's circular screens contributed to a pervasive Japonisme enhanced by wooden gateways like those of Japanese gardens and temple enclosures (Figure 26).⁶¹

Another landmark in Bragdon's globalizing imaginary was Venice, a cosmopolitan city where a mercantile "marriage of East and West" had begat great art and distinctive Byzantine Gothic architecture.⁶² When the architect had visited the city in 1895 at the age of twenty-nine, he had been transfixed by this "shattered rainbow built into a city," and its memory was clearly in Bragdon's mind as he developed the Song and Light lighting fixtures, which formed another kind of shattered rainbow.⁶³ For the Central Park festivals, he even outfitted boats with spectators and lamps, deploying them across the lake to portray New York as a latter-day meeting point of world cultures.

Open-air cathedral; Rococo *fête galante*; Middle-Eastern palace; Japanese garden; Venetian canal—Bragdon's Song and Light installations created an ecumenical synthesis of disparate cultural and architectural traditions. They also evoked classical and Renaissance precedents like those on which he had modeled his train station and other buildings. In the Central Park festivals, the triangular configuration of proscenium screens suggested the pediment of a classical temple, adorned by a modernist frieze in which the alternating *in* and *yo* of metope and triglyph had become the rhythmic alteration of circular and rectangular screens (Figure 27). Festooned with garlands and other ceremonial decorations in the tradition of nineteenth-century Néo-Grec festivals and Bragdon's own Otis Arch, the Song and Light temple evoked the origins of classical architecture in the religious rituals and dramatic festivals of ancient Greek democracy.⁶⁴ Bragdon's festival architecture was a modernist alternative to the neoclassicism that had characterized most monumental civic and commercial structures since the mid-1890s, and which he himself had employed in the temporary triumphal arch. The mass audiences, organicist rhetoric, and democratic aspirations of the community singing movement stimulated Bragdon to abstract classical

Figure 26 Festival of Song and Light at Camp Sherman, Chillicothe, Ohio, December 1917. View of trabeated wooden frame based on a Japanese temple precinct gate, decorated to evoke the ritual ornamentation of primitive Greek temples with garlands, shields, and other liturgical elements

Figure 27 Festival of Song and Light in Central Park, 1916. Drawing by Bragdon showing stage and proscenium with chorus, songleader, and electric illumination

architecture into a set of mathematical relationships among sound, space, and color, and to synthesize that tradition with a global architectural heritage.

Electric Organism

Electricity powered the projective ornament light fixtures. It also acquired a symbolic significance in its own right as Bragdon developed techniques for treating electric current as a technological figure for *demos*. From the 1880s through the 1940s, electric lighting was widely seen as a metaphor for the delights of modern urban life, suggesting “novelty, excitement, modernity, and heightened awareness.”⁶⁵ By 1915, electric lighting was no longer new, but it still carried a special charge (Figure 28). As one account related, the festival audiences “left the City of Grim Realities behind them...and suddenly found themselves in the heart of ‘never, never land,’ transported there by the triple magic of color and light and music.”⁶⁶ Beyond these general associations, however, Bragdon’s treatment of electric lighting was based on the involutionary ideal of individual subjectivities joining in cosmic consciousness.

Involution had been a core doctrine of Theosophy since the 1880s. But it briefly became popular beyond Theosophical circles in the 1910s, when mathematician and educational reformer Cora Lenore Williams of Berkeley, California, merged it with hyperspace philosophy and French philosopher Henri Bergson’s vitalist theory of “creative evolution.” According to Williams, individuals were losing their autonomy as they merged into groups. Internally connected by mechanisms both diffuse (“crowd consciousness,” *Zeitgeist*, and class spirit) and tangible (the new electric communications networks), these suprapersonal groups were becoming the organisms of a four-dimensional society. “We stand at the meeting of two evolutionary periods—the period of the man-unit and the period of the group-unit,” Williams asserted. “[E]volution has passed on to greater things—societies and civilizations have become its concern.” As a result, she explained, “the concept of the State is fast passing over from that of an efficient organization for the adjustment of individual interests to the concept of a living, growing organism.”⁶⁷

In *The Passing of Evolution* (1912) and *Creative Involution* (1916), Williams embraced Bergson’s claim that evolution could not be described in the “mechanistic” terms of Darwinian theory, as a direct chain of selections, but required the existence of a creative “vital impulse” to intervene at critical moments by advancing the process of organization in synthetic leaps. For Williams, organisms at such moments did not evolve but “involved,” merging to constitute new,

Figure 28 Bragdon’s striking use of electricity in the 1917 Buffalo festival led a cartoonist to sketch him carrying an oversize light bulb in this illustration from the *Buffalo Evening News* (1 September 1917).

higher-level unities. The discourse of involution was a mystical variant on the ideas of social psychologists such as Cooley, and Williams cited several social psychologists, along with Bragdon, Hinton, and other hyperspace theorists, as authorities whose work supported her arguments.⁶⁸

Williams described the expanding electric telecommunications system, which was drawing distant places and people into new proximity, as the nervous system of the emerging “social body.” Comparing the wiring of telegraphic and telephonic communication systems to the “filaments” of the human nervous system, she described electric current as the nerve impulse of a superhuman organism. As Williams explained, “In man the psychical functions of the organic living network have reached their highest development,” to be superseded by a “social body” that met “the criteria of an organic structure” even though it was integrated through new technological means.⁶⁹

Farwell and Bragdon incorporated Williams’s electrovitalism into the conception and execution of the singing

festivals, while she embraced projective ornament as a symbol of involution. Farwell characterized the experience of unification with other crowd members as an “electrifying” mental “short circuit” akin to the “etheric wave” of wireless telegraphy and wireless telephony.⁷⁰ He felt that by exploiting the “cosmic subjective mind...with which each individual is continuous, and of which he is an individual manifestation,” community music drama could “bring all the separate minds of the community into one single mind.”⁷¹ Bragdon, too, adopted Williams’s terminology, identifying democratic energy with “crowd consciousness” and comparing his assumption of a leadership role in channeling crowd consciousness with the evolution of the brain to coordinate the body’s many organs.⁷² Williams, for her part, used projective ornament designs in a 1915 pamphlet on the San Francisco Pan-Pacific Exposition and in *Creative Involution* quoted extensively from Bragdon’s writings. Bragdon designed the binding and dustjacket of *Creative Involution* and gave copies to his friends.⁷³

The design and dramaturgy of Song and Light translated the involutionary understanding of electricity as the current of superhuman consciousness into an electrovitalist architecture. As the festival audience assembled after the workday for an evening of community singing, nightfall and electrification combined to replace lush park foliage with Bragdon’s abstract representation of “nature’s geometry.” Compared to more traditional architectural materials, electricity was very labile, and Bragdon modulated the amount of current flowing to the different fixtures to highlight the dramaturgy of the singing festivals: low light levels coming from “smoldering” multicolored lanterns (Figure 29) corresponded to slack times in the course of the evening; bright white lights were turned up at moments of greater intensity, spotlighting the chorus and sometimes illuminating the audience as they sang.⁷⁴ Bragdon’s manipulation of electrical current figured the tides of involutionary energy—of *demos*—flowing through the chorus and the festival crowd.

The Singing Army

In its first two seasons, the universalism of Song and Light gained significance because it presented a contrast to developments on the European continent, where the nations from which many participants had immigrated were fighting the largest war in history. “All elements of city life were represented,” Bragdon wrote of the 1916 New York festival: “the fine lady from Fifth Avenue sat and sang with the tired wage-earner from the East Side; the club man joined voices with the tramp; Italians, French, Russians, Germans, forgot their racial antagonisms for the time being under the

spell of the music in which their voices joined.”⁷⁵ The entry of the United States into the war in April 1917 gave a more specifically nationalist meaning to such comity, however, as community music leaders joined in the national project of mobilizing military forces. In fall 1917, Barnhart, Bragdon, and Farwell coordinated with U.S. Army administrators to stage community singing festivals that doubled as farewell ceremonies for local recruits departing for training and deployment.

The first of these militarized festivals was held in early August just outside Syracuse at the New York State Fairgrounds, which had been converted into an Army training camp (Figure 30). The two thousand members of the Syracuse Community Chorus, which Barnhart had founded that spring, sang to the accompaniment of a military band (Figure 31). The audience, estimated at twenty- to thirty thousand, included some ten thousand soldiers-in-training.⁷⁶ At the end of the same month, the Buffalo Community Chorus and mayor Louis P. Fuhrmann staged a Song and Light City Ceremonial in Delaware Park at which an estimated sixty thousand people sang farewell to three thousand new members of the Seventy-fourth Infantry, Third Artillery, and Naval Militia. The soldiers and sailors marched into the park’s Little Meadow under cover of darkness after the festival had already begun. At a climactic moment in the singing, Bragdon revealed them by turning on an array of seven electric floodlights.⁷⁷ Two weeks later, the second annual New York festival celebrated new members of the Twenty-third and Seventy-first Infantry regiments. Once again, massive crowds turned out to hear the singers. Maj.-Gen. J. Franklin Bell, commander of the new Camp Upton in Suffolk County on Long Island, led the soldiers in a procession up the Mall, while the program featured anthems of the United States and the other Allied Powers.⁷⁸ In these events, military regiments displaced the choruses as exemplars of democratic solidarity.

Like many progressives, the Song and Light organizers saw the war as an opportunity to realize their reform goals. The Syracuse festival was followed by a conference at which Barnhart, Farwell, Bragdon, and other community music figures formed a National Committee on Army and Navy Camp Music to work with the War Department Commission on Training Camp Activities. In the following year, community singing activity across the nation declined rapidly as nearly fifty leaders of civilian community choruses, including Barnhart, moved into military training camps to build a “singing army.”⁷⁹ In 1918, among Barnhart’s civilian choruses only the New York Community Chorus staged a Song and Light festival, again along patriotic lines. Attendance was diminished by the deadly Spanish influenza epidemic, which

had already led the Army to close Camp Upton and city leaders to cancel many public gatherings. Though it still drew some twenty-five thousand participants, this was the last of the major Song and Light festivals.⁸⁰

The militarization of Song and Light increased the sense of organic social solidarity for some festival participants. "We are developing a spirit of service that had lain dormant," one member of the Syracuse audience said afterwards. "We will never go back in our shells again."⁸¹ Yet it also exacerbated the festivals' coercive dimension. The metaphors of hypnosis, mesmerism, and rapture that Bragdon and his collaborators used to describe the effect of their artistic synthesis already suggest that emotion overwhelmed reason in the festival catharsis. Militarization only enhanced this dimension of Song and Light. When Bragdon traveled to Camp Sherman, an Army facility in Ohio, to stage a Christmas Festival of Song and Light with Barnhart in 1917, he concluded that the *demos* thrived on war and military discipline. The soldiers were experiencing an unusually intense "*katharsis*," Bragdon reported, a wave of "spiritual liberation" akin to the "baptism by fire" of trench warfare.⁸² "In our army camps social life is truly democratic," he later wrote. "Not alone have the conditions of conscription conspired to make it so, but there is a manifest *will-to-democracy*—the growing of a new flower of the spirit, sown in a community of sacrifice, to reach its maturity, perhaps, only in a community of suffering." In this sense, he explained, the World War represented "the birth of democracy."⁸³

While Bragdon was praising conscription for fulfilling America's democratic promise, the state was using war to justify the curtailing of civil liberties. In the New York papers for Friday, 14 September 1917, coverage of the Song and Light Festival shared space with updates on the U.S. Postal Service refusal to deliver copies of *The Masses*, a radical literary magazine, on the grounds that its antiwar articles were seditious. The previous evening, Mayor John Purroy Mitchel may have had *The Masses* in mind when he praised the patriotism of the festival audience by contrasting it with the disloyalty of "seditious 'soap box' orators."⁸⁴ The community singing festival had originated as a counter-public dedicated to realizing a more organic democracy than that constituted by the state through electoral mechanisms. By 1917, however, it had become the instrument of a government that claimed special wartime powers to curtail debate and control sectors of the economy. Yet the fifty-one-year-old Bragdon did not see Song and Light as having been corrupted by its cooptation by militarism. Rather he concluded that in the context of war his festival work seemed "better than almost anything else I could possibly

do."⁸⁵ The militarization of community singing exacerbated illiberal tendencies already latent in the early festivals.

Paradoxically, accounts of the festivals of 1917 suggest that the soldiers exhibited greater spontaneity and independence than did their civilian counterparts. In some cases, troops resisted the organizers' cues and fractured the univocality so eagerly cultivated by Farwell, Barnhart, and Bragdon. When the lights were turned upon the soldiers at the Buffalo festival, for instance, the audience saw them "lounging, smoking, and at ease," in a display of nonchalance quite different from the rapt attention that seems to have characterized civilian audiences.⁸⁶ In New York a few weeks later, when Harry Barnhart crossed the lake in a skiff to enlist the soldiers in community singing, he was met by catcalls, joking, and resistance. "Finally," one witness reported, "Barnhart got both soldiers and choristers working together across the lake, except that the soldiers did not always follow the official versions of the songs." Instead of "Glory, glory hallelujah" in the "Battle Hymn of the Republic," they sang "All we do is to sign the pay-roll!" By the time Mayor Mitchel arrived to give his address, the soldiers were already marching out to pick up their bags and board the train to Camp Upton.⁸⁷

In these incidents a cultural form invented by humanitarian progressives to marshal the popular will began to deflate in the face of a new wartime pragmatism. The representational techniques that Bragdon, Barnhart, and Farwell had developed for legislating through art became redundant once the specter of defeat by the imperialist Central Powers created an even more powerfully unifying force, one that allowed coercive measures such as conscription and censorship to replace voluntary cooperation as the ideal of even many progressives. As a spectator at the Syracuse festival noted, the ten thousand soldiers massed for the event "emphasized in clear-cut manner the wide gulf that lies between the America of today and the America of last summer, when khaki had not yet become the prevalent color."⁸⁸

Stage and Screen

Following World War I, Bragdon withdrew from architectural practice—and from Rochester—to focus on a second career as a stage designer in New York. From 1919 until his retirement in 1936, his primary activity was designing sets, costumes, and lighting for actor-manager Walter Hampden, a close friend and fellow Theosophist. The theater was a lifelong passion for Bragdon, and the festival work had introduced him to the innovative dramatic practices employed by pageant designer Robert Edmond Jones and other practitioners of the New Stagecraft, a dramatic technique that employed abstraction to emphasize allegorical

Figure 29 Bragdon, drawing of hanging lamps decorated with projective ornament, ca. 1915

Figure 30 Bragdon, poster advertising Song and Light Festival at the New York State Fairgrounds, temporarily transformed into U.S. Army Camp Syracuse, August 1917

Figure 31 Soldier-singers posed on the podium and stage prior to the Syracuse festival

symbolism rather than illusionistic realism. As the person responsible for all aspects of design in Hampden's productions, Bragdon created stark sets that suggested archetypal rather than concrete locations, high-contrast lighting that focused attention on figures and properties rather than providing general illumination, and richly colored costumes like those he had depicted in earlier drawings (Figure 32). His designs distinguished Bragdon as a leading New Stagecraft practitioner alongside Jones, Lee Simonson, Joseph Urban, and Norman Bel Geddes.

Bragdon approached the theater as a refuge from repressive society, "the last stronghold of Freedom, where anything can be imagined, acted, said." Hampden's allegorical dramas, he felt, opened "the one unguarded door in our sanitary and excellently arranged modern dwelling through which the Spirit of Play escapes into the World of the Wondrous, where values are inverted and yet maintain new and true relations."⁸⁹ One theme that Bragdon and Hampden explored on the stage was the tension between fate and free will that had been central to projective ornament and the Festivals of Song and Light. Hampden's spe-

cialty was Shakespearean tragedy, and he made his name in 1919 with a powerful portrayal of Hamlet, in his first collaboration with Bragdon. Restaged in 1920, 1925, and 1934, *Hamlet* gave Hampden his signature role. Bragdon relished the opportunity this play afforded him to stage the death scene that epitomized his ideal of "exquisite acquiescence," and he enjoyed the transition from the professionalized field of architecture to the more bohemian world of the theater. In many respects, however, the change of milieu represented a curtailment of his reform activity, as his work moved from engagement with Rochester's civic institutions and outdoor pageantry to the commercial and interior realm of the Broadway stage.

During this period, the activism that had characterized Bragdon's wartime work recurred only sporadically, in small Song and Light revivals spurred by postwar depressions. Bragdon and Barnhart staged a singing festival in Plainfield, New Jersey, during the recession of 1921, featuring the five hundred singers of the Community Chorus of the Oranges for an audience of about six thousand. That fall, with many workers and war veterans out of work, the two joined Kirk

Figure 32 A scene from *Hamlet*, 1919, featuring Walter Hampden in the title role. The set, costumes, properties, and lighting were designed by Bragdon.

Figure 33 Luxorgan drawings by Bragdon ca. 1920 depicting an array of lightbulbs mounted to a wooden frame and controlled by a keyboard (left) to selectively illuminate a complex projective ornament design (right)

Brice in helping labor organizer Urbain Ledoux stage a series of unemployment protests in Boston, including a “slave auction” of jobless men on the Common and a community singing rally that drew some twenty thousand people.⁹⁰

This activity continued in New York, where Ledoux established a dormitory for homeless men in the church of St. Mark’s-in-the-Bouwerie, then a center of Lower East Side progressivism under the leadership of Pastor William Norman Guthrie, a close friend of Wright’s who a few years later would hire him to design a set of towers for church property. While Barnhart conducted community sings in Central Park to protest mass unemployment, Bragdon used his theatrical expertise to transform the interior of the Federalist church by installing an apparatus of dimmers, spotlights, color gels, reflectors, and projective ornament lamps that gave Guthrie control over the lighting and mood in “St. Marx’s” comparable to that wielded in the theater by a stage director. In the deep depression year of 1931, Bragdon again pulled the old Song and Light equipment out of storage, this time for a series of performances at Madison Square Garden by Barnhart’s Westchester and New York City Negro Chorus, which together comprised a thousand African American voices.⁹¹

During and after the war, Bragdon also explored ways to systematize the artistic synthesis of community singing festivals by developing an art of “mobile color” that exploited the mathematical correlation among music, color, and geometric form. With Brice’s financial support and the stimulus of a circle of like-minded innovators who called themselves “The Prometheans,” he built two versions of the Luxorgan, a mechanism for simultaneously playing music and multicolored projective ornament designs. In the first version, built in 1917, a keyboard controlled electric bulbs behind a large screen of projective ornament stencils filled with a variety of colored gels (Figure 33). The second Luxorgan, completed three years later, achieved a wider range of visual forms by projecting light onto a screen through operable stencils.⁹² A decade later, Bragdon designed several color-music film animations in which projective ornament patterns would have transformed in time with musical compositions. Though he established color keys to transpose sound into harmonically corresponding color and drew hundreds of stills for these animated films (Figure 34), none was ever produced. While these projects allegorized the organicist ideal of a harmoniously impersonal society, they lacked the integral relation to social

Figure 34 Bragdon, watercolor drawing, ca. 1933, showing the colors intended for a color-music film sequence and evoking the intensely luminous color that had earlier characterized the festival light-screens

practice that had made the Festivals of Song and Light so compelling.

After 1919, the scientific hyperspace theory on which Bragdon had based his ornament and festival architecture lost currency as relativity theory eclipsed the discourse of higher spatial dimensions. The concepts and artistic practices associated with the fourth dimension of space persisted through the 1920s, a period during which the crystalline geometries of projective ornament were echoed in Art Deco patterns. But in the 1930s the intellectual and social framework within which Bragdon's ornament had originated and gained a mass audience lost some of its relevance as simultaneity, interpenetration, and other concepts associated with Einstein-Minkowski space-time inspired the work of a new generation of modernist artists, architects, and critics, not only in Europe but also in the United States.

Meanwhile, progressivism played a diminished role in public affairs during the affluent 1920s. By the time the Great Depression restored its influence, progressivism had changed tenor: the lyrical communitarianism of the 1910s, which aspired to summon the spirit of democracy through art, had given way to a more pragmatic strain focused on planning and economic rationalization. While the exceptional Wright remained a central figure by continually reinventing himself and his work, the task of developing an "organic architecture" was largely taken over by members of a new generation, such as R. Buckminster Fuller and Structural Study Associates, the group he formed in 1932 "to integrate Industry, Science, and Economics."⁹³ Although he drew on Bragdon's writings and projective ornament patterns in developing his own organicist rhetoric and geometric formal vocabulary, Fuller's engagement with reform had a much stronger technological and economic basis than did Bragdon's.⁹⁴

At its peak during World War I, however, Bragdon's organic architecture symbolized the promise of democracy for tens of thousands of festival participants. Even at the remove of half a century, Mumford recalled the sense the Song and Light festival gave him that "we were on the verge of translation into a new world, a quite magical translation, in which the best hopes of the American Revolution, the French Revolution, and the Industrial Revolution would all be simultaneously fulfilled."⁹⁵

Notes

Bragdon's systematic renovation of ornament as a path to modern architecture was the subject of my dissertation, "Architecture and Involution: Claude Bragdon's Projective Ornament" (Ph.D. diss., Princeton University, 2001), which was written with support from the Mrs. Giles Whiting Foundation, the Henry Luce Foundation, the American Council of Learned Societies, and the Princeton University Graduate School. The argument of this article originated in that project. It was refined in discussions with Wayne Carr Willis, who generously shared with me his own analyses of the Festivals of Song and Light, as well as through presentation at the fifty-seventh annual meeting of the Society of Architectural Historians, Providence, R.I., 14–17 Apr. 2004, in the session "Tabernacle/Vessel/Aedicule/Shrine," chaired by Fabio Barry. This article forms part of a monograph on Bragdon's architecture that I am completing with support from the Winterthur Museum, the National Endowment for the Humanities, the Canadian Centre for Architecture, and the Syracuse University School of Architecture. My work on Bragdon has benefited at every stage from the assistance of the University of Rochester Library Department of Rare Books, Special Collections, and Preservation. I am grateful to these institutions, and to the many individuals within them, for their material and intellectual contributions to this article and to the larger project of which it forms a part.

1. Louis H. Sullivan, *Kindergarten Chats* (1918; rev. ed., New York, 1947), 97; see also Sullivan, *A System of Architectural Ornament According with a Philosophy of Man's Powers* (New York, 1924).
2. Frank Lloyd Wright, "In the Cause of Architecture," *Architectural Record* 23 (Mar. 1908), 158. See also James M. Dennis and Lu B. Wenneker, "Ornamentation and the Organic Architecture of Frank Lloyd Wright," *Art Journal* 25 (fall 1965), 2–14; Anthony Alofsin, *Frank Lloyd Wright: The Lost Years, 1910–1922, A Study of Influence* (Chicago and London, 1993); and Neil Levine, *The Architecture of Frank Lloyd Wright* (Princeton, 1996), 23–37.
3. Herbert Spencer, *Principles of Biology* (London, 1864), 1, 444; Spencer, *First Principles* (New York, 1862), ch. 20; Spencer, *Social Statics* (London, 1851), introduction; and Spencer, *The Principles of Sociology*, vol. 1 (London, 1876), ch. 2.
4. See Jean Castex, "Darwin, Wright and the Typology of the Prairie House," *Rassegna* 20, no. 74 (1998), 64–75.
5. H. P. Blavatsky, *The Key to Theosophy* (London, 1889), sect. 3. See also William Q. Judge, "Universal Brotherhood—a Fact of Nature" (1893), in Dara Eklund, ed., *Echoes of the Orient: The Writings of William Quan Judge*, vol. 2 (San Diego, 1980).
6. See Daniel T. Rodgers, "In Search of Progressivism," *Reviews in American History* 10 (Dec. 1982), 113–32; and David E. Price, "Community and Control: Critical Democratic Theory in the Progressive Period," *American Political Science Review* 68 (Dec. 1974), 1663–78.
7. See Sidney M. Milkis, "Introduction: Progressivism, Then and Now," in Sidney M. Milkis and Jerome M. Mileur, eds., *Progressivism and the New Democracy* (Amherst, 1999), 1–39; and Francis L. Broderick, *Progressivism at Risk: Electing a President in 1912* (Westport, Conn., 1983).
8. Claude Bragdon, *Architecture and Democracy*, 2nd ed. (New York, 1926), 1.
9. Regarding the political role of publics and counter-publics, see Nancy Fraser, "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy," in Bruce Robbins, ed., *The Phantom Public Sphere* (Minneapolis and London, 1993), 1–32; and Michael Warner, *Publics and Counterpublics* (New York, 2002).
10. For overviews of Bragdon's life and career, see Erville Costa, "Claude F. Bragdon, Architect, Stage Designer, and Mystic," *Rochester History* 29 (Oct. 1967), 1–20; and Claude Bragdon, *More Lives Than One* (New York, 1938). For interpretations of his architectural work, see Dorothy Cantor, "Claude Bragdon and His Relation to the Development of Modern Architectural Theory" (M.A. thesis, University of Rochester, 1964); Eugenia V. Ellis, "Ceci Tuera Cela: The

- Education of the Architect in Hyperspace," *Journal of Architectural Education* 51 (Sept. 1997), 37–45; Siân Loftus, "Claude Bragdon in Context," *Edinburgh Architecture Research* 26 (Sept. 1999), 155–85; Massey, "Architecture and Involution: Claude Bragdon's Projective Ornament," (Ph.D. diss., Princeton University, 2001); Eugenia V. Ellis, "Squaring the Circle: The Regulating Lines of Claude Bragdon's Theosophic Architecture" (Ph.D. diss., Virginia Polytechnic Institute and State University, 2005); and Mary Nixon, "Technically Symbolic: The Significance of Schema and Claude Bragdon's Sinbad Drawings in 'The Frozen Fountain'" (Ph.D. diss., University of Pennsylvania, 2005).
11. Sullivan, *Kindergarten Chats*, 99 (see n. 1).
 12. Claude Bragdon, "L'Art Nouveau and American Architecture," *Architectural Review* 10 (Oct. 1903), 141–42. This article, based on an address Bragdon gave at the 1903 ALA conference in St. Louis, also appeared in *Brickbuilder*, *Inland Architect* and *News Record*, *Articraft*, and *Builder*.
 13. Claude Bragdon, "The Gothic Spirit," *Christian Art* 2 (Jan. 1908), 165. See also his "The New Mysticism," *The Reader* 4 (July 1904), 189–91; "Made in France' Architecture," *Architectural Record* 16 (Dec. 1904), 561–68; and "An American Architect, Being an Appreciation of Louis H. Sullivan," *House and Garden* 7 (Jan. 1905), 47–55.
 14. Claude Bragdon, *The Beautiful Necessity: Seven Essays on Theosophy and Architecture* (Rochester, 1910), 22. Regarding Bragdon's role in the tradition of harmonic proportion, see Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, 3rd ed. (New York, 1962), App. III, "Bibliographical Notes on the Theory of Proportion."
 15. Marie Ann Frank, "The Theory of Pure Design and American Architectural Education in the Early Twentieth Century" (Ph.D. diss., University of Virginia, 1996), 107, 148ff.
 16. Blavatsky, *Key to Theosophy*, sect. 3 (see n. 5).
 17. Claude Bragdon, "The Occultation of Art," *The Messenger* (Aug. 1918), 65–67.
 18. Bragdon, *More Lives*, 165.
 19. A native of Dieppe, France, Emanuel L. Masqueray trained at the École des Beaux-Arts, then moved to New York to work for two years in the office of his former classmate John M. Carrère in the newly formed firm of Carrère & Hastings. As chief designer of the Louisiana Purchase Exposition, Masqueray designed much of the exposition's landscape and decorative elements, as well as the horticulture and transportation buildings. He subsequently opened an office in St. Paul, Minnesota, and designed buildings in several Midwestern states. See Pat Mitchell and Linda Laird, *The History of Hutchinson* (2001), www.hutchgov.com. Precursors to both Masqueray's exposition palace and Bragdon's terminal include the Hauptbahnhof in Frankfurt-am-Main (Georg P. H. Eggert & Faust, 1879–88), Hauptbahnhof in Dresden (C. F. Müller, 1892–98), and Gare de Tours in Tours (Victor Laloux, 1895–98). See Carroll L. V. Meeks, *The Railroad Station: An Architectural History* (New Haven, 1956).
 20. "New York Central Railroad Station Completed," *Rochester Herald*, 26 Oct. 1913. See also Lauren Weingarden, "The Colors of Nature: Louis Sullivan's Architectural Polychromy and Nineteenth-Century Color Theory," *Winterthur Portfolio* 20 (winter 1985), 243–60.
 21. When he described the terminal, Bragdon emphasized its suggestion of city gate, viaduct, and "even—by a stretch of the imagination—the driving wheels of a locomotive." Claude Bragdon, "The New York Central Railway Station at Rochester, New York," *Brickbuilder* 22 (Dec. 1913), 263.
 22. Claude Bragdon, *Architecture and Democracy* (New York, 1918), 17.
 23. Claude Bragdon, *More Lives*, 167 (see n. 10). For examples of such emulation, see Ronald E. Schmitt, *Sullivan-esque: Urban Architecture and Ornamentation* (Urbana, 2002). On the role of virtuosity in Sullivan's ornament, see David Van Zanten, *Sullivan's City: The Meaning of Ornament for Louis Sullivan* (New York, 2000), esp. 37–43 and 139–50.
 24. The 1854 lecture in which Riemann first presented his theory of *n*-dimensional space was not published until 1868 in German, and it first appeared in English in 1873. For an overview of changing theorizations of space, see Max Jammer, *Concepts of Space: The History of Theories of Space in Physics*, 3rd ed. (New York, 1994). Regarding the genre of hyperspace philosophy, see Linda Dalrymple Henderson, *The Fourth Dimension and Non-Euclidean Geometry in Modern Art* (Princeton, 1983), esp. ch. 1, "The Nineteenth-Century Background."
 25. C. H. Hinton, *A New Era of Thought* (London, 1888) and *The Fourth Dimension* (London and New York, 1904). See also Rudolph v.B. Rucker, ed., *Speculations on the Fourth Dimension; Selected Writings of Charles H. Hinton* (New York, 1980); and Marvin H. Ballard, "The Life and Thought of Charles Howard Hinton" (M.A. thesis, Virginia Polytechnic Institute and State University, 1980).
 26. In fusing hyperspace philosophy with Theosophical principles, Bragdon followed the lead of Theosophical Society officials. See Annie Besant and C. W. Leadbeater, *Thought-Forms* (London, 1901); and C. W. Leadbeater, *The Astral Plane* (London, 1895).
 27. Claude Bragdon, *Four-Dimensional Vistas* (New York, 1916), 131.
 28. Bragdon, *Projective Ornament* (Rochester, 1915), 23.
 29. For an overview of the rise of "space" as an analytical and generative category in architecture, see Adrian Forty, *Words and Buildings: A Vocabulary of Modern Architecture* (New York, 2000), 256–75.
 30. Bragdon, *Four-Dimensional Vistas*, 131.
 31. John Ruskin, *The Stones of Venice*, vol. 2, *The Sea Stories*, ch. 6, "The Nature of Gothic," in E. T. Cook and Alexander Wedderburn, eds., *The Work of Ruskin* (London, 1904), vol. 10, esp. 185–95.
 32. Bragdon, *Projective Ornament*, 63–64. For analysis of Bragdon's rhetoric of "necessity" and system of projective ornament as techniques of sumptuary regulation, see Jonathan Massey, "New Necessities: Modernist Aesthetic Discipline," *Perspecta* 35 (2004), 112–33.
 33. Bragdon, "Organic Architecture" and "The Language of Form," in *Six Lectures on Architecture: The Scammon Lectures for 1915* (Chicago, 1917), 123–44, 145–72.
 34. Bragdon to Fritz Trautmann, 10 Oct. 1916, A.B81 Box 1 Folder 16, Bragdon Family Papers, University of Rochester Library (henceforth BFP).
 35. Quoted in May Stanley and Kenneth S. Clark, "Move to Unify Community Music Projects in U.S.A.," *Musical America* 26 (9 June 1917), 1–5. For an overview of the community music movement, see Gavin James Campbell, "A Higher Mission Than Merely to Please the Ear': Music and Social Reform in America, 1900–1925," *Musical Quarterly* 84, no. 2 (2000), 259–86.
 36. Mary Parker Follett, *The New State: Group Organization of Popular Government* (New York, 1918), ch. 31.
 37. Charles Horton Cooley, *Social Process* (New York, 1918) and Cooley, *Social Organization: A Study of the Larger Mind* (New York, 1909), quoted in Price, "Community and Control," 1665–66 (see n. 6).
 38. See Evelyn Davis Culbertson, *He Heard America Singing; Arthur Farwell, Composer and Crusading Music Educator*, *Composers of North America* 9 (Methuen, N.J., 1992); Arthur Farwell, "Wanderjahre of a Revolutionist" and *Other Essays on American Music*, ed. Thomas Stoner (Rochester, 1995); and Thomas Stoner, "'The New Gospel of Music': Arthur Farwell's Vision of Democratic Music in America," *American Music* (summer 1991), 183–208.
 39. Bragdon, *More Lives*, 70–71 (see n. 10). See also Arch Merrill, "Let's All Sing," *Rochester Democrat and Chronicle* (3 Aug. 1941).
 40. Bragdon, *More Lives*, 85.
 41. Arthur Farwell, "The Pageant and Community Auto-Suggestion," *Musical America* 20 (27 June 1914), 14. See also his "Significance and Progress of Municipal Music, and Its Power to Develop the Festival Spirit," *The Craftsman* 19 (Nov. 1910), 179–85; and "Municipal Music in New York," *Studies in Musical Education: History and Aesthetics; Papers and Proceedings of the Music Teachers National Association*, ser. 8 (1913), 16–24.
 42. Quoted in Culbertson, *He Heard America Singing*, 176.

43. Bragdon, *More Lives*, 71.
44. Van Wyck Brooks, *America's Coming-of-Age* (New York, 1915), ch. 1, "Highbrow" and "Lowbrow." Regarding Foster, see William W. Austin, "Susanna," "Jeanie," and "The Old Folks at Home": *The Songs of Stephen C. Foster from His Time to Ours*, 2nd ed. (Urbana and Chicago, 1987).
45. Claude Bragdon, "Why Not a Pageant?," *Rochester Herald*, 19 Feb. 1914; and "Expression of City's Life in Terms of Beauty; Bragdon's Views at Chamber Meeting," Rochester Chamber of Commerce, *Bulletin*, July 1914, unpag.
46. Bragdon, *More Lives*, 69ff.
47. Quoted in Wayne Carr Willis, "Spirits of Their Time: Arthur Farwell, Claude Bragdon, and the Ambiguous Legacy of Progressive Cultural Reform," paper presented at Symposium on the Life and Music of Arthur Farwell, Eastman School of Music, Rochester, 27 Sept. 1997; and Bragdon, *Architecture and Democracy*, 1.
48. Wayne Carr Willis, "Summoning Demos: Claude Bragdon and the Progressive Quest for Cultural Democracy," paper presented at the 84th Annual Meeting of the Organization of American Historians, Louisville, 1991; and "Song and Light" *Festival Souvenir Program* (Syracuse, 9 Aug. 1917), A.B81 Box 44 Folder 1, BFP (see n. 34).
49. See Farwell, "Wanderjahre," chs. 2–5 (see n. 38).
50. See Friedrich Nietzsche, *The Birth of Tragedy from the Spirit of Music*, trans. Douglas Smith (Oxford, 2000), and Josef Chytrý, *The Aesthetic State; A Quest in Modern German Thought* (Berkeley, 1989).
51. Lewis Mumford, *Sketches from Life; The Autobiography of Lewis Mumford—The Early Years* (New York, 1982), 120.
52. Claude Bragdon, "Song and Light," *House Beautiful* (June 1917), 58. See also New York Community Chorus, *City of New York Song and Light Festival Program* (New York, 13 Sept. 1916), A.B81 Box 44 Folder 1, BFP.
53. "60,000 in Park Hear Community Chorus," *New York Times*, 14 Sept. 1916; and Kenneth S. Clark, "New York Carried on Tidal Wave of Community Music," *Musical America* 24 (23 Sept. 1916), 1.
54. Bragdon, "Song and Light," 31; Frederic Law Olmsted, "Public Parks and the Enlargement of Towns," *Journal of Social Science* 3 (1870). Olmsted designed Central Park and Buffalo's Delaware Park, where a large Song and Light festival was held in 1917, and he contributed elements of Rochester's Highland Park. On the genteel tradition of "positive environmentalism" that informed the design of these and other nineteenth-century parks, see Paul Boyer, *Urban Masses and Moral Order in America, 1820–1920* (Cambridge, Mass., 1978), esp. chs. 15 and 16, 220–51. Regarding the history of festivals and other events in Central Park, see Roy Rosenzweig and Elizabeth Blackmar, *The Park and the People: A History of Central Park* (Ithaca, N.Y., 1992).
55. Bragdon, *More Lives*, 349–62. See also Bragdon, *Architecture and Democracy*, 95–112. The lanterns Bragdon made during this period do not survive, but extant color photographs (A.B81 Box 46 Folder 12, BFP) and posters (A.B81 Oversize Folder 15, BFP) give a good idea of the colors Bragdon used. See also Figs. 29, 30, 34.
56. Claude Bragdon, "Artificial Lighting for Out-of-Doors," *Theatre Arts Magazine* 1 (Aug. 1917), 188–92; Bragdon, "Description and Outline Specification of the Physical Setting of New York 'Song and Light,'" typescript (1916), collection of John Pearsall, Rochester; and "Song and Light" *Festival Souvenir Program*.
57. Bragdon, *More Lives*, 72; see also Bragdon, *Beautiful Necessity*, 23 (see n. 14).
58. Bragdon, "Song and Light," 33, 58.
59. *Ibid.*, 32.
60. *Ibid.*; Bragdon, *More Lives*, 73.
61. Reproductions of *mons* and new designs based on their principles (typically circular designs exemplifying clear figure-ground contrast) appear in Bragdon's scrapbooks and notebooks. See Claude Bragdon, "Architecture-Art-Decoration to 1888" (n.d.), A.B81 Box 57 Folder 1, BFP. Japanese temples appear in Bragdon's scrapbook "Architecture-Art-Decoration #16" (ca. 1905), A.B81 Box 63 Folder 16, BFP. Regarding his relation to Ellis, see Claude Bragdon, "Harvey Ellis," *Brochure Series* 3 (Sept. 1897), 139–43.
62. Bragdon, "The Marriage of East and West," *Orient* (Feb. 1923), 9–10.
63. Bragdon, *More Lives*, 45; see also Bragdon, "A Rochester Tourist in Italy," *Rochester Post-Express*, 31 Aug. 1895.
64. Regarding the Néo-Grec and its influence on Sullivan, see David Van Zanten, "Sullivan to 1890," in Wim de Wit, ed., *Louis Sullivan: The Function of Ornament* (New York, 1986), 13–64.
65. David Nye, *Electrifying America: Social Meanings of a New Technology, 1880–1940* (Cambridge, Mass., 1990), x. See also David Nasaw, "Cities of Light, Landscapes of Pleasure," in David Ward and Olivier Zunz, eds., *The Landscape of Modernity: Essays on New York City, 1900–1940* (New York, 1992), 273–86.
66. "Fighting Men Are Singing Men" at Song and Light Festival," *Musical America* 26 (22 Sept. 1917), 3–4.
67. Cora Lenore Williams, *The Passing of Evolution* (Berkeley, 1912), 4; and Williams, *Creative Involution* (New York, 1916), 13.
68. Regarding the importance of social psychology and hyperspace theory to "involutionary" approaches in modernist art and literature, see Linda Dalrymple Henderson, "Mysticism as the 'Tie That Binds': The Case of Edward Carpenter and Modernism," *Art Journal* 46 (spring 1987), 29–37.
69. Williams, *Creative Involution*, 95.
70. Quoted in Culbertson, *He Heard America Singing*, 149 (see n. 38); and Arthur Farwell, "The New Gospel of Music—II," *Musical America* 19 (11 Apr. 1914).
71. Farwell, "The Pageant and Community Auto-Suggestion," 14 (see n. 41).
72. Bragdon, "Expression of City's Life," unpag. (see n. 45).
73. Regarding Bragdon's correspondence with Williams, see Bragdon to James Sibley Watson, 19 Oct. 1916, A.B81 Box 1 Folder 16, BFP; and May Bragdon, Manas Press Sales Records 1915–21, manuscript, D.255 Box 1 Folder 6, BFP.
74. See, for instance, "Thousands Sing in Buffalo Festival," *Musical America* 26 (15 Sept. 1917), 6: "When the chorus sang alone the whole vast area of the park was in darkness, save for the subdued lighting of the multi-colored lanterns. When chorus and crowd joined in familiar songs the flood lights were turned on."
75. Bragdon, "Song and Light," 33 (see n. 48).
76. "Ten Thousand Soldiers Help Make Syracuse 'Song and Light' Festival Memorable," *Musical America* 26 (18 Aug. 1917), 3–4. See also "Song and Light" *Festival Souvenir Program* (see n. 48).
77. "Thousands Sing in Buffalo Festival," 6.
78. New York Community Chorus, *City of New York Third Annual Festival of Song and Light* (17–18 Sept. 1918), A.B81 Box 44 Folder 1, BFP.
79. Harry Barnhart, "The Singing Army," in "Song and Light" *Festival Souvenir Program*. See also May Stanley, "Plans Perfected to Give America a Singing Army," *Musical America* 26 (18 Aug. 1917), 1–2; and "43 Musicians Now Teaching in Camps; Notable List of Men Leading Soldiers and Sailors in Song," *Musical America* 27 (9 Feb. 1918), 33.
80. "Song and Light at Park Lake Festival," *New York Times*, 18 Sept. 1918.
81. "Ten Thousand Soldiers Help Make Syracuse 'Song and Light' Festival Memorable," 4.
82. Claude Bragdon, "Camp Sherman," *The Messenger* (May 1918), 785–88.
83. Claude Bragdon, *Architecture and Democracy*, 30, 1 (see n. 8).
84. "50,000 Hear Chorus Sing Farewell to the Twenty-Third," *New York Herald*, 14 Sept. 1917.
85. Bragdon to Katherine Elmina Bragdon and May Bragdon, 24 July 1918, A.B81 Box 7 Folder 14, BFP.
86. Bragdon, *More Lives*, 74 (see n. 10).
87. "Venetian Night Scene on Central Park Lake," *New York Evening Post* (14 Sept. 1917).
88. "Ten Thousand Soldiers," 3.
89. Bragdon, "The Theatre," program of an undated Triangle Club perform-

ance, Princeton University, ca. 1928, A.B81 Box 53 Folder 2, BFP. For an early account of the New Stagecraft by a key advocate and personal friend of Bragdon's, see Sheldon Cheney, *The New Movement in the Theatre* (New York, 1914). Bragdon's theatrical career is reviewed in David A. Siegfried, "Claude Bragdon, Artist-in-the-Theatre" (M.A. thesis, University of Illinois Urbana, 1979).

90. Bragdon, *More Lives*, 75 and 93. See also "'Mr. Zero' Puts New Spirit into Down-and-Outers" (interview with Claude Bragdon), *Rochester Democrat and Chronicle*, 4 Nov. 1921.

91. Bragdon, *More Lives*, 110–13; and Bragdon to Francis Bacon, 5 July 1921, A.B81 Box 1 Folder 20, BFP. See also "Lights in Church Reflect Emotions," *New York Times*, 16 Oct. 1921; and "Lighting St. Mark's," *Edison Monthly* (Nov. 1921). A year earlier, Bragdon had lectured at St. Mark's on ways of cultivating "cosmic consciousness."

92. See David A. Siegfried, "Claude Bragdon's Art of Light," *Theatre Design and Technology* (spring 1985), 12–18, 52.

93. Henry Churchill, "Structural Study Associates," *Shelter* 2 (Mar. 1932), 2nd ed., 5.

94. See Jonathan Massey, "Necessary Beauty: Fuller's Sumptuary Aesthetic," in Roberto Trujillo and Hsiao-Yun Chu, eds., *New Views on R. Buckminster Fuller* (forthcoming 2007).

95. Mumford, *Sketches from Life*, 129 (see n. 51).

Illustration Credits

Figures 1, 7, 21–24, 26, 29, 30, 31, 33. Department of Rare Books and Special Collections, University of Rochester Library

Figures 2, 3, 4. Claude Bragdon, *The Beautiful Necessity* (Rochester, N.Y., 1910): Fig. 2, 61; Fig. 3, 67–70; Fig. 4, 25, 30

Figures 5, 9. Local History Division, Rochester Public Library

Figures 6, 11. "New York Central Railway Station at Rochester, New York; Claude Bragdon, Architect," *Brickbuilder* 22 (Dec. 1913), 264 and pl. 177, respectively.

Figures 8, 12, 13. "New York Central Railroad Station at Rochester, N.Y.; Claude Bragdon, architect," *Architecture and Building* 48 (June 1916), detail sheet 6, frontispiece, and detail sheet 6, respectively.

Figure 10. Mark Bennett, ed., *History of the Louisiana Purchase Exposition* (St. Louis, 1904).

Figure 14. Claude Bragdon, *A Primer of Higher Space*, (Rochester, N.Y., 1913), pls. 1, 4

Figures 15, 17, 18. Claude Bragdon, *Projective Ornament* (Rochester, N.Y., 1915): Fig. 15, 50; Fig. 17, 14; Fig. 18, 36

Figures 16, 25. Claude Bragdon, *The Frozen Fountain* (New York, 1932): Fig. 16, 77, 89, 97, 99; Fig. 25, 119

Figure 19. Arthur Farwell, "'Song and Light' Festival Reveals a New Artform," *Musical America* 24 (12 Aug. 1916), 1

Figure 20. Claude Bragdon, "'Song and Light': A Description of an Outdoor Festival Given at Highland Park, Rochester, N.Y., September 30, 1915," *Architectural Review*, ns., 4 (Sept. 1916), 171.

Figure 27. Claude Bragdon, "Song and light," *House Beautiful* 42 (June 1917), 33

Figure 32. Claude Bragdon, *More Lives Than One* (New York, 1938), pl. between 190 and 191

Figure 34. New York Public Library.