

Contradictions and Complexities

Jane Jacobs's and Robert Venturi's Complexity Theories

When Robert Venturi began writing *Complexity and Contradiction in Architecture* in 1962, Jane Jacobs's *The Death and Life of Great American Cities* (1961) was the subject of dinner-table conversation across the country. Apart from Jacobs's direct influence, among the parallels that emerged from their Townscape affiliations and other interests, the concept of complexity stands out, with Venturi's conception echoing Jacobs's historic introduction of complexity science into architectural and urban theory. While Venturi did not seek to extend the scientific research put forward by Jacobs, favoring instead the complexities suggested by gestalt theory and New Criticism, he cited similar scientific sources and derived similar principles for urbanism, as revealed by his Copley Square project of 1966.

Introduction

While it was many years after *Complexity and Contradiction in Architecture* was published in 1966 that Robert Venturi acknowledged some influence of *The Death and Life of Great American Cities* (1961) on his thinking, Jane Jacobs's influence should not be surprising.¹ On one hand, despite the *sui generis* nature frequently accorded Venturi's text by historians, the book drew on a variety of theoretical sources, named and unnamed. Augmenting his argument for a "nonstraightforward architecture" with references to not only architectural history but also literary criticism, modern art, and scientific concepts, Venturi's theoretical sources were as inclusive and diverse as his historical architectural allusions. On the other hand, Jacobs's text, in particular, did not need to be cited directly at the time. As Venturi began writing his book, it was, according to Lewis Mumford, the subject of dinner-table conversation across the country.² Apart from discussion in the fields of architecture and planning—well represented by "Abattoir for Sacred Cows," a collection of reviews published in *Progressive Architecture* in April 1962—Jacobs's book was also the subject of reviews

in a wide range of journals, popular magazines, and newspapers. Moreover, many of Jacobs's contributions were quickly incorporated into syllabi, teaching, and student dialog, notwithstanding her criticism of the academy, during the same years Venturi was engaged in teaching.³

Whatever her influence may have been, Venturi's book was in many ways a sequel to Jacobs's attempts to work out many of the same problems, chief among them the relationship of architecture to the city in the urban renewal era. Venturi followed Jacobs's attack on "orthodox" (a shared epithet) functionalist thinking and her antipathy for utopian planning. Where Venturi ridiculed the banal simplicity of postwar modernist architecture and urban renewal projects with the memorable adage "less is a bore," Jacobs had similarly derided the "great blight of dullness" in architectural and urban design as a consequence of "Radiant Garden City planning" theory.⁴

In contrast to the relatively closed system of 1950s modernism, meanwhile, both Jacobs and Venturi sought to open architectural discourse to the "diverse" and "intricate" influences of context, experience, and the elements of daily life. Using

similar rhetoric and terminology, their related theories of complexity in architectural and urban order sought to invest architecture and urban design with a "vitality" (another shared objective) reflective of what they variously termed the "interconnected" city and the "urbanistic whole."⁵

To support her argument, Jacobs had offered a biologically influenced understanding of the city as the natural construction of human life and the applicability of the new complexity science that had developed in the fields of the life sciences to urban thinking. By comparison, Venturi's complexity theory extended his early interest in the significance of architectural and urban context central already to his Master in Fine Arts thesis and appealed primarily to sources concerned with the subject of multiple readings, including T.S. Eliot's literary theories, New Criticism, pop art, and gestalt theory. Nevertheless, in alluding to scientific sources related to those cited by Jacobs, Venturi also followed Jacobs in becoming one of the earliest promulgators of complexity theory in architectural and planning circles and, moreover, one of the earliest outside of scientific circles.

It could not be said, however, that Venturi sought to extend Jacobs's historic introduction of complexity science to urban thinking. His interest in scientific sources was fundamentally rhetorical, enough to support the statement that "Everywhere, except in architecture, complexity and contradiction have been acknowledged."⁶ Indeed, where Jacobs drew from complexity theory an understanding of the self-organizing nature of the city, and the resulting conclusion that "A city cannot be a work of art," Venturi came to nearly the opposite conclusion (Figure 1).⁷ Main Street and Route 66 were "almost all right," being almost art, or at least almost pop art. To make them "all right," the guiding hand of the artist-architect would bestow on these cityscapes the "slight twist of context"

that would incorporate them aesthetically into the perceived urbanistic complex.⁸ This, however, was unfortunately an urban design theory that Venturi came to regret, following the predictions of earlier theorists.

Nevertheless, as critic and *Architectural Forum* editor Peter Blake observed long ago in his review of *Complexity and Contradiction*, the book was a bricolage of architectural history, theory, design, and individual projects that could be evaluated independently.⁹ Among those parts that Blake held out for praise was Venturi's Copley Square project, which convincingly extended and concluded the argument of the main text, and which, in retrospect, remains compelling. Had it been built, it would remain functional and undated, fulfilling its contradictorily

playful and didactic goals. A project that sought to achieve many of the aspirations Jane Jacobs outlined for design in the urban context, it would continue the discussion of city complexity that Jacobs began in 1961 and Venturi continued in 1966.

The Townscape Years

Jane Jacobs's and Robert Venturi's shared ideas about the city, and the complexity theories that they developed from them, can be traced back to related lines of inquiry through the 1950s.

In 1950, Venturi defended an MFA thesis project at Princeton that used gestalt perception research to support the consideration of the contextual impact of

1. "Typical Main Street, USA." An image of the city around the time Jane Jacobs began writing *The Death and Life of Great American Cities* in 1958. This photograph of "Typical Main Street" (Canal Street, New Orleans), juxtaposed with a perspectival view of the University of Virginia campus, was the first pair of images in Peter Blake's *God's Own Junkyard, the Planned Deterioration of America's Landscape* (1964) and the last pair in Robert Venturi's *Complexity and Contradiction in Architecture* (1966). Main Street was the antagonist of Blake's book and the protagonist of Venturi's. (Source: Peter Blake, *God's Own Junkyard: The Planned Deterioration of America's Landscape* [New York: Holt, Rinehart and Winston, 1964]. Credit: Wallace Litwin.)



2. Jane Jacobs, 1961. Jacobs poses in a winter hat following the publication of *The Death and Life of Great American Cities* in October 1961. Her son stands on stilts in front of a condemned building near their home on Hudson Street. (Credit: *Horizon Magazine*.)



3. East Harlem Housing Project, ca. 1956. In the mid-1950s, Jane Jacobs became involved in the cause of the residents of East Harlem, where dozens of blocks and over 1,200 buildings were destroyed for the new housing projects. Jacobs's research there led to one of her first bylined articles, "The Missing Link in City Redevelopment," *Architectural Forum* 104 (June 1956), illustrated by this image. The article led in turn to *The Death and Life of Great American Cities*. Jacobs chose not to illustrate the book, however. Instead on a page title "Illustrations" she wrote, "The scenes that illustrate this book are all about us. For illustrations, please look closely at real cities." (Source: Peter Blake, *God's Own Junkyard: The Planned Deterioration of America's Landscape* [New York: Holt, Rinehart and Winston, 1964]. Credit: Kerry A. Mayer.)



a design project on the surrounding built environment. He offered that "existing conditions around the site that should become a part of any design problem should be respected." Also already apparent in his thinking was a consciousness of architectural and urban history that would directly inspire later theory and design work. Through "the designer's control of the relation of the old and the new," Venturi continued, the designer "can perceptually enhance the existing by means of the new."¹⁰

Concluding her work for the Office of War Information around the same time, Jacobs picked up

where her prewar freelance writing on cities had left off and began ten years of work for *Architectural Forum* in 1952. While her assigned specialty was initially hospital design, the growing federal urban renewal program returned her to writing on cities and her own consideration of the relationships of part to whole, and new to old, in urban redevelopment.

A few years later, Venturi and Jacobs crossed paths, so to speak, in *The Architectural Review's* Townscape column and related movement. Robert Venturi's first published work was a contribution to the *Review's* "Townscape" column in 1953, while

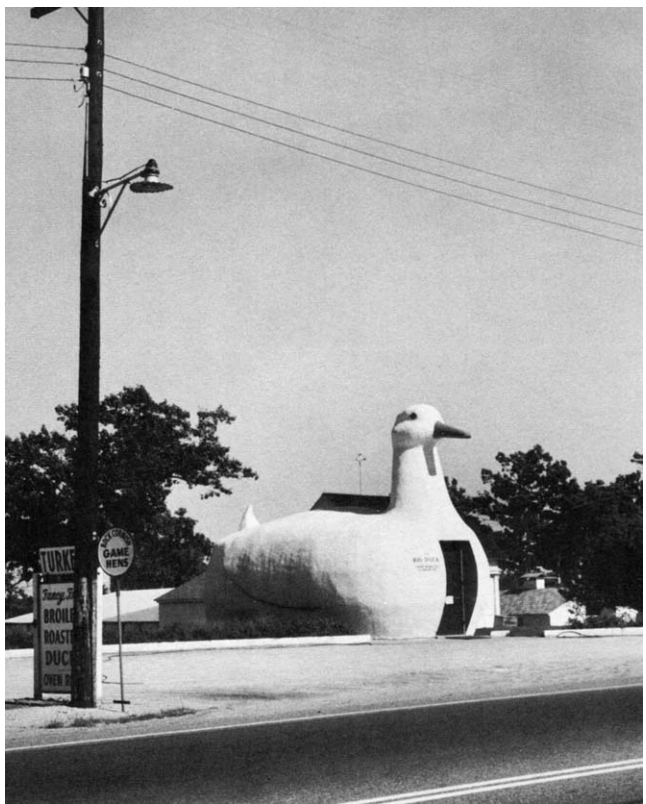
column editors Ian Nairn and Gordon Cullen collaborated with Jacobs on "Downtown is for People," her widely applauded contribution to *The Exploding Metropolis: A Study of the Assault on Urbanism and How Our Cities Can Resist It* (1958), an essay that was an early iteration of part of *The Death and Life of Great American Cities*.

Originally formulated by *Review* editors Hugh de Cronin Hastings (aka Ivor de Wolfe) and J.M. Richards, "Townscape" was the name given to what Hastings described as the "English" or "radical" visual and urban philosophy, which he counterpoised to the rational and organic streams of functionalism. Drawing on Uvedale Price's *Essays on the Picturesque, as Compared with the Sublime and the Beautiful* (1794), the English empirical tradition, and "the differentiated, the phenomenal world as opposed to the noumenal world of the German romantic," Hastings proposed a project that would be later echoed in various ways by both Jacobs and Venturi.¹¹

Extending these traditional influences, however, Hastings's architectural and urban theory incorporated modern political objectives, which Jacobs in particular found especially compelling. Jacobs's political activism, which had developed from a more general interest in political science to city redevelopment issues and spanned from the mid-1950s to the 1970s, aligned with Hastings's conception of radical politics.¹² Influenced, like Venturi, by gestalt ideas, Hastings described the radical visual and urban theory as "[an] effort to achieve a new kind of organization through the cultivation of significant differences" and "the urge of the parts to be themselves to make a new kind of whole . . . This is radical theory. It involves, as in politics, a radical idea of the meaning of parts."¹³

Jacobs's connections with Townscape, noted by the British architectural press following the publishing of her book, continued through the early 1960s. Had he been better known at the time, Robert Venturi would similarly have been drawn by critics more closely into the Townscape axis. (Instead, this

4. The Long Island Duck. Jane Jacobs regarded such “Ducks” as a denial of architectural complexity and functionalism. Contradicting Peter Blake’s argument in *God’s Own Junkyard*, Robert Venturi promoted such “honky-tonk” elements in *Complexity and Contradiction* and made the Duck Building famous in *Learning from Las Vegas* (1972). (Credit and source: Peter Blake, *God’s Own Junkyard: The Planned Deterioration of America’s Landscape* [New York: Holt, Rinehart and Winston, 1964].)



happened a decade or so later, when Colin Rowe drew Jacobs and Venturi—along with Kevin Lynch, advocacy planning, the do-it-yourself phenomena, and Disney World—into a distorted picture of the Townscape movement in the 1972 essay published as *Collage City* in 1978.¹⁴) Generally unnoticed then, however, Venturi’s early Townscape contribution, “The Campidoglio: A Case Study,” had synthesized some of Hastings’s radical concepts and their mutual contextual and gestalt interests.¹⁵ In this critique of urban renewal around the Campidoglio, Venturi

offered that the site had been harmed through the violation of a primary contextual principle—the architect’s “responsibility toward the landscape, which he can subtly enhance or impair, for we see in perceptual wholes and the introduction of any new building will change the character of all the other elements in a scene.” While leaving the Campidoglio itself untouched, by razing adjacent “congested areas” for a section of highway, an act Venturi considered “of doubtful social advantage,” the “modern planners,” he concluded, could hardly have

damaged it more than “a wrecking crew”.¹⁶ Venturi’s sentiments and rhetoric in this short essay were here so evidently similar to Jacobs’s as to not require comparison. Notable, however, is that around the time of Venturi’s early urban renewal critique, Jacobs was taking up the cause of the thousands of people being disposed in East Harlem as some twelve hundred buildings and scores of city blocks were razed for new housing projects. The ignorance of the intricacy and complexity of the city’s social and physical relationships evident in East Harlem led directly to Jacobs writing *Death and Life* a few years later (Figures 2 and 3).¹⁷

When Hastings’s Townscape theory resurfaced as a significant force in *Complexity and Contradiction* in 1966, the Townscape movement had largely passed and its political argument overwhelmed by the aesthetic. The multilayered “superrealism” and “practical surrealism” that Hastings proposed as tools for comprehending the inherent complexity and contradiction in the cityscape evolved into Venturi’s use of pop art and popular architectural taste.¹⁸ While Hastings, by comparison, had extended limited acceptance of those elements of the spontaneous built environment that were generally abhorred by earlier architects, he had maintained a distinction between architectural and urban design. “Are we then going to accept Spec Builders’ Venetian?,” he asked. “As *architects*, no; as *town planners*, yes.” The realist Townscape principle, he offered, was to try to love these spontaneous elements of the living city “instead of trying to hate and rid yourself of them in one way or another.”¹⁹ By contrast, Venturi argued that “honky-tonk” should be incorporated into the architectural vocabulary and the urban environment changed through the architectural manipulation of popular elements. As he wrote,

Architects and planners who peevishly denounce the conventional townscape for its vulgarity or banality promote elaborate methods for abolishing or disguising honky-tonk elements in the existing landscape, or, for

5. The Seagram Building, 1958. In the mid-1960s, Robert Venturi regarded the Seagram as a “bore” for avoiding diagonals, while Peter Eisenman questioned the building’s “strange angles.” Jane Jacobs, by contrast, described the Seagram as a “masterpiece of modern design.” (© Esto/Ezra Stoller Associates.)



excluding them from the vocabulary of their new townscapes. But they largely fail either to enhance or to provide a substitute for the existing scene because they attempt the impossible... Cannot the architect and planner, by slight adjustments to the conventional elements of the townscape, existing or proposed, promote significant effects?²⁰

In this regard, the golden television antenna sculpture on top of Venturi’s Guild House (1960–1963), for example, might have changed perceptions about the existing urban order with its skyline of antennas. But while Guild House had some relationship with the surrounding city, the building remained fundamentally an object similar to other housing blocks and offered little to extend Venturi’s gestalt thesis. As compared to the Three Buildings for a Town

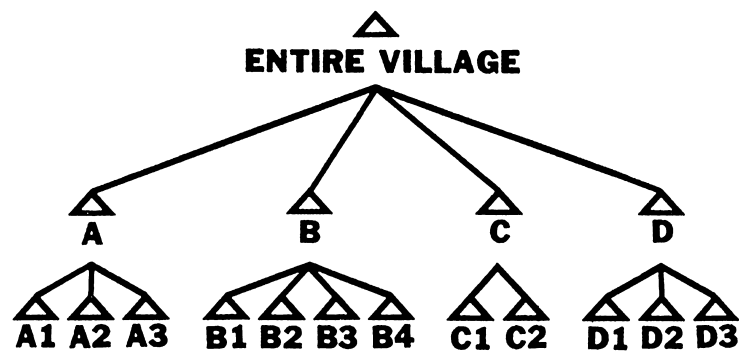
in Ohio (1965) or the Copley Square project of 1966, here interior complexities were the primary focus, and it was accordingly unclear how the building would “enhance . . . the character of all the other elements” in the surrounding urban scene. At a time when urban infill, for example, was already proposed as a design strategy, this building’s interventions achieved less than those suggested by his argument against modern planning in his Townscape column or following work.

Complexity and the Urban Order

To the detriment of the development of architectural and urban theory along other lines, Venturi’s “pop architecture” concept had been criticized some years before *Complexity and Contradiction* was written. *Architectural Forum* editor Douglas Haskell criticized it in the early guise of “Googie architecture” in 1952 and later predicted the arrival of “popular architecture” in 1958.²¹ Soon thereafter, Haskell’s colleague Jane Jacobs echoed his sentiments in *Death and Life*, specifically disapproving of the “Ducks,” which Venturi later found so intriguing, for their lack of urban complexity (Figure 4).²² “Hot-dog stands in the shape of hot dogs, ice-cream stands in the shape of ice-cream cones,” she argued, were “obvious examples of virtual sameness trying, by dint of exhibitionism, to appear unique and different from their similar commercial neighbors.” Such “seemingly chaotic juxtapositions of honky-tonk elements,” which Robert Venturi offered as expressing “an intriguing kind of vitality and validity,” Jacobs saw rather as “visions of garish, sprawling, unremitting commerce” that did not actually represent “flourishing city diversity.”²³ Ducks, in other words, denied their function and hid their individual sameness and that of their collective city environment under superficialities.²⁴

In the spirit of Haskell’s and Jacobs’s critiques, in 1964, the original “Duck” building accordingly came to symbolize the degradation of the American city and landscape in Peter Blake’s book *God’s Own Junkyard: The Planned Deterioration of America’s*

7. The City is (Not) a Tree. Christopher Alexander's tree diagram of a village from *Notes on the Synthesis of Form* (Cambridge, MA: MIT Press, 1964). While acknowledging Jane Jacobs's contributions, Alexander pointed out the flaws in his tree diagram in "A City is Not a Tree," *Architectural Forum* (April and May 1965). (Source: Christopher Alexander, *Notes on the Synthesis of Form* [Cambridge, MA: Harvard University Press, 1964].)



only abstractly “urban” at best), nor from his hyperbolic rhetoric, but because of an overwhelming focus on visual elements. Contradicting his expressed interests in hidden structures and the underlying orders of architecture and the city in *Complexity and Contradiction* and later work, Venturi’s disinterest in confronting the invisibly designing hand of capitalism and social neglect resulted, moreover, on an emphasis primarily on visual complexity. “In the validly complex building or cityscape,” he offered, “the eye does not want to be too easily or too quickly satisfied in its search for unity within a whole.” The proposed strategy of contending with profound problems through “twists of context,” to make “us see the same things in a different way,” may have stemmed, moreover, from an aversion to the Enlightenment-Modernist control suggested by the planned order of the campus exemplar and an equal distaste for the attacks and not-so-gentle manifestos of Jacobs and Blake.²⁷ In the following year, however, in his 1967 review of Venturi’s book, Blake offered that the resulting theoretical contradictions were only compounded by a lack of originality, with critical precedents as early as Duchamp and as recent as Jacobs’s *Death and Life of Great American Cities*.²⁸ A decade later, in the preface to the 1977 edition of *Complexity and*

Contradiction, Venturi not only expressed regret over the misapplication, exaggeration, and parody of his ideas, but, for his own part, also questioned whether an artist should “go all the way with his or her philosophies.”²⁹

In and of itself, Venturi’s research into the visual order of the city followed similar studies of the time, including inquiries by both Jacobs and Blake, as well as Kevin Lynch’s gestalt-inspired *Image of the City* (1960). In their own ways, they, too, recognized the primacy of perception in shaping city redevelopment or allowing the laissez-faire sprawl of the exurbs. Blake’s purpose in *God’s Own Junkyard*, for example, stemmed from his belief that “it is not too late for us to learn to see again.”³⁰

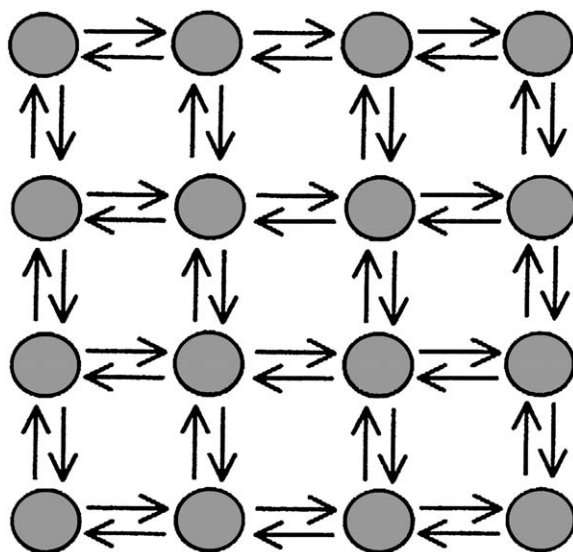
Jacobs, by comparison, delved further. For Jacobs, the visual order of cities was a direct reflection of the complexity of underlying processes. “The look of things and the way they work are inextricably bound together,” she argued, “and in no place more so than cities It is futile to plan a city’s appearance, or speculate on how to endow it with a pleasing appearance of order, without knowing what sort of innate, functioning order it has.” Eyes that saw only chaos in the city would see it differently when its functional order was understood. As Jacobs wrote in this regard,

To see complex systems of functional order as order, and not as chaos, takes understanding. The leaves dropping from the trees in autumn, the interior of an airplane engine, the entrails of a dissected rabbit, the city desk of a newspaper, all appear to be chaos if they are seen without comprehension. Once they are understood as systems of order, they actually *look* different.³¹

For Jacobs, moreover, the study of visual order was directly related to the overarching postwar critique of functionalism. Reactions to Athens Charter functionalism, reflected in Jacobs’s arguments for multifunctioning city neighborhoods and multiple-use buildings, were echoed in Venturi’s argument for the “double-functioning element,” the “multifunctioning room,” and “the multifunctioning building,” as well as in Aldo Rossi’s 1966 “Critique of Naïve Functionalism” in *L’architettura della città*.³² Even in this context of widespread criticism of architectural functionalism, however, Jacobs could not abandon its basic tenets, being directed by a biological or natural functionalism similar to that of functionalism’s early theorists. As indicated by her early grant proposal, her research for *The Death and Life of Great American Cities*, in fact, had begun in 1958 as a study of “the relation of function to design in large cities.”³³

Jacobs’s neofunctionalism, as her complexity theory might be described, had surprisingly liberating affects. Contradicting the stereotypical antimodern iconoclasm that she became associated with, Jacobs could still praise a building like the Seagram, for example, as a “masterpiece of modern design,” while for Venturi, it was a “bore” because it excluded “functions other than offices” and such architectural elements as the diagonal (Figure 5).³⁴ His traditional critique that the building’s form did not follow its function—specifically that its various functional components were camouflaged under an uninflected skin—was at the expense of a discussion of the contextual impact of the building that was of interest to him elsewhere. Jacobs, however, contradictorily

8. Complexity. This diagram of a neural network, whose form happens to resemble a city grid, represents an interdependent web where each processor receives signals from the network and alters the data according to its own rules. As compared to Alexander's tree diagram, a highly interrelated, nonhierarchical network. (With permission and thanks to the author: Sally J. Goerner, "Complexity!," in *After the Clockwork Universe: The Emerging Science and Culture of Integral Society* [Edinburgh: Floris Books, 1999].)



accepted the building as part of street context and the larger city. Her interest in architectural and spatial diversity denied neither the building's modernity nor its controversial setback from Park Avenue, which even Peter Eisenman would critique at this time on formal grounds, stating that "If we allow buildings to be put at strange angles to draw attention to themselves, even if the building—in quotes—had some natural beauty, aren't we then destroying . . . the natural value, the organic order, of Park Avenue?"³⁵ For Jacobs, the Seagram Building's setback itself generated multiple functions, namely, public space, while it was the proliferation of office buildings in the larger context of Park Avenue that subtracted multiple functions, particularly residential ones, from Midtown Manhattan.

While corroborated in the late 1950s by her discovery of a scientific complexity theory, Jacobs's atypical analyses of city dynamics revealed in the Seagram example was preceded by her urban studies

of two decades earlier. Jacobs's essays written in 1937 on the functional districts of Manhattan already revealed her characteristic empirical, intuitive, and intersubjective approach to intricate urban functions and interconnected city lives.³⁶ By 1955, moreover, a few years before her discovery of complexity science, she already associated the self-organizing dynamics of cities with those of natural systems. Describing the city then, she remarked that

as a sheer manifestation of energy it is awesome. It says as much about the power and doggedness of life as the leaves of the forest say in spring. Hundreds of thousands of people with hundreds of thousands of plans and purposes built the city and only they will rebuild the city.³⁷

Such early conceptions were thus galvanized in Jacobs's mind in 1958 when she discovered an essay on complexity science by Warren Weaver, retiring

Rockefeller Foundation Director for the Natural Sciences, in the same publication that announced her grant to write a book on function and design in cities.³⁸ In Weaver's essay, Jacobs found corroboration of her analysis of the dynamic life of cities, which would be reflected in the very title of her book. Rejecting the fatalist conception of cities popularized by Lewis Mumford (who believed cities were fated to become necropolises), she offered that through the embodied energy and experience of their hundreds of thousands of self-organizing designers, new life would emerge out of the nonlinear dynamics of great cities.

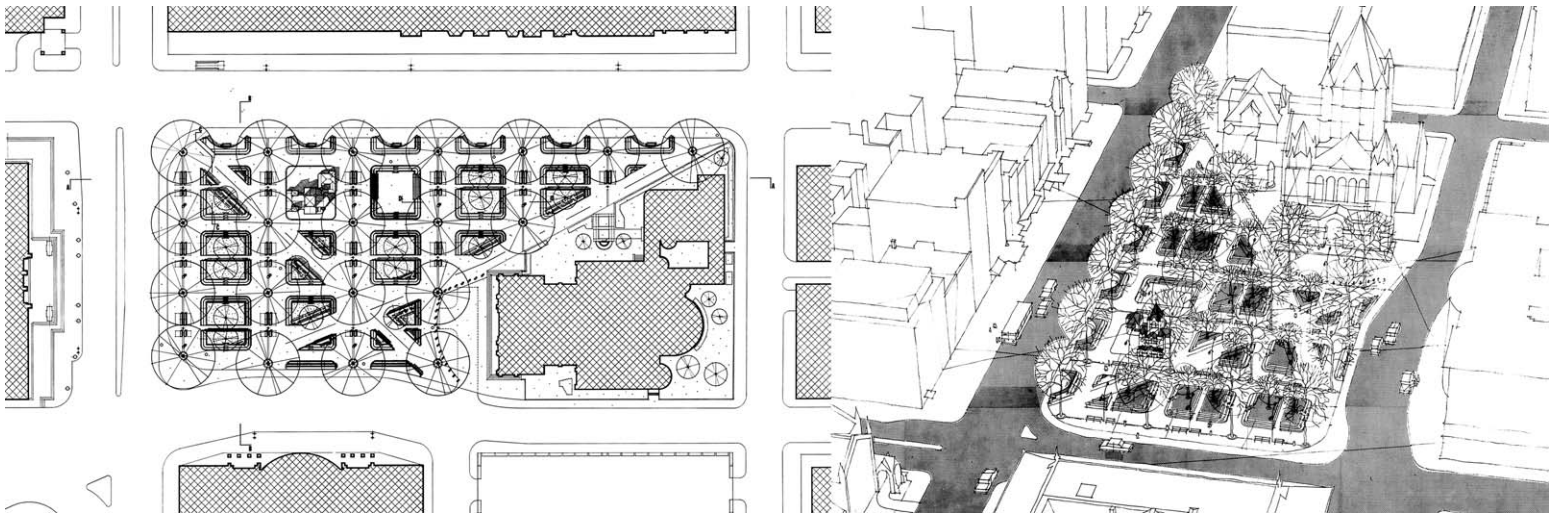
New Criticism and Complexity Science

Balancing the vitriol that characterized the introduction to her book, in concluding *The Death and Life of Great American Cities* Jacobs sought to provide an objective, indeed scientific, explanation of prior urban design theories. This explanation effectively allowed that, in spite of the inadequacies of their theories, Ebenezer Howard and Le Corbusier had more or less followed the intellectual and scientific developments of their times. Howard, she offered, had approached "the problem of town planning much as if he were a nineteenth-century physical scientist analyzing a two-variable problem of simplicity," where population and jobs formed a "relatively closed system" (Figure 6). Early twentieth-century planners and urban designers of Le Corbusier's generation, meanwhile, "began to assimilate the newer ideas on probability theory developed by physical science," and

to imitate and apply these analyses precisely as if cities were problems in disorganized complexity, understandable purely by statistical analysis, predictable by the application of probability mathematics, manageable by conversion into groups of averages . . .³⁹

Le Corbusier himself, Jacobs observed, had "assumed the statistical reordering of a system of

9. Copley Square, 1966. Venturi and Rauch, Clark and Jones, and Copley Square Competition (1966). Dismissing the typical lawn or open plaza, this mimetic design reflected the gridiron pattern of the part of Boston surrounding Copley Square and included a cast concrete miniature of Trinity Church on the appropriate “block.” While emphasizing the significance of “play,” the project sought to disclose the comprehensibility and order of a part of the “complex urban whole.” (With permission and thanks: © VSBA.)



disorganized complexity, solvable mathematically,” and “his towers in the park were a celebration, in art, of the potency of statistics and the triumph of the mathematical average” (Figure 6).⁴⁰

This understanding of scientific influences on earlier approaches to the city, as well as references to “problems of simplicity” versus “problems of disorganized complexity,” was indebted to Weaver’s “Science and Complexity” (1958). A précis of the essay provided the foundation for these conclusions, which, like a twentieth-century Francis Bacon, she hoped would open the way for architects and planners to learn from what Weaver described as “the third great advance” in the history of science. As Weaver—who went on to direct the National Science Foundation and the American Association for the Advancement of Science—also described in the 1947 version of his essay, “Science must, over the next fifty years, learn to deal with problems of organized complexity.”⁴¹ Jacobs argued the same for architecture and urban design, matter-of-factly stating in the

conclusion to *Death and Life* that “Cities happen to be problems in organized complexity, like the life sciences.”⁴²

Complexity science developed through the 1960s primarily along the lines of Norbert Wiener’s *Cybernetics or Control and Communication in the Animal and the Machine* (1948) and information theory pioneer Claude Shannon and Weaver’s own *Mathematical Theory of Communication* (1949). The mathematical emphasis of such studies of complexity, as well as the need for computers to solve multivariable problems (also predicted by Weaver already in 1947), largely excluded urban planners and designers from contributions at this time.⁴³

An exception was the mathematician-architect Christopher Alexander, who acknowledged Jane Jacobs’s idea of complexity in his 1965 essay “A City is Not a Tree (Part 2).” With this essay, Alexander abandoned the hierarchal tree-like understanding of the city that was the foundation for his thesis in *Notes on the Synthesis of Form* (1964) (Figure 7). In

contrast to the tree diagram, Alexander adopted the more accurate and complex “semilattice” fractal-like conception that he came to recognize as “the structure of living things.”⁴⁴ Paraphrasing Jacobs, he similarly used this understanding to critique modernist planning theory. The functionalist separations of traffic, of play spaces from adult life, and of civic institutions from the city, as well as social segregation and zoning in general, he argued, resulted from “the city as a tree” concept.

Citing Alexander’s “Notes” in *Complexity and Contradiction*, Venturi thus referenced a dated and problematic source to support his complexity argument.⁴⁵ This was equally the case for Herbert Simon’s essay “The Architecture of Complexity” (1962), which was also based on the hierarchal model that in some ways contradicted the nonlinear concepts of complexity theory. Indeed, in spite of the title of Simon’s essay and the allusions to gestalt theory that prompted Venturi’s citation, Simon’s essay was not concerned with the complexity of cities or of

architecture in any direct sense. Simon was interested in the complex systems encountered in the behavioral sciences, and complexity theory accordingly helped him explain a theory of “behaviorism” in hierarchal corporate decision making, leading to his Nobel Prize for Economics in 1978.⁴⁶ However, while Simon observed that parts in complex hierarchal systems “interact in a nonsimple way” to create a “whole [that] is more than the sum of the parts,” his hierarchic tree structures, like those of Alexander’s contemporaneous study, were at odds with the idea that a city is not a tree.⁴⁷ Nevertheless, because of Simon’s acknowledged indebtedness to Warren Weaver’s complexity science in his essay, he tied Venturi and Jacobs to a common theoretical source.

Another of Venturi’s mathematical or scientific references, meanwhile, his reference to Kurt Gödel’s theorem—“No consistent system can be used to prove its own consistency”—exposed another contradiction, a flaw in hierarchal model and in closed system of early modernism that complexity concepts were intended to challenge.

While this reference was fundamentally rhetorical for Venturi, again supporting the claim that “Everywhere, except in architecture, complexity and contradiction have been acknowledged,” Gödel’s theorem was appropriate in pointing to what contemporaneous philosophers of science saw as the flaw in scientific theories and similarly what Jacobs saw as a primary flaw in modernist planning theory. In Thomas Kuhn’s 1962 theory of scientific revolutions, for example, anomalies led to the awareness of the inadequacy of paradigms and eventually scientific revolutions.⁴⁸ In Jacobs’s urban theory, similarly, the “statistically inconsequential” urban elements that she described as “unaverage clues” had a nonhierarchic significance within their larger systems or ecologies.⁴⁹ In other words, while Simon emphasized the hierarchal structure of, for example, DNA (for which Crick and Watson received the Nobel Prize in 1962, the same year as Simon’s essay), Jacobs was already effectively pointing to the significance of the presence or absence of a single gene.⁵⁰ Her

“unaverage clues” were of the same order as the random mutations that shaped nothing less than evolution. In the city, she offered, the presence or exclusion of “unaverage” elements could similarly shape urban life and development.

For Jacobs, the urban “unaverage” might be people—those city residents “who are financially, vocationally, racially, or culturally unaverage”—or physical and visual elements. Modern planners, she argued, “have inevitably come to regard ‘unaverage’ quantities as relatively inconsequential, because these are *statistically* inconsequential. They have been trained to discount what is most vital.”⁵¹ Here Venturi and Jacobs ultimately agreed. As he similarly argued, modern “establishment” architects, with their “prim dreams of pure order,” disdained the everyday landscape from which might be drawn “the complex and contradictory order that is valid and vital for our architecture as an urbanistic whole.”⁵²

Scientific allusions aside, Venturi built his arguments for a complex and contradictory order primarily through frequent references to T.S. Eliot and the New Critics. Eliot’s tools of literary criticism, critical methods that Venturi described as “valid for architecture too,” would open architecture to present-day experience and the historical experiences embodied in tradition. Quoting Eliot, “no artist of any kind,” Venturi wrote, “has his complete meaning alone.” This idea inspired Venturi to argue against the revolutionary impulses that had initially inspired modernism’s closed system. Architecture, he concluded, “is evolutionary as well as revolutionary.”⁵³

While New Criticism had, by this time, already been criticized for relying too heavily on irony and paradox, the applicability of Eliot’s criticism and ideas to architectural thinking was so profound as to have inspired a similar manifesto some years before Robert Venturi’s.⁵⁴ This precedent (overlooked by Blake) was the 1954 essay “Play on Possum,” in which Neville Ward, literary editor of *The Architectural Review*, rewrote part of Eliot’s *Use of Poetry and the Use of Criticism* (1933) by substituting architectural for poetic terms. In this remarkable

juxtaposition, Ward could well have been foretelling the architecture and theory that was on the horizon. Venturi, moreover, could well have been the anticipated prodigal architect, who, with a mind to tradition, evolution, and contextual juxtapositions, would appear “to review the past of our architecture, and set the architects and the buildings in a new order.” As Ward, paraphrasing Eliot wrote,

From time to time it is desirable that some critic shall appear to review the past of our architecture, and set the architects and the buildings in a new order. This task is not one of revolution but of readjustment. What we observe is partly the same scene, but in a different and more distant perspective; there are new and strange objects in the foreground, to be drawn accurately in proportion to the more familiar ones which now approach the horizon, where all but the most eminent become invisible to the naked eye.⁵⁵

Compounding this prophecy, the Eliot-Ward manifesto, following Eliot’s cautions of handling popular poetry, went on to warn of the dangers in using history or honky-tonk to make popular architecture. “The novelty of a work of imagination which is only popular,” Ward repeated, “and has nothing really new in it, soon wears off: for a later generation will prefer the original to the copy, when both belong to the past.” The architect’s dilemma in this case, like the poet’s, was “either to design for too large a public or to design for too small a public.”⁵⁶

Despite the perils involved in incorporating popular allusions into architectural vocabulary however, for Ward, as for Venturi, the pursuit of “the difficult unity of inclusion” was worth the risk.⁵⁷ Although he later expressed regret for having opened a Pandora’s box of popular and historical allusions, Venturi perhaps embarked on this task with Ward’s conclusion in mind that “Eliot seems to reassure the architect who strives for the really new: ‘the artist can always console himself for his errors in his old age by

considering that if he had not fought nothing would have been accomplished’.”⁵⁸

Indeed, the historical significance of Venturi’s and Jacobs’s books attest to the importance of the fight for incorporating greater social and formal complexity into architectural and urban design, regardless of the source of theoretical corroboration. Both recognized this undeniable necessity at a time when the relationship of design to urban segregation and exclusivity was itself complex, contradictory, and complicit. Both Jacobs’s and Venturi’s complexity arguments reflected a need for inclusiveness and diversity that, directly or indirectly, opposed the segregation of functions and people in the modern city.

Revealing Design

While Venturi’s architecture has been described elsewhere as superficially complex in comparison with the apotheosis of complexity represented by Frank Gehry’s, a consideration of design according to a nonarchitect and that of a “nonbuilding” conclude this paper.⁵⁹

For Jacobs, as we have seen, complexity science offered a way to understand not just the intricacy and interconnectedness of all the city’s plans and purposes, but, as suggested by the word’s etymology, the interwoven nature of life itself (Figure 8). For her, accordingly, design was a process of revelation, ideally an act of “illuminating and clarifying life and helping to explain to us its meanings and order.” Urban design, similarly, should help “to illuminate, clarify and explain the order of cities.” Rather than conceive of the city as a work of art, an act tending to repress “all plans but the planners’,” the designer could seek instead to ennoble and enable the spontaneous order that emerged from the hundreds of thousands of plans that shaped the city daily.⁶⁰

Venturi’s Copley Square Competition project of 1966, which concluded *Complexity and Contradiction*, is evidence of the similar ambition to reveal the city’s order (Figure 9). Although later described as a non-

building in Robert Stern’s *New Directions in American Architecture* (1969), the design for Copley Square disclosed relationships between buildings, citizens, and city in a way less readily achieved in a single-building design.⁶¹ In a mimetic and consciously playful way, Venturi and his collaborators recreated a part of Boston’s city fabric, transforming the surface of the public space into a mirror of itself and the surrounding city. Asphalt walkways represented streets and the concrete edges of the elevated “blocks,” gutters, curbs, and sidewalks. With a literal contextual twist, a cast miniature of Trinity Church set on its own “block” situated the plaza’s inhabitants with respect to the larger public space, city, and each other. For Venturi, the project was “a means for explaining to a person the whole which he is in but cannot see all of . . . by making the whole comprehensible in this way, within a part, is to contribute a sense of unity to a complex urban whole.”⁶²

Deriving urban design principles similar to Jacobs’s, Venturi used the project to contest the stereotypical notions of grassed parks and open space in cities, as well as prescriptions concerning harmony among buildings. With the typical modernist cluster of self-similar civic buildings in mind, he offered that Trinity Church and the Boston Public Library “don’t have to be ‘related’ in easy and obvious ways. And they shouldn’t be because their relationships cannot be just immediate to the interior setting of the square, but to greater wholes outside themselves and their immediate setting.”⁶³

This allowance for the architectural diversity that Venturi shared with Jacobs was further underscored by a sense of the multiplicity of urban perception. In this project, Venturi’s emphasis on “a variety of focuses” and opportunities to “focus on different things and relationships in different ways” transformed his typically ironic contextual twist into a reflection on how the city is a different place to different people. This, to Jacobs, was “a good definition of cities,” and this, in the end, was the foundation of their shared complexity theories.⁶⁴

Notes

1. In “Las Vegas After Its Classic Age,” *Domus* (November 1996), 9–12, Venturi and Scott Brown wrote that “Though it’s difficult for architects to believe,” their work was inspired by the social planning movement of the 1960s, including Jane Jacobs and Herbert Gans.
2. Lewis Mumford, “Mother Jacobs’s Home Remedies,” *New Yorker* (December 1, 1962), 149.
3. Jacobs’s book was published in October 1961. It was cited in syllabi for Harvard Graduate School of Design Courses as early as Fumihiko Maki’s spring 1962 housing studio. In spring 1963, the midterm for Jaqueline Tyrwhitt’s Visual Evaluation of the Urban Environment seminar was based on Jacobs’s book (Special Collections, Loeb Library, Graduate School of Design). Jacobs herself was involved in academic affairs as early as the Graduate School of Design’s First Urban Design Conference in 1956. A few years later, she became acquainted with Robert Venturi’s Penn School of Fine Arts colleagues from her participation in that school’s 1958 Conference on Urban Design Criticism.
4. Robert Venturi, *Complexity and Contradiction in Architecture* (New York: Museum of Modern Art, 1966), p.17; Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961). Jacobs referred to the “Great Blight of Dullness” often enough to include it in her Index, p. 452. Page numbers reference the in-print editions of both books.
5. “Vitality” was a familiar word in both texts. Jacobs, for example, wrote of promoting “Social and Economic Vitality in Cities,” *Death and Life*, p. 4; Venturi wrote, for example, of “Messy Vitality,” *Complexity and Contradiction*, p. 16. Compare Jacobs on “Intricately Interconnected” cities, p. 439; Venturi on “The Urbanistic Whole,” p. 104.
6. Venturi, *Complexity and Contradiction*, p. 16.
7. Jacobs, *Death and Life*, p. 372. Emphasis in the original.
8. Venturi, *Complexity and Contradiction*, p. 104.
9. Peter Blake, “Complexity and Contradiction in Architecture,” *Architectural Forum* 126 (June 1967), 57.
10. Robert Venturi, “Context in Architectural Composition: M.F.A. Thesis,” in *Iconography and Electronics upon a Generic Architecture* (Cambridge, MA: MIT Press, 1996), p. 335.
11. Hugh de Cronin Hastings (aka Ivor de Wolfe), “Townscape: A Plea for an English Visual Philosophy Founded on the True Rock of Sir Uvedale Price,” *The Architectural Review* 106 (December 1949), 362.
12. Jacobs’s early interest in political science is reflected in her first book, *Constitutional Chaff, Rejected Suggestions of the Constitutional Convention of 1787 with Explanatory Argument* (New York: Columbia University Press, 1941), and equally by her extended responses to Un-American Activities inquiries in 1952 (Jacobs Collection, John J. Burns Library, Boston College).
13. Hastings, “Townscape,” 362.
14. Colin Rowe and Fred Koetter, *Collage City* (Cambridge, MA: MIT Press, 1978), p. 36–37.
15. Robert Venturi, “Townscape: The Campidoglio: A Case Study,” *The Architectural Review* 113 (May 1953), 333–334. Part of the timely appeal of Hastings’s 1949 gestalt-influenced manifesto was that it coincided with Venturi’s “Eureka-like” discovery of “the idea of perceptual context in

gestalt psychology” in the same year. Compare Venturi, “M.F.A. Thesis,” *Iconography and Electronics*, p. 333.

16. Venturi, “Townscape: The Campidoglio,” 333.

17. One of Jacobs’s early bylined articles, “The Missing Link in City Redevelopment,” *Architectural Forum* 104 (June 1956), pp. 132–33, focused on East Harlem urban renewal. The article was an early study for *Death and Life*.

18. Hastings’s use of a “practical surrealism” to mollify urban functionalism notably anticipated Jean Baudrillard’s related understanding of surrealism as antithetical to functionalism.

19. Hastings, “Townscape,” 361.

20. Venturi, *Complexity and Contradiction*, p. 44.

21. Douglas Haskell, “Googie Architecture,” *House and Home* 1 (February 1952), 86–88; Haskell, “Architecture and Popular Taste,” *Architectural Forum* 109 (August 1958), 104–9. A few years later, Reyner Banham similarly predicted the arrival of pop architecture to the very year of 1966, writing, “it is anticipated that the cordon-sanitaire between Pop Art and architecture is about to be breached like a metropolitan green belt, and a Pop architecture emerge about 1966. This ‘Necessity’ will not stand up . . .” Compare Reyner Banham, “The Spec Builders: Towards a Pop Architecture,” *The Architectural Review* 132 (July 1962), 43.

22. The Long Island Duck building appeared in *Learning from Las Vegas* (Cambridge, MA: MIT Press, 1972), pp. 13, 17, but it can be fairly considered an example of “honky-tonk.”

23. Venturi, *Complexity and Contradiction*, p. 104; Jacobs, *Death and Life*, pp. 223–24. Venturi’s comments here seem contradicted by his statement that “In roadtown we have a false complexity” (figure 88, p. 54). However, in *Learning from Las Vegas*, he and his coauthors captioned a similar scene with the statement that “The order in this landscape is not obvious” (figure 34, p. 36).

24. Compare Jacobs, *Death and Life*, p. 224. Jacobs, in other words, anticipated by many decades Mark C. Taylor’s argument against superficial complexity in *The Moment of Complexity* (Chicago, IL: University of Chicago Press, 2001), p. 34. As compared to Steven Johnson’s *Emergence* (New York: Scribner, 2001) or the latest edition of Jencks’s *The Language of Post-Modern Architecture* (published in 2002 as *The New Paradigm in Architecture*), Taylor does not include an account of Jacobs’s contribution.

25. Venturi, *Complexity and Contradiction*, p. 104.

26. Peter Blake, *God’s Own Junkyard: The Planned Deterioration of America’s Landscape* (New York: Holt, Rinehart and Winston, 1964), p. 33. On the positive side, Blake proposed improving the urban environment through “more stringent zoning laws, by taking the profit out of land speculation, by using tax policy to encourage good building and to discourage bad building, by ridding the country of the bureaucrats who have strait-jacketed most government-subsidized architecture, and by getting rid of their moribund agencies.” (142)

27. Venturi, *Complexity and Contradiction*, pp. 104, 44.

28. Blake, *Complexity and Contradiction*, p. 57.

29. Venturi, *Complexity and Contradiction*, p. 15.

30. Blake, *God’s Own Junkyard*, p. 7.

31. Jacobs, *Death and Life*, pp. 14, 376. Emphasis in the original.

32. For Jacobs’s arguments for multifunctioning buildings, cf., “The Missing Link,” 132; *Death and Life*, p. 193. She argued that the modest storefront was often home to churches, political clubs, and other community institutions. Compare also Venturi, *Complexity and Contradiction*, p. 34, and Aldo Rossi, *The Architecture of the City* (Cambridge, MA: MIT Press, 1982), p. 46.

33. *The Rockefeller Foundation Annual Report, 1958* (New York: Rockefeller Foundation, 1958), p. 291.

34. Jacobs, *Death and Life*, p. 227; Venturi, *Complexity and Contradiction*, pp. 34, 50, 54.

35. Peter Eisenman as quoted in *Who Designs America? The American Civilization Conference at Princeton, 1964*, Laurence B. Holland, ed. (New York: Anchor Doubleday, 1966), p. 335.

36. See Jane Jacobs, “Flowers Come to Town,” *Vogue* (February 15, 1937), pp. 113–14. Jacobs’s essays about Manhattan’s diamond, leather, and fur districts were also purchased by *Vogue*.

37. Jane Jacobs, “Philadelphia’s Redevelopment: A Progress Report,” *Architectural Forum* 103 (July 1955), 118. This article was not bylined and is formerly unattributed.

38. Compare Warren Weaver, “Science and Complexity,” *Annual Report of the Rockefeller Foundation, 1958* (New York: Rockefeller Foundation, 1958), pp. 7–15.

39. Jacobs, *Death and Life*, pp. 435–436.

40. *Ibid.*, p. 435.

41. Compare Warren Weaver, “Science and Complexity,” *The Scientists Speak* (New York: Boni & Gaer, 1947), pp. 1–13.

42. Jacobs, *Death and Life*, p. 433.

43. A notable resurfacing of nonlinear dynamics research and inquiry is Manuel De Landa’s *A Thousand Years of Nonlinear History* (New York: Swerve, 1997), relevant here for De Landa’s acknowledgment of Jane Jacobs, as well as systems theory scientist Arthur Iberall, in developing his thesis. Not mentioned by De Landa is the fact that Iberall himself was greatly influenced by *The Death and Life of Great American Cities*. Jacobs and Iberall maintained a correspondence from the time Iberall wrote his *Toward a General Science of Variable Systems* (New York: McGraw Hill, 1972) through the early 1990s.

44. Christopher Alexander (1965), “A City is Not a Tree (Part 2),” *Architectural Forum* 122 (May 1965), 58.

45. Compare Venturi, *Complexity and Contradiction*, pp. 16, 132 n. 13.

46. Herbert A. Simon, “The Architecture of Complexity,” *Proceedings of the American Philosophical Society* 106 (December 1962), 467.

47. *Ibid.*, 468, 481.

48. Compare Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago, IL: University of Chicago Press, 1962), chap. 6. The parallels between Jacobs’s and Kuhn’s thinking are alluded to in her recent

citations of his work in *Dark Age Ahead* (New York: Random House, 2004), pp. 69–70, 195.

49. Jacobs, *Death and Life*, p. 440. Jacobs revisited systems theory in earnest in *Cities and the Wealth of Nations* (New York: Random House, 1984) and anomalies and complexity science in *Systems of Survival* (New York: Random House, 1992) and in *The Nature of Economies* (New York: Random House, 2000).

50. Compare Simon, “The Architecture of Complexity,” 480. Jacobs did not use the example of DNA in *Death and Life*, but rather “Quantitatively Minute Vitamins in Protoplasmic Systems” to illustrate the significance of nonhierarchal elements (cf. *Death and Life*, p. 443). Jacobs was, however, familiar with the discovery of DNA’s structure from the photograph of Crick and Watson’s early DNA model that served as the frontispiece to Warren Weaver’s 1958 “Science and Complexity” essay in the *1958 Rockefeller Foundation Annual Report*.

51. Jacobs, *Death and Life*, p. 443.

52. Venturi, *Complexity and Contradiction*, p. 104.

53. *Ibid.*, pp. 13, 42.

54. Such a critique of New Criticism came from R.S. Crane in “The Critical Monism of Cleanth Brooks,” in R.S. Crane, ed., *Critics and Criticism: Ancient and Modern* (Chicago, IL: University of Chicago Press, 1952), pp. 83–107.

55. Neville Ward, “Play on Possum,” *The Architectural Review* 116 (October 1954), 215.

56. *Ibid.*, 217.

57. Venturi, *Complexity and Contradiction*, p. 16.

58. Ward, “Play on Possum,” p. 218.

59. Compare Taylor, *The Moment of Complexity*, p. 40. It is notable that Diane Ghirardo similarly observed in Frank Gehry’s architecture the expression of Jacobs’s ideas. Compare Ghirardo, *Architecture After Modernism* (New York: Thames and Hudson, 1996), p. 14.

60. Jacobs, *Death and Life*, pp. 375, 25.

61. Robert Stern, *New Directions in American Architecture* (New York: George Braziller, 1969), p. 53. The Copley Square project was not included in Stern’s *40 Under 40* exhibition.

62. Venturi, *Complexity and Contradiction*, p. 130. Venturi, Rauch, and Scott Brown’s Welcome Park in Philadelphia, built in 1982, is a later version of the Copley Square project. The surface of this park similarly recreates the city plan, in this case in marble, and includes grass-covered “blocks” in the location of Philadelphia’s four original squares. A monument with a statue of William Penn is located in the “square” occupied by City Hall, which is crowned by a similar statue. Named after Penn’s ship, the *Welcome*, this public space, located in a spatially deficient corner of Second and Samson Streets, is unknown even to many Philadelphians because of its unfortunate location.

63. *Ibid.*

64. Jacobs, *Death and Life*, p. 143.