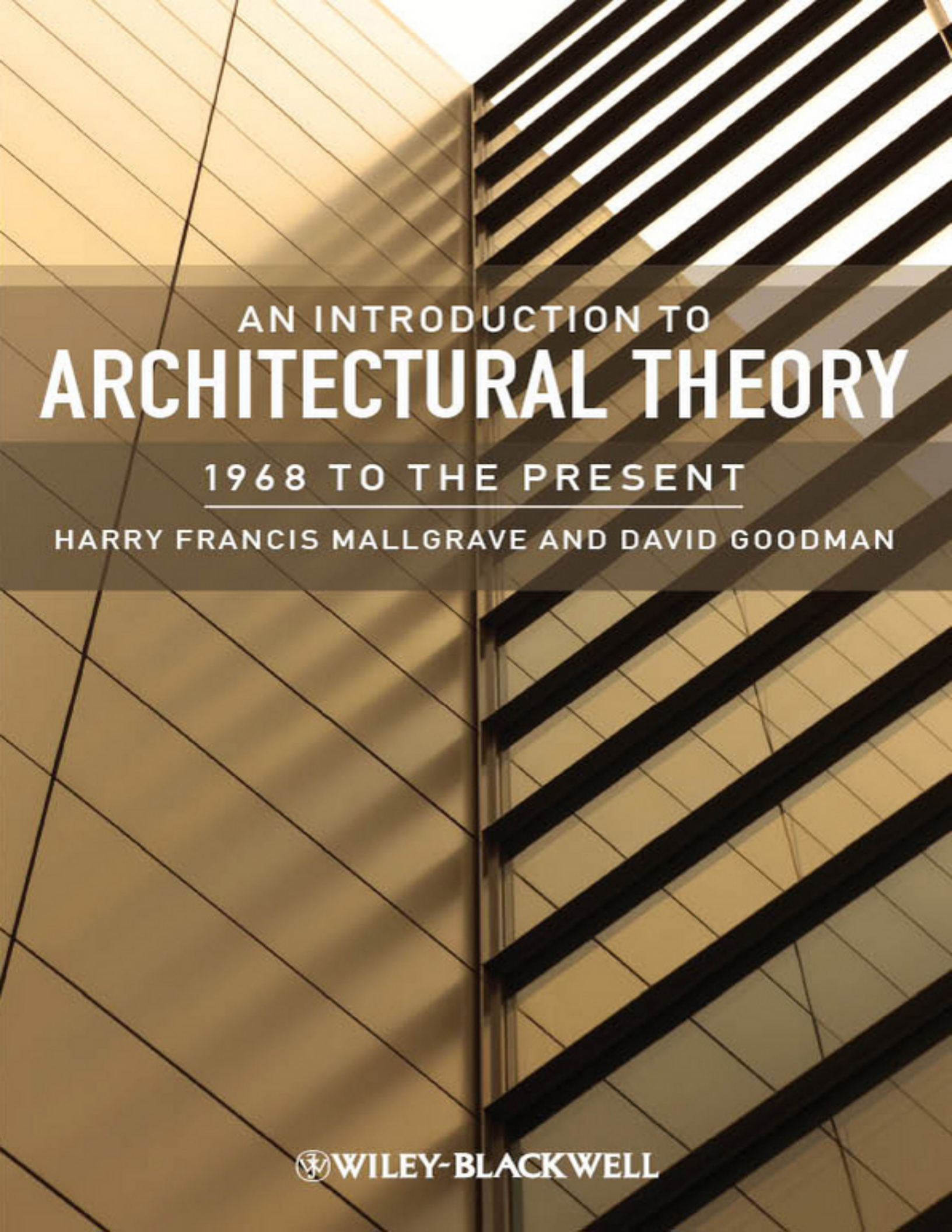

AN INTRODUCTION TO ARCHITECTURAL THEORY

1968 TO THE PRESENT

HARRY FRANCIS MALLGRAVE AND DAVID GOODMAN

WILEY-BLACKWELL

Contents

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Prelude

The 1960s

From the close of World War II until sometime in the middle of the 1960s two grand ideals ruled the architectural profession. One was a political faith in the vision of modernity – the meliorist belief that by affecting social change and imposing a universal environmental order architects could improve the human lot and repair a globe wrought by physical and moral devastation. The second was the belief that the most efficient way to achieve this amelioration was through technology and its application. Stating these ideals in less prosaic terms, one might say that the technological vision of a unified modernity had for two decades enchanted the mistress of architecture. Little did she suspect how swiftly his lure of excitement would pale.

In retrospect, we can of course find several signs of the impending separation along the way. As far back as 1947, Lewis Mumford raised the possibility of a regional modernism, only to be rudely censored by the self-anointed potentates of the Museum of Modern Art.[1] In the same year, Aldo van Eyck, at a Congrès International d'Architecture Moderne (CIAM) in Bridgewater, challenged the overly rationalist underpinnings of modern design, yet he found few backers.[2] In 1953, at another CIAM conference in Aix-en-Provence, teams of architects based in Algeria and Morocco presented housing schemes far removed from approved CIAM models, while another team from London dared to challenge a few of the urban premises of the Athens Charter.[3] And in 1959, Ernesto Rogers, the

influential editor of the journal *Casabella-continuità*, loaded a double-barreled salvo against the status quo. In one chamber was the shell of an "Italian Retreat" from modernism, based on the recent fascination of a few architects with the "Neoliberty" forms at the start of the twentieth century. In the second chamber was the lethal pellet of historicism – that is, the desire to have a more tolerant modernism that would, on occasions, courteously entertain historical references. Oddly, the firing pin that had propelled the cartridge was Rogers's own design (his firm BBPR's) for the Torre Velasca (1950–1958), a modern concrete tower in downtown Milan whose cantilevered upper stories had for some critics evoked the "atmosphere" of Italian medieval towns. This time the response from official quarters was swift, as Rogers, at the CIAM'59 conference in Otterlo, was pounced upon by several critics who objected to his historical allusionism. And a few weeks earlier a glaring Reyner Banham had countered *Casabella*'s "Neoliberty" infatuation with an admonishing if not upbraiding metaphor:

Figure P.1 BBPR, Torre Velasca, Milan (1950–1958). Image courtesy of Davide Secci.

> To want to put on those old clothes is to be, in Marinetti's words describing Ruskin, like a man who has attained full physical maturity, yet wants to sleep in his cot again, to be suckled again by his decrepit nurse, in order to regain the nonchalance of his childhood. Even by the purely local standards of Milan and Turin, then, Neoliberty is infantile regression.[4]

Technology and Ecology

By the close of the 1950s, Banham had, in fact, become a battalion commander within the technology forces, which in the next decade would enjoy their greatest triumphs. A man of literary brilliance, prolificacy, and acumen, he had spent the last half of the 1950s writing a dissertation on Italian Futurism under the tutelage of the eminent German refugee and historian Nikolaus Pevsner. He did so while participating

in the animated discussions of London's New Brutalist movement and hobnobbing in particular with the iconoclastic wing of the Independent Group. The latter was an arts forum within London's Institute of Contemporary Arts, and its participants included Richard Hamilton, Lawrence Alloway, and John McHale. They were united in their hippish enthusiasms for American jazz, pop culture, Hollywood films, science fiction, and Detroit automobiles: testifying to the rising anima of a beat generation on the verge of reaching out for something bigger.

Banham's published version of his dissertation, *Theory and Design in the First Machine Age* (1960), was a milestone in architectural theory – less for its scholarship and more for its introductory and concluding chapters on "Functionalism and Technology." Banham's principal point was that the "First Machine Age," which had been inspired by such things as automobiles and ocean liners, had now been superseded (but not reversed) by a much more transfixing "Second Machine Age." Defining this descending era were the newfangled gizmos of televisions, radios, electric shavers, hair dryers, tape recorders, mixers, grinders, washing machines, refrigerators, vacuum cleaners, and polishers – those items that were empowering the "housewife" of today with more horsepower than an industrial worker commanded at the start of the century. If the automobile in the 1920s was simply a status symbol for cultural elites, the television ("the symbolic machine of the Second Machine Age") made democratic that crucial communicational objective of "dispensing mass entertainment."[5] All the new Machine Age lacked was a proper theory.

Through a series of lectures and writings over the next few years, Banham set out to repair this deficiency, and for him what was needed, from an increasingly radicalized perspective, was a more thoroughgoing embrace of technology and its conceptualization. Such a strategy was

nevertheless fraught with dangers, at least for the increasingly complacent architectural profession:

> The architect who proposes to run with technology knows now that he will be in fast company, and that, in order to keep up, he may have to emulate the Futurists and discard his whole cultural load, including the professional garments by which he is recognized as an architect. If, on the other hand, he decides not to do this, he may find that a technological culture has decided to go on without him.[6]

Banham's decision two years later, on the pages of London's leading architectural journal, *Architectural Review*, to put architecture "On Trial" for its vacillation must also be considered within the context of the contemporary faith in megastructural solutions for any and all urban problems.[7] Britain was already building several monolithic cities, but the younger generation had more grandiose aspirations. In the late 1950s the Hungarian-Israeli architect Yona Friedman, in founding the Groupe d'Etudes d'Architecture (GEAM), had broached the idea of "spatial city" by proposing a global effort to build 1000 new cities of three million inhabitants each. Friedman was working with a circle of artists and thinkers – among them Eckhard Schulze-Fielitz, Paul Maymont, Constant (Nieuwenhuys), and Frei Otto – and he proffered his "mobile architecture" as a response to the "perpetual transformation" of a restless society. Residents would now have the freedom to plug their "dwelling cells" anywhere into a multistory space-frame lifted above the abandoned landscape. Even food production would be cultivated in elevated urban greenhouses.[8]

In the same years, the Japanese Metabolists were producing their own technological extravaganzas in response to the population issues of urban crowding.[9]

London, meanwhile, was being entertained by the comic-book fantasies of Archigram, another group of futurists smitten with the technological bug. Perhaps the decisive year for their efforts was 1964, when Peter Cook's "Plug-In City" and Ron Herron's "Walking City" made their spectacular debuts.[10]

The intellectual guru behind this grandiose euphoria was R. Buckminster Fuller, or "Bucky" was he was generally known to his worldwide admirers. Since the late 1940s Fuller had been stalking the lecture halls of architectural schools across all continents with his moral gospel of nonlinear thinking and "ephemeralization," by which a building should be judged not by the usual aesthetic beliefs but rather by its weight or degree of ecological integrity. If the American Institute of Architects had been willing to overlook the eccentricities of his "Dymaxion" house (the century's first definitive essay on sustainable thinking) as far back as 1928, by the early 1960s Fuller could no longer be ignored. His mailbox was packed with offers for visiting professorships and speaking engagements, and laurels were only just beginning to descend. Such publicity, of course, would culminate with the geodesic dome he built for Expo '67 in Montreal, but those who focus on this aspect of his thought overlook his more important contributions to theory.

As early as 1955 Fuller had been in contact with London's Independent Group and the artist John McHale, to whom (in a letter) he had criticized the "International Style" modernists for their superficial concern with the aesthetics of the bathroom rather than with the technology of the plumbing behind the walls. Banham was so moved by the criticism that he published a portion of the letter in the concluding chapter of *Theory and Design in the First Machine Age*.[11] McHale was also duly impressed, so much so that in 1962 he gave up his artistic practice to move to the United States and collaborate with Fuller. In that year he

published the first architectural monograph on Fuller's work, and in the following year he worked with his mentor in compiling the first volume of the *Inventory of World Resources: Human Trends and Needs*.[12] By the end of the decade McHale himself would be recognized as a leading futurist.

Fuller, however, was already branching out in other directions. In 1963 he consulted with the Advanced Structures Research Team at NASA, which was planning the first manned flights to the moon. In his usual way, Fuller turned the problem on its head by referring the issue of an interspatial ecosystem back to Earth, where "space technology's autonomous living package and the automobile industry's engagement in livingry devices clearly indicate that the coming decade will see the mass production of autonomous living mechanics for use on earth."[13] In simpler terms, the Earth, too, was a spaceship, and the lessons of this research must be redirected to the world's housing problems because the "old building arts" (read "architecture") had essentially failed to keep up with advancing technologies and were, in any case, accommodating the housing needs of only a small portion of the world's population.

Such a theme was also echoed in 1963 in the "Delos Declaration," a pledge signed by Fuller and 33 other intellectuals on the sacred island of Delos – the mythical and legally uninhabitable birthplace of Apollo – after an eight-day cruise of the Greek islands. The cruise, patterned on the trip from Marseilles to Athens that had produced the Athens Charter, had been the brainchild of the architect and urban planner Constantinos Doxiadis, who gathered experts in various fields in an attempt to come up with a science (ekistics) to solve the problem of random global growth.[14]

Thus the idea of “world planning” becomes the keynote theme of Fuller’s efforts in the second half of the 1960s, just as the notion that we command an interspatial planet with limited resources began to capture the public’s attention.[15] Kenneth Boulding made this point cogently in a short paper that he prepared for the Committee on Space Sciences in 1965. Entitled “Earth as a Space Ship,” he lambasted the fledgling ecological movement (“Ecology as a science has hardly moved beyond the level of bird-watching”) for failing to see the implications of unrestrained population growth and pollution on the ecosystem.[16] What the world needed was to shift from fossil fuels to energies harnessed from the oceans and the sun, as well as to study the Earth’s system of checks and balances. As he concluded: “We do not understand, for instance, the machinery of ice ages, the real nature of geological stability or disturbance, the incidence of volcanism and earthquakes, and we understand fantastically little about that enormously complex heat engine known as the atmosphere.”[17]

Fuller responded in 1965 by launching the World Design Science Decade, a project that he originally intended to become the centerpiece of Expo ’67. Better known as “World Game,” the object was to hook up computers (another technological innovation) with college students from around the world in order to catalogue global resources and devise the most efficient ways of employing them. The project, originally centered at Southern Illinois University, came into fruition in the summer of 1969, and shortly thereafter hundreds of students were participating on campuses internationally, many in makeshift geodesic domes. In the same year, Ian McHarg published his classic work, *Design with Nature*. Fuller also contributed a bevy of books directed to environmental themes: *Utopia or Oblivion* (1969), *Operating Manual for Spaceship Earth* (1969), *I Seem to be a Verb* (1970), *Approaching the Benign*

Environment (1970), *Intuition* (1972), and *Earth, Inc*. (1973). This torrent of writings culminated in the second half of the 1970s with the appearance of his two volumes on *Synergetics*, which brought into full view the prodigious scope of his accomplishments as a geometer. Architectural students in the 1960s had a particular fondness for Fuller's Daedalian ideas, especially because Bucky was, in turn, lauding the architect as the last of the comprehensive thinkers, indeed as humanity's last great hope.

Social Underpinnings of Modernism

If we turn to the sociological component of this technological fervor, we find a recurring caveat to this reformative vision – modernism's general lack of popularity with the public. None of this was particularly new, however. The stark forms of early modernists were not especially well received in Germany during the 1920s, and even less so in Britain in the following decade, when they arrived in the portfolios of German architects seeking asylum. The English critic J. M. Richards recognized this fact in 1940 when he opened his book *An Introduction to Modern Architecture* by acknowledging the public's dislike of the new style. He believed, however, that the public would come around when they became aware of modernism's aesthetic and constructional underpinnings.[18] Nevertheless, the problem persisted, so much so that in 1947 Richards once again brought the matter to the attention of CIAM, which, after some polite discussion, tabled the issue.

The situation was similar in North America, even though the corporate world in particular was quick to embrace the economic advantages of the new steel-and-glass technologies – tall buildings with curtain walls. In the United

States opposition to the largely European face of international modernism actually had two roots. One was the alternative modernism that had been evolving in North America since the 1890s, first with the schools of Louis Sullivan and Frank Lloyd Wright and second with the various regional interpretations of modernism in the South and along the West Coast. Another source of discontent can be found in the "modern" urban design strategies of the postwar years. Few today remember that many of the urban renewal beliefs that are generally attributed to Lyndon Johnson's "Great Society" programs of the 1960s were first implemented during the Kennedy and Eisenhower administrations. And it was the bulldozing of the urban fabrics of so many American cities during these years – together with the social barriers of freeways often imposed by political machines – that contributed to the rapid urban decline of the 1960s. The high-rise "projects" that architects so glibly accepted would, within a decade, become the failed urban ghettos displaying all of the attendant problems of racial segregation, poverty, welfare, and crime.

In fact it was only in the 1960s that architects and critics began to recognize the serious limitations of such strategies or question the rationale of their existence. Jane Jacobs' *The Death and Life of Great American Cities* (1961), with its devastating attack on the "Radiant Garden City Beautiful," led the way and ushered in what might be called an appellate review of urban theory. She was, in fact, preceded in this regard on occasions by Lewis Mumford, but also by Kevin Lynch's *The Image of the City* (1960), which – through his cognitive analysis of a city's "Imageability" – challenged modernism's visual leveling of the urban environment. Herbert Gans, in the *Urban Villagers* (1962), vividly described the vibrant social life of one of Boston's Italian-immigrant communities – on the eve of its eradication by "urban renewal" efforts. Martin Anderson's *The Federal*

Bulldozer (1964), with its sobering statistical analysis, coolly took apart the social and economic fallacies of such policies. And by the mid-1960s, social scientists such as Edward T. Hall, Robert Sommer, and Oscar Newman were exposing the social and physical failings of declining urban centers from anthropological, psychological, and architectural perspectives. Few of these studies, however, had any effect on the political decisions-makers in Washington, or elsewhere for that matter.

An interesting early study in this regard was the small book *Community and Privacy* (1963), coauthored by Serge Chermayeff and Christopher Alexander. The Russian-born Chermayeff had arrived at Harvard University by way of Britain and Chicago's Institute of Design, and his principal focus was on the sociology of housing. The book's stated intention was to lay the foundation for "the development of a Science of Environmental Design," an architectural discipline that would draw upon and integrate analytical research from other sciences.[19] It is also one of the first ecological studies of the postwar years, as the authors place much emphasis on countering the urban flight to the suburbs and addressing the stress of modern life. Yet it suffered from one fatal flaw – the blank-slate belief that human "taste" was generally malleable, and that all it would take to alter human behavior was a little governmental persuasion.

Nevertheless, part two of the book became the springboard for the evolving work of Christopher Alexander. The Austrian had immigrated to England with his family during the war years and eventually studied mathematics and architecture at Cambridge University. In the late 1950s he began doctoral studies at Harvard, and in *Community and Privacy* he supplemented the work of Chermayeff by setting out 33 design variables for prototypical urban housing, which he organized (with the aid of IBM's 704

computers) into sequences of groupings. This parametric design strategy, made necessary he felt by the “insoluble levels of complexity today,” was also the basis for his doctoral dissertation, “The Synthesis of Form; Some Notes on a Theory,” which he completed 1962.[20] It appeared in print two years later under the title *Notes on the Synthesis of Form*.

This book, with its analytic and synthetic model for designers, represents another face of the 1960s: the desire to find a sophisticated design methodology to accommodate the many social variables that should be taken into account. His approach was to locate possible design parameters, synthesize them into subsets and tree diagrams, and work through all potential “misfits,” or unsatisfactory interactions between form and content. He also distinguished between “self-conscious” and “unselfconscious” design, by which he challenged what Western architects believed to be good design (for Alexander the perfect correspondence between form and content) with examples from indigenous or third-world cultures. Here, he argued, existing building traditions and local materials tended to filter out cultural biases. The book and the dissertation conclude with an appendix containing 141 design parameters for the design of an “Indian Village.”

Alexander’s inductive model, as he himself later noted, had one problem, which was that the programmatic phase of his design process was largely subjective. But there was also another issue. At the Team 10 meeting in 1962 Alexander had presented his work on the Indian village and engaged in a heated discussion with Aldo van Eyck, who likewise was interested in an architecture grounded in humanist ideals.[21] The incident led Alexander to reflect on his own tree-like diagrams, and in an essay of 1965, “A City is Not a Tree,” he amended his earlier mode of diagramming in favor of a semi-lattice structure, whereby branches can

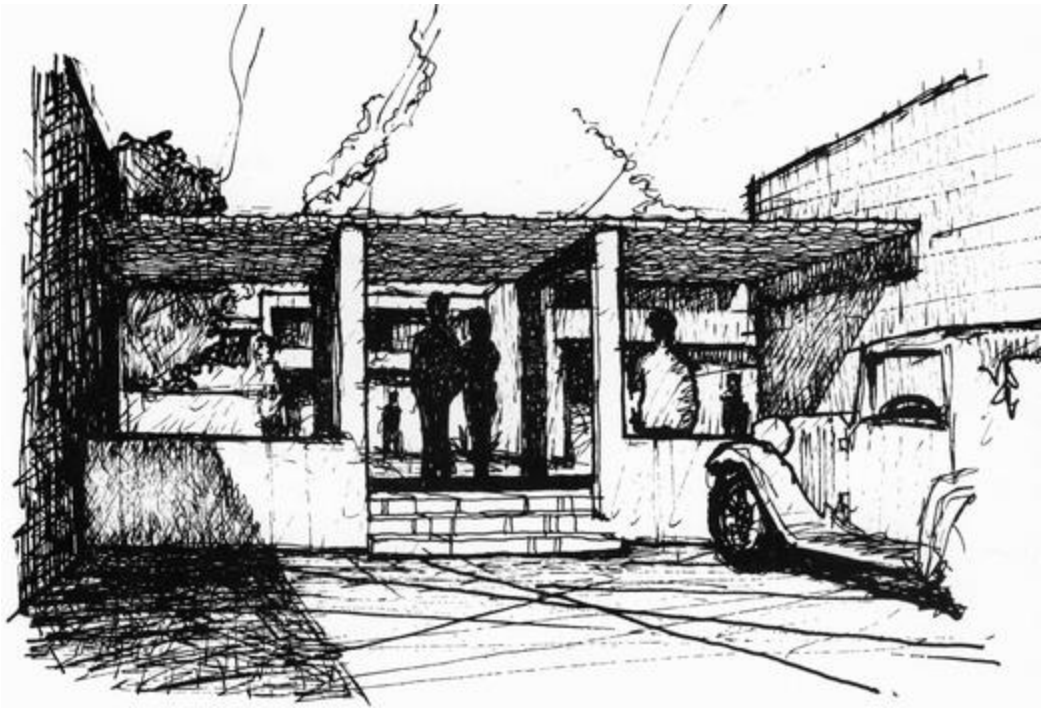
overlay with one another in multiple ways.[22] Examples of tree-like thinking, for Alexander, were many of the new cities that had been started or built in recent years – Columbia and Greenbelt in Maryland, British new towns, Chandigarh, and Brasília. All had failed, he argued, because of their functional separation of parts and hierarchical structures. His contrary (anti-modern) example of a semi-lattice or "natural" city was Cambridge, England, where the individual colleges, instead of forming a defined campus separate from the town's activities, are interspersed within the surrounding coffee houses, pubs, shops, and student lodgings. Such richness or ambiguity, he suggests, is the nature of human life.

Alexander's paper represented an interesting turning-point in his theoretical development. His work, up until this time, had largely fallen under the positivistic rubric of design methodology, but with his founding of the Center for Environmental Structure at Berkeley in 1967, he shifted his efforts to creating "patterns" for architectural design. Gone were the mathematical symbols and lattice diagrams, which were replaced with the more flexible notion of a descriptive "pattern" – an "if/then" solution to a particular problem predicated on a context and backed up by research. These patterns could be applied to the individual buildings, to small parts of buildings, or to cities as a whole.

The system made its debut in 1968 with *A Pattern Language Which Generates Multi-Service Centers*, but perhaps a more influential spur to his development was his involvement with a United Nations housing project for Lima, Peru, for which the architect, Peter Land, was serving as Project Manager. Land was a graduate of London's Architectural Association and later joined the faculty at Yale University. In 1966 he convinced the Peruvian government and the United Nations to sponsor, among other projects, a major international competition for a demonstration housing

project, *Proyecto Experimental de Vivienda* (PREVI), that would seek prototypical solutions for third-world housing. In opposition to the “superblock” schemes so evident in the 1960s, Land’s plan of 1970 called for a high-density, compact development of low-rise housing that separated pedestrians from automobiles and featured an internal pedestrian spine around which were gathered community facilities, gardens, and individual neighborhoods totaling 450 units. Clustered housing arrangements included interior patios, through-ventilation, and expandable systems featuring inexpensive, earthquake-resistant construction. Twenty-four architectural firms contributed to the project – 12 Peruvian teams and 12 international firms, including the office of Alexander.[23]

Figure P.2 Image depicting a “Cell Gateway,” from Christopher Alexander, Sanford Hirshen, Sara Ishikawa, Christie Coffin, and Shlomo Angel, *Houses Generated by Patterns* (1969). Image courtesy of the Center for Environmental Structure.



Alexander and his associates responded not just with plans but with another book of 67 patterns, *Houses Generated by Patterns* (1969), largely devised from field research conducted in Peru. The patterns, which Alexander hoped "may begin to define a new indigenous architecture for Peru," incorporated such features as clustering, inwardly focused housing "cells," parking (tiny lots), and the emphasis on pedestrian routes. His patterns were particularly interesting in their sensitivity to Peruvian cultural habits, such as the need for an evening dance hall, walk-through schools, strict intimacy gradients, and transitional entrances within the layout of individual houses. They were less successful in a constructional sense, as well as in their overall intention to reestablish "vernacular" traditions. They nevertheless became the basis for his highly influential studies of the following decade, which we will consider later.

1968

All of this activity, however well intentioned, was interrupted by the cataclysmic events of the late 1960s. In the United States the assassination of John F. Kennedy in 1963 had caused the first crack in America's Cold War facade, and within a year his successor, Lyndon B. Johnson, would make the calamitous decision to escalate the Vietnam conflict and supply the necessary infantrymen through a much expanded military draft. At the same time, the Civil Rights Movement, led by Martin Luther King Jr, was taking shape in the American South. Political protest was at first peaceful, but after a few legislative victories in local and national voter registration, the violence in Selma and the rioting in Watts would, by 1965, shatter the calm. And with each summer encounter, the conflagrations in the Black ghettos across the country grew more violent and widespread.

These riots took place alongside the ubiquitous antiwar marches, which increasingly galvanized a broad coalition of disenchanted youths. This ideological spectrum of these "baby-boom" protesters ranged from Marxists to pacifists, feminists, academics, celebrities, and of course the hippies. Overnight an entire generation, urged on by the anti-establishment lyrics of a newly electrified music, united in a counter-cultural rebellion that was immortalized by Marshall McLuhan and Quentin Fiore's phrase, "You can't *go* home again."[24]

European students were no less volatile, but the malaise seems to have been driven more by internal factors. The young in Europe, in general, were also far more serious in their politics, with their nearly unanimous socialist fervor being differentiated only by varying strategies of militancy. By the mid-1960s the perennially unstable governments of Italy, for instance, had descended into a condition of sustained anarchy and guerrilla warfare as the system came under attack from a revolutionary coalition composed of students and trade unions in the north to discontented peasants in the south. This fact, too, had its architectural implications, because Marxist theory – spanning the cultural divide between the anti-industrialism of William Morris to the technocratic anxiety of Herbert Marcuse – was generally suspicious of, if not openly hostile to, technological progress.

Also playing into the European chaos were the street theatrics of the 1960s. One of the more vocal of these groups was the Dada-inspired Situationist International, a leftist coalition formed in 1957. After various permutations, the tactics of Guy Debord came to define the group in the late 1960s, the principles of which he had outlined in his book *The Society of the Spectacle* (1967). It was in many ways an updating of Max Horkheimer and Theodor W. Adorno's earlier thesis regarding the "culture industry," in