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The Architectural Imperative: A Dual History of Sustainability and Informal Housing within Architectural Discourse

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The Architectural Imperative: A Dual History of Sustainability and Informal Housing within Architectural Discourse

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This study is an initial attempt to assemble a dual history of the topics of informal settlements and sustainability within architectural discourse over the past fifty years. During the 1960s and 1970s, architecture adopted a renewed sense of social immediacy, which increased the study into informal and slum settlements, as well as a burgeoning concern of its own ecological impact, which encouraged investigation into sustainable design. While these interests all but disappeared amidst the artistic and political climate of the 1980s, they have again become relevant to architectural discourse, albeit as separate entities. The aim of this study is to unite these two discussions within architecture so that they may together become more potent.

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The architectural profession is entering a critical stage. We must establish our legitimacy or become relics of a past era. It seems that the two main concerns of contemporary architectural discourse have emerged: environmental sustainability and growing level of informal settlements among the increasing number of urban poor. Each of these issues has attracted its advocates— scholars and practitioners who declare their devotion to one or the other. And, while both issues are immediately relevant and require attention, the problem is the tendency of architects to address each as a separate issue. It appears as though a solution to one cannot be achieved without the strong consideration of the other.

Over one billion people today live in informal housing, generally under substandard living conditions, and that number is expected to double within the next twenty-five years.[1] How can sustainable architecture prove to hold any real impact if it refuses to address this situation? Conversely, how can the standards of informal housing be improved without creating a sustainable environment of living? At what point do we stop seeking sustainability at the scale of a single building and start recognizing that the issue must be addressed at a higher level?

To this end, I have sought with my research to establish a link between these two issues. My first goal is to assemble a historical account of the architectural relevance and consideration of both sustainability and informal housing. A thorough study of the trends of these topics within the field – one which determines the rise and fall of their popularity over the past five decades – will immediately reveal that they each have been either lauded or neglected at similar points along the way. I intend to

unify sustainability and informal housing under one common design goal so that the field of architecture may once again arrive at a social imperative. The hope is that sustainability, as a new and quickly expanding field within architecture, may in the future provide a contemporary framework for architectural inquiry that will allow for the inclusion of informal settlements, reintroducing this form of popular architecture back into the canon of works deemed worthy of academic consideration.

The focus of this project will rely heavily on an audit of the architectural discourse of the last fifty years as it concerns informal settlements and sustainability. I intend to provide a chronology of the research in these areas while also engaging with the overall discussion of sustainability as it pertains to informal communities.

In the process of establishing this broad historiography, the overall trends of interest and disinterest and their underlying causes begin to emerge. For decades, the marginalization of slum settlements was fairly established as an architectural doctrine; early 20th century modernism only served to reinforce the perceived inadequacy of informality. As the global rates of urbanization begin to rise, informal settlements become more pervasive. This coincided with the decline of modernist hegemony and the emergence of the more intellectual and formal pursuits of early postmodernism. In the 1960s and 1970s, the collective movement within architectural practice and theory became interested in the "liberation of the human experience from the constraints of the status quo," and attempted to find social and moral authenticity in the historical origins of architectural form.[2] This allowed a new generation of emerging practitioners and academics to explore the validity and rationality of informal housing as well as

vernacular forms. Parallel to this was an increasing urgency in environmental concerns that was catalyzed by the 1973 oil crisis and a new global understanding of architecture's profound ecological impact. The 1980s, however, signified a striking lapse in these concerns. Oil prices settled, the economy entered a short bout of prosperity, and political efforts all but abandoned low-income housing policy. Further exacerbating this lapse within architectural discourse were the increasingly superficial and stylistic pursuits of what may be considered "high postmodernism," which focused upon the absolute authority of the architect as form-maker and abandoned the environmental responsiveness of vernacular design. Only in the 1990s did this poststructural formalism begin to be criticized, and, since that time, architectural endeavors have gradually begun to realign with the earlier priorities of lower-class housing concerns and sustainable building practices.

For decades, these two topics have followed similar trends of popularity and omission within architectural pursuits, waxing and waning in response to prevailing trends of theory and practice. Oftentimes the topics have been addressed as separate issues: informality has always been a concern of the lower class, while sustainability has been relegated to a pursuit of luxury for the bourgeoisie. But this divide is a construct, and architects have, at times, addressed these issues simultaneously. The results of these efforts were always groundbreaking and remarkable.

Before moving forward, perhaps a clearer definition of the terminology involved in this study is in order. For the sake of convenience, I have labeled each of the two topics discussed here as *informal settlements* and *sustainability*. In fact, these are relatively recent classifications, each of which represents all manner of meanings and interpretations that have changed drastically throughout the years.

At its most concrete level, *informality* refers to an urban scheme or edifice that was conceived and constructed without the aid of professional planners or architects. It is the opposite of the notion of *formal*, which encompasses a sense of order and structure, and generally implies a certain level of external control. This duality of formal and informal may also extend beyond the built environment, encompassing various social, political, and economic realities of a community as well. Within a strictly architectural definition of informality, there are no implications as to the quality, condition, or legality of the dwelling, only that it was constructed without drawings or expertise. For this reason, the word has often maintained a negative connotation within architecture, where "informal is a derogatory term used to dismiss anything that escapes the realm and control of the architect."[3] It avoids the tidy orthogonality of gridded systems and denies easy interpretation of hierarchy and stratification.

Although *informality* is often conflated with terms like *slum*, *owner-built dwelling*, or *squatter settlement*, none of these are synonymous; there are instead varying levels of these conditions that any one informal settlement might encompass.

The reality, however, is that informality is oftentimes accompanied by slum conditions.

A slum is typically characterized as a high-density urban settlement that is plagued by

inadequate housing and economic poverty. In the various case studies that comprise the

2003 United Nations Habitat report *The Challenge of Slums*, the set of standards that

determines slum conditions appears to be quite fluid and can vary from one region to

another. However, within these variations, several typical circumstances of slums do

emerge: (1) a general inadequacy of the built environment, with a lack of quality and

maintenance that leads to unsafe living conditions; (2) unsecured tenure of property,

often accompanied by an inability to achieve legality and the rights that accompany it;

(3) a lack of infrastructure, including basic services such as clean water and sewage

removal; (4) overcrowding to the point of compromised sanitation.

While these conditions of slums are "defined in terms of a lack," they should also

be understood as loci of opportunity for the often-marginalized poor.[4] Recent UN-

Habitat reports are quick to point out that, although there is no justification for the slow

progress in providing adequate living conditions for all, slums do in fact encompass

several positive elements: (1) for immigrants, slums provide the possibilities of inclusion

into urban society and of upward social mobility; (2) in some cases, their permanence

has led to a community-wide improvement based upon unified movements to achieve

economic opportunity and municipal representation; (3) From such dire situations often

emerge innovative and pragmatic building solutions, which are valuable in themselves

as well as to the study of architecture and urbanism as a whole.

The term *sustainability*, though used here to represent all manner of ecologically and environmentally sensitive efforts within architecture since the 1960s, was not actually introduced into the environmentalist's lexicon until 1987, when the UN's Brundtland Commission issued its report, *Our Common Future*. This now-iconic document defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[5] Before this, architectural design that concerned itself with energy efficiency and climatic responsiveness generally fell under the realm of "tropical architecture," as it was promoted in the 1950s and 1960s by Otto Koenigsberger and others, or "bioclimatic design," which was widely dispersed by Victor Olgyay in the 1960s. During the 1990s, architectural discourse would quickly adopt the term "sustainable architecture" and apply it to both passive and active strategies of design. In his 1992 Hannover Principles, William McDonough extended the Brundtland Commission's definition beyond an anthropocentric view so that it might "embrace the idea of a global ecology with intrinsic value … to allow all parts of nature to meet their own needs now and in the future."[6] Sustainable design must, therefore, consider both the immediate and the long-term consequences of any environmental transformation.

Today, sustainability has come to mean all manner of things. Oftentimes, especially when concerning architecture, it is the application of environmentalist ideals through the implementation of new technologies and methodologies. Within contemporary architecture, the term seems nearly synonymous with the technological applications that so often accompany it. The scope of concern for sustainable pursuits

has also in recent years been expanded beyond the specific, local environment to a

broader, globalized one.

The early reactions of municipal authorities toward squatter settlements range from resistance to outright eradication as the perception of criminal activity and unsanitary conditions proliferated. These communities were viewed as uncontrollable, unsanitary, dangerous, and disorganized as they often operated outside of social and economic mechanics of the cities from which they grew. For centuries, city planning had been dominated by Beaux-Arts ideals of hierarchy and axiality. The city was typically viewed as a living organism, capable of growth and productivity but vulnerable to disease and disfigurement. Within the rigidity and idealism of this system, no concessions were given to informal and slum settlements, which were approached with disdain by planners and oftentimes became targets for campaigns of eradication.

MYTHS AND MISUNDERSTANDINGS

Architectural historian David Underwood reveals this derision toward the settlements as late as 1930 when he recounts the contempt that French architect and urbanist Alfred Agache held for the *favelas*, or informal settlements, of Brazil. Trained in the Ecole des Beaux-Arts, Agache compared the city to a biological organism, and within this analogy, the *favelas* were equated with unhealthy, malignant tissue. When designing the master plan of Rio de Janeiro, Agache believed that "the response of the urbanist is to […] 'target' the 'unhealthy' areas for surgical 'strikes' and to intervene clinically to dissociate the 'healthy' tissue from the sick."[7] He envisioned a spatial segregation according to social stratification, whereby the hillside favela residents

would be relocated to the periphery of the city in socialized satellite neighborhoods while the hills were reclaimed by Rio's elite class.

Agache's design for the *Avenida Central*, an imposing boulevard that cut through the existing urban fabric of Rio's downtown, was based upon the broad Parisian avenues designed by nineteenth-century French urban planner Baron Haussmann. The transformative effects of Haussmann's large-scale demolition and reorganization of numerous European cities have over the years become representative of the autocratic control and spatial segregation of traditional urban planning that would later become so heavily criticized.

But before these later critiques, these concepts of liquidation and relocation, largely based upon classical formal ideals, persisted throughout the following decades with alarming consistency. Haussmann's theories would pave the way for numerous slum clearance projects in the future, all of which were completed under the guise of "urban renewal." In the case of New York, the 1949 Federal Housing Act, under the supervision of Robert Moses, provided federal financing for slum clearance programs associated with urban renewal projects in American cities, replacing slum housing with high-rise housing blocks. Although Moses's developments would lead to a more effective transportation system and the creation of several quality public spaces, he is often and perhaps rightfully vilified as racist and autocratic, who was known to say, "to make an omelet you have to break eggs."[8]

Even Le Corbusier, another of Moses's heroes, was not exempt from the appeals of massive urban organization, as evidenced in the model cities envisioned by his

planning organization, *Congrès internationaux d'architecture moderne*, or CIAM. James

Holston, in his critical assessment of Brasilia, points out the persistence of such beliefs:

> *It cannot be doubted that [the] Haussmannization of European*
> *capitals greatly influenced CIAM planning. Le Corbusier admired*
> *the baron for bringing a measure of geometric order to Paris and*
> *for using a scheme of broad avenues to unite isolated areas of the*
> *city – two paramount principles in CIAM doctrine. Haussmann*
> *himself provided a model for the CIAM planner: technocrat,*
> *engineer, 'surgeon'; incorruptible and autocratic.*[9]

In *The Athens Charter*, CIAM's document on planning, one can again see the persistence

of the notion that cities can be equated to organisms, and within this organic analogy,

slums are therefore unwanted growths. When considering the detrimental effects of

rapid urban growth in European cities, Le Corbusier falls upon the old metaphors: "[t]he

monstrous growth of worker tenements created 'cesspools' of tuberculosis and cholera.

As the urban periphery of slums expanded 'contagiously,' the city spread into the

countryside 'like a disease.'"[10]

MARGINALIZATION OF THE POOR

In the 1950s and 1960s, scholarly discourse on the topic of squatter cities

continued to rail against the presence of informal communities, which began to grow at

unprecedented rates throughout the world's urban centers, particularly those in

developing nations. A 1966 article by sociologist Sam Schulman recounted the time he

spent in a slum in Bogata. He described the bleak conditions of poverty that were so

typical in these types of settlements, even going so far as to point out the slum-dweller's

inability to access the basic institutions of society, such as employment and marriage,

which, according to Schulman, was often replaced with the more temporary and

informal "sexual alliance."[11] He recounted the unsanitary living conditions that result in

high child mortality rates and cases of domestic violence. And though his tone was one

of compassion, his underlying assumption was that these people are somehow lessened

by the spaces they inhabit, and subsequently their parallel institutions of "religion social

control education, [and] domestic life are warped and disfigured."[12] The only solution in

the eyes of this sociologist, and of the Columbian government, was the full eradication

of the slums, which were seen as shameful scourges, black marks upon the established

city.

This unsettling viewpoint of eradication was coupled with a growing popularity

of the notion that informal settlements and their inhabitants, within their urban

context, held "marginal" roles: they were somehow inferior, either socially, politically,

physically, or spatially.[13] Oscar Lewis embodied these ideas with his concept of the

"culture of poverty," a facet of marginality theory that repositioned the responsibility

for poverty to the impoverished, who had developed their economic status into a

mechanized, self-perpetuating cultural identity.[14] The poor, according to Lewis, were

unwilling to participate in their own upward mobility and were therefore unable to

integrate into the formal social realm. Though his theory of the "culture of poverty"

continued to inform housing policy and welfare programs, largely to their detriment,

there was an enormous outcry against this concept and others like it; indeed, it was

many of Lewis's critics who would distinguish themselves during the 1960s as strong

proponents of informal settlements.

Despite the persistence of such marginalization and neglect within architectural

discourse, the 1960s began to see a shift in the mode of thinking that would allow for

vigorous discussion of both informality and sustainability. Relentless though they were,

these myths and misunderstandings of informal settlements would not go unchallenged

for long. As Jorge Otero-Pailos has explained, "by the early 1960s, a young postwar

generation of architects had seized the idea that architecture should participate in the

liberation of human experience from the constraints of the social status quo."[15] The

drab, sanitized aesthetic of modernism was increasingly associated with social

oppression and restriction. This led to an increasingly persistent criticism of modernist

codifications: those structures of marginalization that promoted the destruction of

squatter housing in favor of bleak, monolithic apartment blocks. As continued attempts

to restrict, demolish, or infiltrate these communities were consistently met with failure,

the academic community began to study squatter settlements not as cancerous

formations within the urban fabric, but instead as viable solutions to the seemingly

unsolvable problem of inadequate housing for the poor.

RUDOFSKY AS AN EARLY CATALYST

Bernard Rudofsky's 1964 MoMA exhibition *Architecture Without Architects*

differentiated itself from the discourse of its time as an intellectual counterpart to the

unquestioned authority of the architect as the only valid form-giver. The exhibit and its

accompanying publication provided images of a rich history of building cultures across

the world that operated entirely outside of the professional design practice. It gave

credence to the notion that owner-built communities were a perfectly valid form of

architectural and social development, an important underlying assumption in the

support of informal settlements. But Rudofsky's exhibition not only provided impetus

for the architectural legitimacy of vernacular, owner-built structures; it also showed

insight into longstanding methods of passive cooling and heating techniques in various

parts of the world, insight that may well have likely informed the forthcoming eco-

design movement.

For the purposes of assembling a dual history of informal housing and

sustainability, this exhibit provides an invaluable departure point for both topics. An

ardent traveller and an outspoken critic of modernist dogma, Rudofsky sought to step

outside of the dogmatic architectural history of "a full-dress pageant of 'formal'

architecture, as arbitrary a way of introducing the art of building as, say dating the birth

of music with the advent of the symphony orchestra."[16] This was an attempt to realign

the history of the field with its truer origins, and with this came the harsh truth that

architects had little to do with the beginnings of architecture.[17]

Included in this catalogue of vernacular and anonymous architecture was "the

architecture of nomads, portable houses, houses on wheels, sled-houses, houseboats,

and tents."[18] Dense settlements from various parts of the world were displayed without

judgment of their informal nature, but rather with honest admiration of their innovation

and contribution to so-called "pedigreed architecture." Densely clustered houses were

shown unapologetically; aerial photographs of these settlements are no longer viewed

as disorderly and haphazard assemblies, but rather as variations on a unified theme of design. The combined effect of houses in Zanzibar is explained as having an "almost pointillistic pattern," while a settlement in Marrakesh is regulated by a "relaxed geometric" organization.[19] Rudofsky assigned the terminology of formally trained designers to structures that were constructed without them, at once undermining the authority of the architect and restoring the dignity of informal housing.

Rudofsky's exhibition also imparted the growing sensibility of vernacular design, a concept that would align itself with environmentalism to varying degrees over the following decades. The photographs displayed various construction materials and methods throughout the world, from wood and masonry to woven straw and stereotomy. Each was explained within the context of its particular usefulness and practicality as "'primitive solutions [that] anticipate our cumbersome technology."[20] For instance, in the Chinese loess belt, villages were comprised of assembled pit homes, each of which was easily carved from the soft silt of the landscape. Various building components offered practical means of thermal regulation against harsh temperatures. Images of large, sailing windscoops atop dense houses in Pakistan, which Rudofsky termed the "air-conditioners of Hyderabad Sind," channeled cool breezes down into the dwellings.[21]

While his exhibition may not have intended to expose these sustainable systems to a budding batch of young architects, it certainly did so, and the concepts shown here would soon become integral to the emerging environmentalist movement within architecture. Decades later, during the rising sustainability movement in the early

1990s, William McDonough would mention Rudofsky's exhibit in his highly influential

manuscript *The Hannover Principles*, lauding the endurance and ease of climatic

responsiveness within the form of these traditional buildings. For McDonough, this

suggested "that sustainable building relies less on an absolute coherent plan than on the

cooperation between designers and end-users."[22]

More immediate responses to the exhibition were varied across the field of

architecture. As Felicity Scott recounts, when *Architecture without Architects* first

opened on November 11, 1964, the reactions by critics were pronounced and polarized:

"the exhibition was both hailed as a timely and insightful critique of the state of modern

architecture and rejected as an exasperating and unwarranted attack on an already

troubled discipline."[23] It was no secret that Rudofsky despised the dogmatic

functionalism and aesthetic rigidity of modernism that had recently dominated Western

architecture, and the popular exhibition certainly provided exposure to and appreciation

of designs that existed outside of this rigidity. As the show continued to tour around the

world for the next eleven years, the response of the mainstream architectural press was

decidedly defensive; most dismissed the show "as antimodern or nostalgic, and as

having little bearing on the practicalities of contemporary urban development."[24]

Rather than conforming to the narrative of modernism, Rudofsky sought to

uncover the true precedents for the modernist aesthetic, revealing the source of such

"refined" forms to be considerably "primitive": the informal and environmentally-

sensitive constructions of the common owner-builder. The architectural legitimacy of

such structures began to take hold among emerging architectural practitioners and

intellectuals; throughout the remainder of the decade and into the next, there emerged within architectural academia an increasing discomfort with the authoritative hegemony that was so common within the architectural canon, and architecture became increasingly concerned with its role as an arbiter of social change. Many of these arbiters adopted language that is quite reflective of the strong influence of Rudofsky's exhibit. In the introduction to *Architectural Design*'s August 1968 issue "Architecture of Democracy," the contributors refer to their work as a continuation of the influential 1963 article by John Turner in the same magazine, saying that it "drew attention to the architecture-without-architects of the squatter settlements in developing countries."[25] It is interesting to see this phrase, "architecture-without-architects," used only a few years after Rudofsky's exhibit while referencing an article published the year before the exhibit that makes no mention of the phrase at all. Almost a decade later, Turner mentions the success of the exhibition as evidence of "architects' common preference for architecture that has not been designed by architects."[26] These references suggest that Rudofsky's work was strongly influential in the ideology and the lexicon of future promoters of informal and owner-built housing.

CHANGING THE PARADIGM

A 1962 article by economist Charles Stokes represents one of the earliest attempts to undermine the notion of marginalization through biological representations of the city. Unlike urban theorists before him, Stokes stopped short of declaring slums to be cancerous and destructive to the urban fabric, and he questioned the validity of

existing theories of city growth that do not account for the growth of slums as well. In

an effort to legitimize the efforts and developments of slum dwellers, Stokes pointed to

the varying degrees of potentiality and success within these communities, distinguishing

the typologies of the slum of "hope" and the slum of "despair."[27] According to him,

slum dwellers were not incapable; they only lacked proper economic and social

integration. The distinction between these modes of slum development would

influence a broad range of research in the field of informal settlements.

It was within this climate of changing social paradigms that architects began to

redirect their preconceived notions of informality. Several early urbanists, notably

Charles Abrams, Otto Kroenigsberger, Jane Jacobs, and John Habraken, were

emblematic of this shift.

Abrams's book, *Man's Struggle for Shelter in an Urbanizing World*, first published

in 1964, was a comprehensive assessment of the numerous methods of housing

produced with varying levels of success in rapidly expanding urban conditions across the

globe. On the topic of squatters, he provides an insightful view of the extreme social

and political inequality that led to the marginalized conditions: "to look upon all the

squatters, or even the majority of them, as lawbreakers, is to misjudge the problem

completely. Had land been made available to him, the squatter would not have

appropriated it."[28] Self-help housing was seen as a viable option, but only within

favorable conditions, and prefabricated housing elements were viewed as a cost-

effective approach to improving the conditions of owner-built housing, a construction

method that he acknowledged was, "despite the advance of technology… still the most common in the world today."[29]

The work of architect Otto Koenigsberger, a colleague and frequent collaborator of Abrams, provides a valuable point of intersection between the realms of sustainability and informality. This point is not so clearly defined as it is in Rudofsky's exhibit and catalogue, but instead becomes manifest over the course of Koenigsberger's broad-ranging career. Aside from sharing Abrams's concerns about housing and squatter conditions, Koenigsberger was also deeply involved in some of the earliest architectural investigations of passive solar and ventilation techniques. After years of practicing in India, he founded the Department of Tropical Architecture, a postgraduate course, at the Architectural Association in London. Vandana Baweja has recently repositioned Koenigsberger as one of the early arbiters of so-called Green Architecture, since his was a program intended to promote "climate responsive and energy conservative design that makes the best possible use of locally available resources."[30] Baweja went on to say that Tropical Architecture still today "occupies a marginal position in Eurocentric modernist architectural historiography because of its engagement with the tropics and because energy conservative design seemed redundant to European and American architects prior to the 1970s."[31] In 1971, the Tropical Architecture program moved from the AA to The University College London, where its name was changed to the Development Planning Unit (DPU). The program continues to this day as a forum for students and scholars to investigate the environmental and social demands of architecture within developing countries.

Also relevant to this debate was Jane Jacobs's enormously influential book *The Death and Life of Great American Cities*. An ardent critic of Moses's urban renewal, Jacobs argued against the bulldozing of slum communities in areas of New York and Boston:

> *Conventional approaches to slums and slum dwellers are thoroughly paternalistic. The trouble with paternalists is that they want to make impossibly profound changes, and they choose impossibly superficial means for doing so. To overcome slums, we must regard slum dwellers as people capable of understanding and acting upon their own self-interests, which they certainly are. We need to discern, respect and build upon the forces for regeneration that exist in slums themselves, and that demonstrably work in real cities.*[32]

For Jacobs, the thriving vitality and variety of these communities was reason enough to substantiate their existence.

In the early 1960s, Dutch architect Nicholas John Habraken's work was an early break from the highly prescriptive organizations of industrialized mass housing. In his book *Supports: An Alternative to Mass Housing* (originally published in 1962 as *De Dragers en de Mensen,* translated in English in 1972), Habraken envisioned the role of the architect as the designer of a more general "support structure," a system within which inhabitants could create their own dwelling and thereby become part of the creative process. In this scheme, the architect or planner surrendered significant control so that the occupant may have the ultimate decisions as to the final form.

Habraken's early exposure to kampongs, the informal houses of the people of East Indies, where he was born and raised, had a profound influence upon his conception of adequate housing. The kampongs provided him with an intriguing contrast to the starkness of governmental mass housing that he saw in the Netherlands, and he came to believe "that when people are responsible for their own housing, the result can be an interesting and wholesome environment."[33] The subsequent exploration of housing in *Supports* is based upon the assumption that mass housing has become prescriptive, an autocratic denial of the occupant's input, where "Man no longer houses himself: he is housed."[34] He argued that housing should instead be a participatory, reactive process, which occurs within a normative, manufactured framework. For Habraken, the relationship between dwelling and building were indelibly linked, and one did not exist without the other.

In 1964, he would establish the Foundation for Architects' Research (SAR), a means of exploring his theories through many publications and schematic designs promoting the idea. Habraken's work with SAR was quite influential in the United States, and eleven years later, he moved there to assume the role of Head of the Department of Architecture at MIT.[35] His work would remain relevant to the subject of informality through the following decades, and his work will again contribute to the discourse of informality in the 1998 publication of *The Structure of the Ordinary*.

The increasing social awareness among these architects during the late 1960s is not surprising, given the political subversion and social revolution that are so often associated with the period. The topic of environmentalism was a bit slower to take hold within the architectural discussion, mainly because most people within the field had not yet made the connection between architecture and the high levels of pollution and energy consumption that almost always accompanied it. Although basic ecological design, such as regionalism and solar control, was often included in architectural education programs, the environmental imperative had not yet emerged simply because there was no immediate call for it.[36]

Nevertheless, investigation into ecological design did occur during this decade, albeit with more of a trajectory of an exploration than one of a directive. Even as Rachel Carson was warning of the dangers of chemical pollution in her crucial 1962 text *Silent Spring*, Victor Olgyay was publishing *Design with Climate*, a formative text explaining the basic tenets of bioclimatic design. It was the American counterpart to Koenigsberger's method of Tropical Architecture. Drawing from his and his brother Aladar's research that took place throughout the 1950s, Olgyay argued that architecture should approach climate control in an orderly and analytic manner. For inspiration, he took cues from the tendency of some animal species to change their environment in ways that responded to climatic conditions: bird nests often employed insulative qualities, termite mounds and anthills respond to solar orientation based upon a desire for exposure or relief from the warmth of the sun. Similarly, building types around the world have

established forms and orientations that are specific to their local climate and conditions

of the site. From the scale of a single building to a layout of housing blocks, Olgyay

analyzed different built forms according to their appropriateness in various solar and

wind conditions, using traditional building styles from several parts of the world as

reference. *Design with Climate* remained highly influential throughout the years mostly

because it was the first text to analyze climate-responsive building technology using

diagrams that simulated actual built forms; Olgyay did this because "architects tend to

be visually inclined and do not readily imagine life in the form of cumbersome graphs."[37]

This book was also an early exposure to the beginnings of an understanding of

vernacular form; several of the photographs of settlements contained within it were

also displayed in Rudofsky's MoMA exhibit the following year.[38]

Towards the end of the 1960s, other architectural theorists, also engaged in the

environmental aspects of design, would join Olgyay. Reyner Banham's book

Architecture of the Well-Tempered Environment explored the technological implications

of an architecture concerned with environmental control, while landscape architect Ian

McHarg outlined the methods for creating landscaping plans that were more responsive

to their environment context in his book *Design with Nature*.[39] As these early

environmentalists began to emerge, their arguments took on a more potent tone

among the social and ecological concerns that arose during the following decade.

THE 1970S: AWARENESS, INVESTIGATION, AND INCLUSION

Many of the aforementioned academics and practitioners represent a broad collection of individual thinkers, each operating in short, bright bursts of innovative breakthroughs on the subject of informality. Collectively, these lines of discourse culminated in the fast-paced setting of investigation and revelation during the 1970s under the direction of groundbreaking new theories of housing by John Turner, Rolf Goetze, John Goodman, and others. What follows is a brief catalogue of architectural trends and academics, each of whom provided invaluable contributions within the discussion of informality to the architectural discourse during this time. Although much of the work mentioned here first began in the 1960s, the majority of the influence of these academics as arbiters of informality would achieve their maximum relevance during the 1970s.

This trend of interest in informal and slum housing began to take hold as an imperative among architectural pursuits, particularly within the academic realm, and there is no greater example of this paradigm shift than the MIT-Harvard Joint Center for Urban Studies. Created in 1959 and funded through the Ford Foundation, the Joint Center provided opportunities and support for many of the academics and researchers that are discussed in the following chapters. While the efforts of the various planners and architects at these universities were oftentimes autonomous and without mutual participation, they nevertheless converged at this specific location and point in time, suggesting that the universities served as invaluable catalysts for this discussion and line of thought.

Published in 1971, Robert Goodman's book *After the Planners* is an emotional indictment of traditional planning methods, the fascism of block housing, and the ongoing persistence of elitist formal stratification. In it, Goodman denounced Haussmann's Parisian street layouts and the subsequent neoclassical planning ideals of Daniel Burnham's "White City" as formal manifestations of "architectural propaganda" that promote governmental control over the city and its people; he felt that planners had become "the government's soldiers in a 'war on poverty.'"[40]

More importantly, Goodman attacked the tendency of planners to equate the city with a biological entity; he warned that it was a dangerous connection that not only permitted all manner of social evils, but had also remained ingrained within architectural practice, from the Beaux-Arts planners up to the then practices of the American Institute of Architects. Viewing sectors of poor housing as "cancerous" and diseased" only provided justification for the eradication, or "excision" of that area, with no regard for its occupants. For Goodman, this was merely another attempt by architects and planners to achieve centralized, autocratic control upon the development of a city:

> *Surgery, grafting—that was the planners' pseudo-science in the service of the cultural and economic prejudices of those controlling urban renewal. To rationalize a program of removing the poor for the benefit of business, the disease metaphor was marched out: the city was sick and had to be cured. Using medical metaphors gives the sense of organic phenomena. The city as a body operates well, but now and then has some*

aberrations—some cancers. Cut out the cancers, goes the argument, and

the body will continue its proper function.[41]

Goodman's alternative was "advocacy planning," a system in which design

experts were assigned as representatives of the poor, and their expertise could be

applied as part of a process of urbanism that led to a more equitable and democratic

solution. As a faculty member at MIT, he hoped to encourage community activism

within architectural education, thereby influencing a large number of emerging

professionals. In the spring of 1968, he applied this system within his design studio, and

his students worked with poor families in the Roxbury area of Boston to create

adequate housing conditions. The collaboration between the community and the

academic institution was an innovative way of viewing advocacy and was beneficial for

both parties involved.

ESTABLISHING THE LEGITIMACY OF INFORMALITY

As early as 1963, John Turner began contributing to the architectural discourse

the notion that participatory, or self-built, housing was a legitimate and valuable

building typology. In August of that year, he and anthropologist William Mangin

contributed the aforementioned article to a special issue of *Architectural Design* that

was entitled "Dwelling Resources in Latin America." Through the encouragement and

editorship of Monica Pidgeon, Turner drew from his eight years of living and working

among the *barriadas* in Peru to argue for a change in the way that government and

housing policy recognized and utilized the "capacity of ordinary people in building their

own houses."[42] He invites the reader to consider the potential contribution of informal

construction to the realm of public housing, and warned of the possible long-term

consequences of government-organized public housing, which was at that point

generally considered the only suitable solution.

Although Turner was primarily interested in self-built housing, this seems to have

been one aspect of an emerging social awareness within architecture. In 1968, an entire

issue of *Architectural Design* was devoted to the topic of "Architectural Democracy" and

focused upon the social implications of design among housing for the poor. The

introductory segment, aside from mentioning that the articles included therein were a

continuation of the 1963 issue's "attention to the architecture-without-architects," also

voiced the commonalities that ran through each of the articles in the issue:

> *We began with a shared perception that there are many positive*
> *aspects of the squatter environment, especially in the flexibility of*
> *the solution and its adaptability to the changing needs of families*
> *over time, and in the sense of autonomy and self-determination*
> *for both individuals and communities in making their own*
> *environment directly.*[43]

The issue was an early collection of writings by scholars, almost all of whom were

associated with MIT, who would remain so influential to the promotion of informality in

the 1970s and on into later decades as well. Goodman's contribution, the article

"Making Architectural Education Make It," was an argument for the consideration of

housing for the poor within design studios at schools of architecture. His article

promoted the adoption of such programs within university departments across the

country: "initiating a programme which invites more socially useful participation by the

academic community would be a giant step toward a more relevant university tradition."[44]

Anthropologist and urbanist Lisa Peattie included an article entitled "The Dilemma: Architecture in an Affluent Society," in which she redirects the attention of squatters from developing countries to those that exist in urban centers of already-developed nations, where the environment is often "unpropitious for squatting."[45] Her research into the *barrios* of Venezuela would lead to writings over the years that aligned with Turner's views of self-help housing and owner-control, and her contributions to the discussion of informality would remain consistent throughout the following decades.

Ian Donald Terner, at that time a member of the architecture faculty, coauthored the article "Squatter-Inspired," an explanation of an innovative attempt to encourage flexibility and participation among American minority slums through the construction of housing systems that are influenced by the squatter settlements in Venezuela. The system, broken into phases, was developed by Prof. Neal B. Mitchell at Harvard University to relieve housing problems in the slums of Detroit, and the strategy appears to be strongly influenced by Habraken's *Supports* theory. A prefabricated, lightweight framework system ensures "structural integrity and orderly growth," and the squatters are then allowed to infill that framework according to their own appropriate organization and materiality.[46] The incremental and participatory methods employed are derived directly from those of the squatter, and this appears to be one of the earliest examples of designers implementing informality as an organizing model for formal architectural pursuits.

In another article from this same issue, Rolf Goetze recorded the unapproved construction of several makeshift mezzanine structures within the studio space of the architecture students at MIT that began in the fall of 1966. This phase of informal construction was partly a result of the perceived inadequacy of the studio's existing condition, but also represented the larger frustrations of the students, who felt compelled by the "raging social issues demanding immediate action for which the methods taught in our required curriculum have proven futile."[47] In the face of several visits from campus safety administrators and threats of demolition, the students dismantled the structures at the end of the school year. The following year, likely under the guidance of Maurice Smith, the recreation of these mezzanine constructions became part of the studio curriculum. But the reiterative construction had lost its original participatory and rebellious imperative; the students felt their "formal class work to be meaningless and empty, [and] their mezzanines soon became empty too."[48] The manner in which the students accounted for this disparity between the two phases provides insight into the growing understanding of informality at the time:

> *Meaning in the environment can no longer be given to or made for people by the architect. Instead, the architect, having come to terms with himself and his own environment, must make his skills available to people to do whatever becomes meaningful to them in the process.*[49]

In his later publications of the 1970s , Goetze would argue for the value of dweller participation of the low-income housing process in Rochester, New York. He

explained that, through the implementation of a system of participation, or "sweat equity," the resulting building could provide a more durable form of housing and ensure a higher level of tenant living practices.[50] This essay was included as a chapter in *Freedom to Build*, edited by Turner and Robert Fichter. The collection of essays argued for the legitimacy of the squatter settlement as a sign of empowerment and entrepreneurship from an often marginalized and impoverished social group. Turner pointed out that self-constructed housing was effectively engaging the builder with his community, and that the government should not impede upon but rather provide assistance to this type of development.

Turner was clearly the organizing force behind this dedicated issue of *Architectural Design*, and his own contributing article expounded upon the social complexities and underlying systems that organized *barriadas*. He included an explanation of the morphology of these *barriadas* that delineates the separate stages of development and construction at the scale of the household, where growth is spread over time as funds become available, and at the larger scale of the community, with its various facilities and utilities. Turner, like Peattie, believed that the developing city, such as Lima, created an environment more conducive to the social mobility that the squatter provides for himself when he constructs his own dwelling. According to him, "the existential value of the *barriada* is the product of three freedoms: the freedom of community self-selection; the freedom to budget one's own resources and the freedom to shape one's own environment."[51] Despite a lack in institutionalization of housing, or more likely because of it, Peruvians were permitted the freedom to build their own life.

Turner's values were significant among architectural planning theorists because they were the results of his training in architectural theory as well as his empirical research as an urbanist in Peru, where he gathered formal, morphological, and socio-economical data of an area. In 1969, he contributed to a book by Horatio Caminos that included this data. It compared two typical lower-class families, one in Boston and the other in Lima, and illustrated the disparities in context between the two, revealing the capabilities that each possessed for their own relative upward mobility.[52] At this point, Turner had become a faculty member at MIT, where he taught courses on housing development. As his investigations continued, he began to align himself more directly with championing the rights of the squatters, at times moving closer to anarchism than socialism. These theories would culminate in his book *Housing By People*, first published in 1976. In it, Turner criticizes the bureaucratized and institutionalized system that has labeled housing as a *problem*, thereby assuring that it will never go away.[53]

It is important to distinguish Turner's argument for self-built housing from Goodman's notion of advocacy planning. While both proposals sought to de-marginalize the poor and provide a basis for more suitable housing situations, Goodman's policy still involved the active participation of expert professionals, such as planners and architects, who acted as mediators between the inhabitants and any municipal authorities that might offer assistance. Turner's position was a bit more idealized and perhaps a bit more radical. He remained highly skeptical of the ability for any external organization, governmental or otherwise, to intervene effectively in the development of informal communities. For these communities to organize and grow

effectively, they needed to maintain a level of potentiality and spontaneity; this would

ensure the developmental process of "housing as a verb."[54]

Turner was certainly not the first to discover the inherent value of self-help

housing, but his work has become indispensable to the architectural discourse on

informality because of his background and education within the field. His knowledge

and beliefs were cultivated amidst the urban musings of such early theorists as Patrick

Geddes and Lewis Mumford, who touted small-scaled, owner-involved levels of

community development. According to Richard Harris, Turner's work has stayed so

potent and influential throughout the decades because his arguments were anchored

upon three basic beliefs that have remained constant throughout his career. They are:

(1) the notion that self-help has value; (2) the role of the government is to assist owner-

builders; and (3) squatter settlements are solutions, not problems, and one should

maintain faith in the rationality of the poor.[55]

THE ECOLOGICAL IMPERATIVE

This enormous increase in the perceived validity of informal housing in the early

1970s coincided with the introduction of another significant topic in architectural

discourse: that of environmentally conscious architecture. For the most part, what few

environmental concerns there were within architectural design at the beginning of the

1970s were limited to holdovers from the counter-culture movement of the previous

decade. One exception is the book *Design for the Real World*, in which author and

designer Victor Papanek is the first to position ecological and environmental issues as

the social responsibility of the designer. [56] Papanek was intensely critical of wasteful

design and production. He was the first to demand that designers recognize their social

and moral responsibilities as well as the long-term and broad-ranging effects of their

poor design choices. According to him, through collaboration and anticipation, design

teams could achieve a more integrative and comprehensive expression. Papanek also

extended the impact of designers to the conditions in the developing world. In a

foreboding tone that rings alarmingly accurate today, he wrote of our unpreparedness

when addressing the alarming rates of population increase in Africa, Asia, and Latin

America, as well as the decreasing standard of living that accompanies it.[57] Though he

did not address informal conditions directly, choosing instead to appropriate creative

control to the designer, Papanek did ignite a sense of moral imperative among designers

for the decades ahead. The success of his book was profound, as it was popular not only

within his field of industrial design, but also among other designers, such as architects

and planners, and even among environmentalists.

But it was undoubtedly the 1973 oil crisis that moved environmentalism from

the realm of the idealist to that of the technical professional, prompting a sudden

interest in environmentally aware and energy-efficient architecture. During OPEC's six-

month oil embargo, the price of crude oil nearly quadrupled in the United States, and

the economic consequences were disasterous. The following year, a group of practicing

architects released a book entitled *A Bucket of Oil: The Humanistic Approach to Building

Design for Energy Conservation*. It was an immediate response to the implications of

the energy crisis and included specific strategies, often accompanied by hand drawn

diagrams, for creating affordable, universal architectural conditions that minimize energy use. The authors, headed by Bill Caudill with Texas A&M University, emphasized an immediate need for the design profession to react to a new mandate of sustainability: "Buildings consume an incredible amount of energy, about one third of all the energy used in [the United States]. About forty percent of that energy is wasted."[58]

The Canadian Center for Architecture recently held an exhibit entitled *1973: Sorry, Out of Gas*, which was a visually compelling account of the various responses within the field of architecture to the events of that year. In the resulting publication, attention was given to the passive and active building systems that resulted from the oil crisis, moving sustainability from the scientific realm into the pragmatic.[59] As a result, a wave of architectural innovation began to emerge, many spurred by the grassroots investigations of architects and early environmentalists. They covered various solar, wind, and geothermal methods of temperature control, some of which required additional technology, but most of which could be derived from the most basic strategies of vernacular design. The exhibit was not simply a vital catalogue of the architectural responses during a crucial turning point in the development of sustainability; it was also a contemporary appeal to retrieve "those experiments that a large group of people who 'thought differently' produced over three decades ago, and that were once so hastily and thoughtlessly cast aside."[60]

For the remainder of the 1970s, numerous architectural publications continued to investigate energy efficiency in buildings, each one seeking to educate fellow practitioners in a number of passive strategies. At the end of the decade, there

developed a new category of literature that was aimed solely at the architectural

practitioner. These publications may be considered *sustainability pattern books*; each of

them provided sketches and explanations of various methods for decreasing energy

consumption and increasing climatic responsiveness. Several of the books were self-

proclaimed "primers" aimed at providing simple and easily read sketches of generic

passive techniques that may be applied to a variety of architectural forms.[61] They would

include rudimentary breakdowns of the most typical passive sustainable techniques: sun

path charts, ventilation diagrams, glazing strategies, geothermal techniques, thermal

massing, and more. They have an informal approach, often promoting rule-of-thumb or

anecdotal strategies, and for this reason are often overlooked as the crucial arbiters of

sustainability that they certainly were; practitioners and emerging professionals

oftentimes found this humble, almost cartoonish method of communication to be

enormously appealing in its simplicity and applicability.

THE 1980S: A DEARTH OF DISCOURSE

At the start of the 1980s, the interest in environmental architecture waned

substantially, as did the architectural community's concern for the economic potential

and citizenship rights of squatters and the formalistic and planning qualities of their

communities. Undoubtedly, there were strong political and economic reasons for this

lapse, reasons that might explain why architecture abandoned these issues while other

fields, such as anthropology and sociology, continued to engage with them. More than

likely, the sociopolitical shift of neoliberalism under the Reagan and Thatcher

administrations was a strong catalyst for this lapse. The market-driven approach to

political and social policy left little room for the concerns of the impoverished, and

investigations of low-income housing were abruptly defunded. According to

anthropologist Peter Ward, a shift toward the macroeconomics of a globalized free-

market led to economic crisis, particularly in developing countries, that cast the 1980s

as "the 'lost decade,' since social development programs were so badly eroded by the

combination of political and economic restructuring that took place."[62]

ABANDONING THE SOCIAL IMPERATIVE

At the end of the decade, *Assemblage* published Mary McLeod's article

"Architecture and Politics in the Reagan Era," a caustic critique of the social and political

passivity that had persisted in postmodern architecture throughout the eighties. The

emerging trend of this era was a focus upon formal and theoretical inquiry, and

environmental and social issues were abandoned in a rush towards more refined artistic

pursuits. McLeod argued that the architectural education and practice of postmodernism and its later incarnation of deconstructivism were not simply historicized reactions against the functionalistic orthodoxy of modernism, but were rather indelibly linked to the particular political and economic situation of the time.

During the 1970s, America's "dismal economy not only permitted theoretical speculation, but also further fueled perceptions of the architect's diminished social role."[63] The many early treatises that arose from this era, while all essentially based in populism and the urgency of social change that were prevalent in the 1960s, immediately became polarized within architectural discourse when the question of methodology arose. While theorists like Kenneth Frampton argued for the necessity of social engagement within architectural practice, practitioners like Colin Rowe, Robert Venturi, and Denise Scott Brown arose as proponents of architecture's social relevance through formal investigations. According to McLeod, the resulting works of this latter group would eventually come to abandon this social immediacy altogether as the postmodernism moved quickly toward opportunistic goals of style and commodification.

To their credit, the political climate to which these emerging architects were exposed was not particularly conducive to the social and environmental awareness that arose in the Sixties. McLeod points out that "[i]n the public sector the Reagan administration's ninety-percent reduction of funds for public housing and its drastic curtailment of social programs have virtually eliminated commissions oriented toward the poor and minority groups."[64] Also noted is the effective elimination of regular housing studios within architectural education, as well as similar omissions from

professional design magazines and awards. According to McLeod, the work of the

architect became increasingly that of a stylist and a trendsetter, as seen, for example, in

the work of Michael Graves, Peter Eisenman, Robert Stern, and others.

Even as architects began to receive more attention from the general public, the

profession removed itself from any social relevance engendered within the exploration

of environmentalism and informal housing. As the economy continued its rapid upward

growth, little attention was paid to the effects that postmodernism might have upon the

poor, or how their communities might be threatened by urban renewal projects. This

lapse extended into architectural education as well, affecting the generation of

practitioners that were to follow. McLead provides this grim diagnosis of the state in

which architecture finds itself:

> *In the 1980s most schools stopped offering regular housing studios;*
> *gentlemen's clubs, resort hotels, art museums, and vacation homes*
> *became the standard programs. Design awards and professional*
> *magazine coverage have embodied similar priorities. Advocacy*
> *architecture and pro bono work are almost dead.*[65]

POSTMODERNISM AS ANTITHETICAL TO ECOLOGICAL DESIGN

While social issues of the urban poor fell to the wayside, so did the

environmental concerns that had become so relevant in the 1970s. The solar panels on

the White House that had been installed in the late 1970s by the Carter administration

in a symbolic response to the energy crisis were dismantled in 1986 under Reagan's

order. Within this political climate, architectural discussions became less about

environmental impact and more about economic efficiency. As the price for crude oil began to steadily decline throughout the decade, so did the demand for energy-efficient design. Within architectural discourse, there was a consuming interest in theoretical and formalistic pursuits of study. Within architectural practice, the ruling force was economic pragmatism.

This decline in sustainable architectural responsiveness belies the fact that the public awareness of environmental concerns was continuing to grow. Several ecological disasters, namely the 1984 Bhopal gas disaster, the Chernobyl nuclear meltdown in 1986, and the Exxon Valdese oil spill of 1989, only sharpened the environmental concerns of the mainstream. All the while, architectural discourse remained largely unengaged.

The great potential for vernacular architecture to align itself with passive systems and ecological sensitivity was lost amidst an increasing concern for the formal implications of vernacular as a *style*. Early concepts of vernacular architecture, like those promoted in Rudofsky's exhibition and Frampton's later publications, began to take on a more ornamental role within postmodern buildings. Though vernacularism and attention to locality was lauded as a strong element within the designs of architects like Michael Graves and Robert Venturi, "the postmodern use of regionalism rarely extends beyond surface image."[66] Instead, the stylistic concerns precluded consideration of basic elements such as climate, ventilation, and solar orientation in favor of a unified, homogenized sensibility of the so-called vernacular.

The pretentions of postmodernism would not evaporate overnight, yet there

was an increasing awareness that the hegemony of materialistic and formal pursuits

would need to be challenged.

THE 1990s: ARCHITECTURE REACQUAINTS ITSELF WITH THE ISSUES

Of course, the phase of formal fetishism during the 1980s would prove largely temporary, and the turn of the decade brought with it the new environmentalist buzzword: *sustainability*. In the 1990s, the importance of sustainable efforts within architectural practice became more pronounced with each passing year, and the invention of new technologies ensured perpetual invention and discovery as architecture assumed the task of social and environmental responsibility.

SUSTAINABILITY: THE NEW BUZZWORD

In 1987, the United Nations established the World Commission on Environment and Development (WCED), now known simply as the *Brundtland Report*. It is here that the term "sustainability" is first introduced as not only an ecological but also a social imperative. The report also spoke of a need for addressing the poor; one of its two key concepts of sustainable development was "the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given."[67] In the early 1990s, William McDonough's *Hannover Principles* would align the sustainability effort with contemporary architectural pursuits, extending the implications of the *Brundtland Report* into the built environment. Although it was written as a competition brief for designers of pavilions for the upcoming German World's Fair, the EXPO 2000, the implications of the report were much more far-reaching. McDonough's principles laid the groundwork for sustainable architecture as a whole in the years to come. In it, he encouraged architecture that harkens back to earlier, "simpler" societies, but argues

that "no simple return to vernacular architecture can help us now."[68] Instead of

considering the small scale of a single site or development, designers must recognize the

global implications of their interferences. Taking cues from the endurance of those "less

mechanistic cultures" explored by Rudofsky, McDonough suggested that "sustainable

building relies less on an absolute coherent plan than on the cooperation between

designers and end-users."[69] This is only one of many areas of the paper where he

seemed to imply that the most sustainable architecture is that which relinquishes some

amount of control. In this case, he more than likely was alluding to the need for design

to allow a place for nature – that nature may become an actor in the generative process

of a building. If this is true, then perhaps McDonough's philosophy in the *Hannover*

*Principle*s may be seen as the ecologically concerned counterpart to the informal

hybridity of John Habraken's *Supports* system from decades before. This case can

certainly be made for another of McDonough's assertions: "design becomes the setting

up of spaces which allow the spontaneous and the integrated to occur."[70]

FROM PASSIVE TO ACTIVE

Concurrent to this, the architectural practice did indeed begin to change. In

1993, the United States Green Building Council (USGBC) was founded to implement a

set of standards for sustainable design and construction practices. In 2000, the

Leadership in Energy and Environmental Design (LEED) Standards were released as an

attempt to reward ecologically sensitive building practices. The LEED system was the

most comprehensive analysis of sustainable environments within architectural practice

to date. These standards represent the most comprehensive and codified analysis of architecture's concern with sustainability to date.

With the reemerging attention to sustainability there was also a renewed interest in studying informal settlements from an architectural perspective, although it came about at a markedly slower pace. In a 1990 article (1988 International Seminar in Zanzibar) by urbanist Mona Serageldin, she sought to elicit action from the architectural community on the subject of these communities, saying: "until recently, architects had for the most part ignored informal housing, disenchanted by what was perceived to be an overwhelming absence of quality and a concentrated dose of bad taste."[71] Instead, she argued that architects needed to increase their tolerance of and interest in this mode of construction, and she hoped to see them interpret the developments as a form of vernacular style, worthy of attention and further research.

In the early 1990s, Lisa Peattie returned to the discussion of informality as a proponent of "more and better slums."[72] She bemoaned the 85% reduction in housing subsidies during the 1980s, but was optimistic about future developments of housing with the return of this funding in 1990. She reestablished herself as a champion of slum improvement, arguing that this would be the only way to provide adequate housing to the lowest economic class.

In the 1990s, discussion was not restricted to research of wholly informal developments. Many scholars were repositioning informality as merely one facet of architectural design, investigating its underlying principles and placing it alongside longstanding buildings of the architectural canon. John Habraken would once again

contribute to the discussion of informality in his book *The Structure of the Ordinary*,

published in 1998. In it, he expanded the purview of the architect beyond the scale of

the building to that of the built environment, a shift that required investigation beyond

the typical historicism of Palladian paradigms of monumentality and towards "engaging

the commonplace."[73] He differentiated informality from slum settlements, instead

asserting their legitimacy as startup communities filled with inhabitants who were

hoping to access the middle class; these communities "represent urban environment

emerging in spite of ineffective laws and administrative procedures."[74] He compared

squatter settlements developing in Latin America with those of the early settlers in

Oklahoma during the land rush over a century ago. These individuals squatted on the

land until they had surpassed the status of informal; perhaps, therefore, leniency and

support are the best methods of ensuring the future success of the new settlers of our

generation.

RECENT ARCHITECTURAL DISCOURSE

According to a 2008 issue of *Harvard Design Magazine* that is devoted

exclusively to the topic of architectural engagement within informal communities, there

is a recent increase in interest amongst American architects, urbanists, and landscape

architects to more fully engage with the more critical social and environmental issues.

Editor William Saunders writes that the reasons for this include: "reaction against

corporate and governmental indifference to the disadvantaged, the threats of climate

change, a cyclical rebalancing of values, an obscene growth of income equality,

repugnance with the culture of celebrity, luxury, and spectacle, and more."[75]

INFORMAL SETTLEMENTS GET THE FORMAL TREATMENT

With increasing frequency, architects are repositioning themselves as active

participants in the discussion of informal housing. Peter Kellett has written extensively

on the topic of informality, arguing for the competence of the occupants of informal

settlements and the ingenuity with which they construct their own homes. While

studying the squatter settlements of Santa Marta, Colombia, Kellett described an

incremental process of construction that began with the illegal and oftentimes violent

invasion of a plot of land and then, over time, became transformed in accordance with

the changing situation of the owner-builder. The eventual outcome of this process was

an architecture that extended beyond the mere functionalism of shelter and safety,

becoming a medium upon which the inhabitants continually imparted meaning. In this

way, the dwelling unit was a physical manifestation of the aspirations and goals of its

owner, so much so that the iterations of construction may be focused upon improvement of the aesthetic rather than that of the shelter itself: "resources and effort have been expended on addressing issues of image rather than resolving more practical questions."[76]

It is interesting to compare Kellett's argument for the legitimacy of informal settlements with those of the sixties and seventies. Decades ago, architectural researchers such as John Turner provided insight into the legitimacy of informality by portraying the houses as inevitable outcomes of the immediate economic and cultural realities of the poor who occupied them. Turner, in particular, promoted the owner-builder as uniquely qualified to meet his own needs through incremental construction, and he maintained faith in the rationality of the poor. The form of a squatter home could therefore be understood as the physical representation of an occupant's varying geographical, economic, and social situations.

Kellett, however, saw value in these settlements beyond Turner's localized criteria. He argued that the physical forms are imbued with meaning and charged with memory, and oftentimes they extend beyond the inhabitant's pragmatic rationality in which Turner has placed so much faith. Instead, the informal house becomes the imposition of an image, one that aspires to a formalized aesthetic of success and prosperity long before it is actually achieved. In Santa Marta, emphasis was placed upon the front façade of the home, and the decorative model came from the nearby middle-class formal houses. The similarities in built form were often striking: "both have recessed, stepped entrances which are centrally positioned with verandas; both

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have rendered walls painted in pastel colours; front areas are sharply demarcated by low walls with a distinctive semi-circular motif, sometimes with decorative security railings."[77]

Fernando Lara would make a similar argument while investigating the construction techniques and aesthetic choices of self-built housing in Brazil. Like Kellett, he reacted against the notion that informality is inherently chaotic and haphazard. Instead, the favelas in Brazil, when viewed at the scale of the housing unit, encompass a "logic behind the accumulation of volumes."[78] In fact, these units, rather than merely copying the applied decoration of middle-class homes, have adopted the modernist tenets that underscore them. Construction is often based upon a Corbusian system of *pilotis* and slabs of reinforced concrete, likely due to the affordability of materials and clarity of construction, but also to the modern aesthetic that pervades Brazil's architectural heritage.   Even without the participation of architects, the dissemination of modern styles and components are maintained even at the level of squatter housing.

Lara goes on to say that, oftentimes, these modernist elements were significantly altered by economic constraints that dilute the efficacy of modernism. For instance, the large panel glazing of high-end modernism was not financially feasible, so instead windows tended to be much smaller as the budget is lowered significantly. Dynamic sloping canopies of veranda roofs, so common in middle-class houses, were instead represented in informal housing with a simpler and cheaper slab extension that served as an overhang. The most striking departure from these tenets was the disparity between the modern façade and the floor plan contained within. In favelas, "there

seems to be no pattern of spatial organization other than the very pragmatic solutions that result from constructing with restricted means […] thus, modernist spatial arrangements are not typically found, even if the materials and building techniques are similar."[79]

These discussions by architects are significant because they extended the influence and implications of informality beyond basic studies of materiality, economy, and rationality, into the realm of architectural theory: commoditization, place-making, imbedded memory, and public image.

APOCALYPTICISM

Beyond the formal interpretations of architectural investigations into informal settlements, many other fields of researchers are providing insights into these communities that appeal to a broader audience. In some cases, however, reports on the current conditions of slum settlements borders on sensationalism, and the implications of this approach within the architectural community should be considered.

Journalist Robert Neuwirth has studied squatter communities in various cities around the world, including Rio de Janeiro, Nairobi, Mumbai, and Istanbul, and he views these developments as hubs of design innovation and land-use efficiency. In his book *Shadow Cities*, he cites historic methods for establishing cities to argue for the validity of informal settlements as an organizing form: "the history of cities teaches that squatters have always been around, that squatting was always the way the poor built homes, that it is a form of urban development."[80] In a tone reminiscent of Turner, Neuwirth argues

that squatter settlements are areas of opportunity and the informal dwellings the

squatters construct for themselves do indeed have value. In his book, he profiles the

lives and the conditions of the people who live in the informal settlements of Nairobi,

Rio de Janeiro, Mumbai, and Istanbul, revealing the pride and hopefulness of urban

squatters around the world.

Mike Davis's *Planet of Slums*, published in 2006, is perhaps one of the most

popular and controversial texts on contemporary informal settlements. The book

provides countless staggering statistics on the current state of poverty and the rapidity

of unsupported urbanization; Davis bolstered these with focused case studies of

individual slum communities. Along the way, he argued that these enormous slum

communities are the products of inadequate political attention, physical infrastructure,

and social opportunity. Cautioning against neoliberal politics that ignores the plight of

the impoverished, he points out that "overurbanization … is driven by the reproduction

of poverty, not by the supply of jobs.

While these books by Neuwirth and Davis are effectively fostering a more

mainstream awareness of the vast expansion of informal settlements, they oftentimes

evoke the possibility of a future that may seem frighteningly bleak and fatalistic. Davis,

in particular, employs vivid, dramatic imagery that seems to incite dread: "Instead of

cities of light soaring toward heave, much of the twenty-first century urban world

squats in squalor, surrounded by pollution, excrement, and decay."[81] One critic claimed

that Davis's "apocalyptic rhetoric feeds into longstanding anti-urban fears about

working people who live in cities."[82] The danger of this method is the possible negative

reaction that often accompanies fear and misunderstanding of slum settlements.[83]

Decades ago, John Turner and his colleagues worked diligently to reveal the

entrepreneurial and aspirational motivations behind self-built housing in hopes of

destigmatizing the settlements and their inhabitants. One would hope that the colorful

descriptions and alarming statistics of contemporary writers would not return readers to

the more antiquated stances on the urban poor.

<u>HYBRIDIZATION OF THE FORMAL AND THE INFORMAL</u>

Ann Varley, in a recent lecture entitled "Postcolonializing Informality," cautioned

architectural theorists against the pitfalls of binary thinking when considering

informality as antithetical to formality. She argues that such divisions can provide a

dangerous framework for the return of the biological metaphors that have perpetuated

the marginalization of the poor in the past.

Perhaps as a counterpoint to this argument, one may consider the increasingly

hybridized structures that architects are creating that appear to break down the

boundary between formal and informal construction. According to architect Felipe

Hernandez, who has written extensively on the informal settlements of Latin America,

contemporary practitioners are increasingly willing to engage with design strategies that

are more sensitive to the needs of the future low-income inhabitants. The resulting

approaches to housing are therefore more culturally sensitive to and accepting of the

flexibility and contextualization that informal construction can provide. In Chile,

Alejandro Aravena's firm ELEMENTAL has developed a new approach to housing that

attempts to provide a middle-class standard to those who cannot afford to repay a mortgage. Within a housing block, "the units are designed in such a way that residents can modify and extend their dwellings according to their own needs and their fluctuating income."[84] Using a strategy strongly reminiscent of Habraken's *Supports*, the units are essentially unfinished; they contain all the components necessary to maintain a sustainable environment, such as structure, utilities, and fixtures, but they also allow for the possible design alterations and additions of the inhabitant. In the development of Quinta Monroy, in Iquique, Chile, the interstitial spaces between housing units are left open in anticipation that the inhabitant may one day "occupy" the space and expand upon their living conditions. To maintain affordability, the building materials are cheap and commonplace, mostly concrete block and plywood, and the interior finishes are left to the future inhabitants. The resulting buildings are innovative because they maintain the spirit of the owner-builder that is so crucial to informal housing, and the eventual aesthetic of the buildings become formalistic representations of the dwellers within. Aravena's work represents a new strategy for design in which "architects do not conceive buildings as finalized but, on the contrary, as incomplete entities which will be continually (re)created by the users."[85]

INFORMALITY AND THE ENVIRONMENT

Peter Ward is not optimistic about the current state of social theory with regard to informal housing. In 2005, he lamented, "no one appears to be looking at the contemporary 'rationalities' of the slum, or to be seeking to understand the interaction

between the processes of social exclusion and their spatial and residential outcomes."[86] Recently, however, scholars do appear to be paving a more promising path for the future discussions of informality, particularly as they pertain to environmentally sustainable development.

With this rapid growth of Megacities and the increasing awareness of their ecological implications, informal settlements have, in recent years, been more heavily investigated across a broad range of fields. Environmental advocate Stewart Brand, who authored the influential *Whole Earth Catalog* in 1972, argues today that squatter communities are not the result of poverty, but are rather the creation of opportunity for those who migrate to the cities from impoverished villages: "At numbers now surpassing one billion worldwide, these squatters are the dominant builders and designers, and oftentimes succeed in establishing alternative and independent systems of infrastructure and economy." The participation of strong environmentalist voices such as Brand's on the topic of informality is surely an encouraging sign that the two topics might soon engage with one another.

An alarming trend within contemporary discourse on informality is the conflation of the urban poor with their environment.[87] This viewpoint is far from new; from early theories of miasmatic medicine to more recent claims of the culture of poverty, the poor have often been associated with the waste and the filth of the environmental conditions within which they find themselves. Sociologist Javier Auyero's *Flammable: Environmental Suffering in an Argentine Shantytown* is a groundbreaking attempt to distinguish the impoverished residents from their material context. It is an

ethnographic study of the inhabitants of Flammable Shantytown, an area outside

Buenos Aires that is so heavily polluted by nearby petrochemical plants that the

abundance of disease and contamination, such as lead poisoning, is astounding. Yet,

despite evidence to the contrary, the authorities insist that these afflictions are "a

problem of the slums" and "a result of slum dwellers' practices." Disease, therefore, is

not "a consequence of the lead-saturated environment in which they live," but rather a

result "of their own careless behavior."[88] Auyero reveals the hypocrisy as a

continuation of Oscar Lewis's outdated theory of the "culture of poverty," instead

positioning this system of denial as force of reproduction of destitute and unequal

conditions among slum settlements.

CONCLUSIONS

Architecture, both as a profession and an academic pursuit, has oftentimes struggled with its own relevance. Since the establishment of the utopian ideals of modernism, and through the aftermath of their apparent failures, we have faced the question of our own efficacy in the realm of social and environmental improvement, as discourse swings dramatically between claims of our own importance or impotence.

At the end of the 20th century, architectural practitioners have recognized the dissolution of their once prominent position in the social realm that has resulted from decades of form-based discussions and short-term pragmatic approaches. The current task of the architect is to react against this marginalization of his profession. A revival of interest in sustainable practices as well as thoughtful inquiry into the spatial compositions of informal housing will provide a future foothold for re-establishing architectural authority on contemporary social issues.

It is a confounding fact that the issues of informal dwellings and sustainability have diverged so drastically as to establish their own independent historiographies. As Michael Garrison points out, architectural curriculums have long been concerned with "the need for shelter and the effects of climate on human environments."[89] One possible explanation for this divide is that future attempt to unify efforts of sustainability and informality seem to be at odds with one another at their most basic assumptions. The goal of any architectural discussions of informality is to provide the most impoverished of people with the means and the opportunities to lift themselves

out of that poverty. This social mobility is, at its most basic level, antithetical to the base arguments of most environmentalists.

The two issues of informal housing and sustainability must engage with one another in future architectural research and discourse. Sustainable efforts, both at the level of a building and that of larger, overarching systems, that do not address the issue of informal housing are ignoring a growing condition that will within fifty years encompass one third of the world's population. From the other end, informal housing has the potential to engage with sustainability efforts in a more immediate and instinctive manner, bypassing the phases of industrialization and (wasteful expansion), aspects that continue to burden developed countries to this day. This historiographical overview of these two topics exposes that preoccupation with formalism and failure to address social imperatives have, in the past, hindered architecture's ability to engage with these issues. For now, the discourse must realign itself with a more comprehensive and urgent discussion of these issues to determine the possible solutions therein.

The most evocative portion of this historiography is this so-called "dearth of discourse" that occurred in the 1980s. After the enormous surges of interest in informality and sustainability that were apparent in the previous decades, how then did this sustained and abrupt silence come about? The lack of interest and exploration into social and ecological concern during the 1980s was profound, and appears even more pronounced as these issues have become only increasingly urgent and relevant in subsequent years. Yet the discourse in this particular decade failed to engage on any

meaningful level. What possible theoretical, historiographical, and practical reasons were behind this lapse?

Theoretical analyses of architecture during this period have largely ignored this particular omission, choosing instead to focus upon the stylistic and formalistic contributions of postmodernism. The only clear exceptions to this are McLeod's immediate response in Assemblage and Otero-Pailos more recent survey of phenomenological development since the 1960s. Surely further investigation is needed. It would be an interesting examination, one that questioned the political, economic, and cultural impetuses of such disengagement with informality and sustainability during the 1980s.

[1] United Nations Human Settlements Programme., *The Challenge of Slums : global report on human settlements* (London: Earthscan Publications, 2003).

[2] Jorge Otero-Pailos, *Architecture's historical turn : phenomenology and the rise of the postmodern* (Minneapolis: University of Minnesota Press, 2010), xi.

[3] Felipe Hernández and Peter Kellett, eds., *Rethinking the Informal City: Critical Perspectives from Latin America* (New York: Berghahn Books, Inc, 2009), 2.

[4] Kim Dovey, *Becoming Places: Urbanism/Architecture/Identity/Power* (Taylor & Francis, 2010), 79.

[5] World Commission on Environment and Development, *Our Common Future* (Oxford: Oxford University Press, 1987).

[6] William McDonough, *The Hannover Principles: design for sustainability : prepared for EXPO 2000, the World's Fair, Hannover, Germany* (W. McDonough Architects, 1992), 4.

[7] David K. Underwood, "Alfred Agache, French Sociology, and Modern Urbanism in France and Brazil," *Journal of the Society of Architectural Historians* 50, no. 2 (June 1991): 157.

[8] For more on this, see the publication that accompanied the exhibition series: *Robert Moses and the Modern City: The Transformation of New York*, 1st ed. (New York: W.W. Norton & Co, 2007).

[9] James Holston, *The Modernist city: an anthropological critique of Brasilia. Revised edition of a doctoral thesis* (University of Chicago Press, 1989).

[10] Ibid.

[11] Sam Schulman, "Latin-American Shantytown," *New York Times (1923-Current file)*, 1966.

[12] Ibid.

[13] Definition taken from Peter M. Ward, "The Lack of 'Cursive Thinking' within Social Theory and Public Policy: Four Decades of Marginality and Rationality in the So-Called Slum," in *Rethinking Development in Latin America*, ed. Charles H. Wood and Bryan R. Roberts (Penn State Press, 2005), 276.

[14] See introduction to Oscar Lewis, *La Vida*, 1st ed. (México, D.F: Editorial Grijalbo, 1983).

[15] Jorge Otero-Pailos, *Architecture's historical turn : phenomenology and the rise of the postmodern* (Minneapolis: University of Minnesota Press, 2010), xi.

[16] Bernard Rudofsky, *Architecture Without Architects: A Short Introduction to Non-Pedigreed Architecture* (University of New Mexico Press, 1964).

[17] In 1969, John Mass wrote an article for JSAH that criticized the journal for its Eurocentricism and adherence to the formal, bourgeoise canon of architecture. He pointed to Rudofsky's book as a singular revelation of a global architecture, and mentions that JSAH never published a review of it. See John Maass, "Where Architectural Historians Fear to Tread," *Journal of the Society of Architectural Historians* 28, no. 1 (March 1, 1969): 3-8.

[18] Rudofsky, *Architecture Without Architects*.

[19] Ibid.

[20] Ibid.

[21] Ibid.

[22] William McDonough, *The Hannover principles: design for sustainability : prepared for EXPO 2000, the World's Fair, Hannover, Germany* (W. McDonough Architects, 1992), 30.

[23] Architektur Zentrum Wien, eds., *Lessons from Bernard Rudofsky: Life as a Voyage* (Basel: Birkhäuser, 2007).

[24] Ibid.

[25] J Turner et al., "The Architecture of Democracy.," *Architectural design*, August 1968, 354.

[26] JFC Turner, *Housing by People: Towards Autonomy in Building Environments*, 1st ed. (New York: Pantheon Books, 1977), 24.

[27] Charles J. Stokes, "A Theory of Slums," *Land Economics* 38, no. 3 (1962): 189.

[28] Charles Abrams, *Man's struggle for shelter in an urbanizing world* (Cambridge, Mass.,: M.I.T. Press,, 1964), 24.

[29] Ibid., 169.

[30] Vandana Baweja, "Otto Koenigsberger and the Tropicalization of british Architectural Culture," in *Third World Modernism: Architecture, Development and Identity*, ed. Duanfang Lu, 1st ed. (Routledge, 2010), 240.

[31] Ibid., 241.

[32] Jane Jacobs, *The Death and Life of Great American Cities* (New York: Vintage Books, 1961), 271.

[33] Dorine van Hoogstraten, "Between Structure and Form: Habraken and the Alternative to Mass Housing," in *Housing for the Millions: John Habraken and the SAR (1960-2000)*, ed. Koos Bosma (Rotterdam: NAI Publishers, 2000), 88.

[34] N Habraken, *Supports: An Alternative to Mass Housing* (New York: Praeger Publishers, 1972), 9.

[35] Hoogstraten, "Between Structure and Form: Habraken and the Alternative to Mass Housing," 127.

[36] For an account of Sustainable Design at the University of Texas, see Michael Garrison, "History of the Sustainable Design Program, 1973-2010," in *Traces and Trajectories: The University of Texas at Austin School of Architecture at 100*, ed. Richard Louis Cleary (Austin, Tex: University of Texas at Austin School of Architecture, 2010). This article also provided valuable insight into the more pivotal texts of ecological design that are mentioned in this paper.

[37] Victor Olgyay, *Design with Climate: Bioclimatic Approach to Architectural Regionalism* (Princeton, N.J: Princeton University Press, 1963), 13.

[38] See Ibid., 7 and 94.

[39] Reyner Banham, *The Architecture of the Well-Tempered Environment* (London: Architectural P, 1969); Ian L. McHarg, *Design with nature* (The Natural History Press, 1969).

[40] Robert Goodman, *After the planners.* (New York: Simon and Schuster, 1971).

[41] Ibid.

[42] JC Turner, William Mangin, and CS Turner, "Dwelling resources in South America," *Architectural Design* 33 (August 1963): 393.

[43] J Turner et al., "The Architecture of Democracy," 354.

[44] Robert Goodman, "Making Architectural Education Make It," *Architectural Design*, August 1968, 378.

[45] Lisa R. Peattie, "The Dilemma: Architecture in an Affluent Society," *Architectural Design*, August 1968, 361.

[46] Ian Donald Terner and Robert Herz, "Squatter-Inspired," *Architectural Design*, August 1968, 368.

[47] Authur Stern, from his recollection of the event in Rolf Goetze, "Squatters at M.I.T.," *Architectural Design*, August 1968, 387.

[48] George Owen, from his recollection of the second phase of mezzanines in Ibid., 388.

[49] Ibid.

[50] See Rolf Goetze, "Urban Housing Rehabilitation: two approaches contrasted to illustrate productive and meaningful dweller participation," in *Freedom to Build; Dweller Control of the Housing Process*, ed. JFC Turner and Fichter Robert (New York: Macmillan, 1972).

[51] ID Turner, "The Squatter Settlement: An Architecture that Works," *Architectural Design*, August 1968, 357.

[52] JFC Turner, Horacio Caminos, and John A. Steffian, *Urban Dwelling Evironments: an elementary survey of settlements for the study of design determinants* (M.I.T. Press, 1969).

[53] From Colin Ward's preface to JFC Turner, *Housing by People*, xxxi.

[54] See JFC Turner, "Housing as a Verb," in *Freedom to Build; Dweller Control of the Housing Process*, ed. JFC Turner and Fichter Robert (New York: Macmillan, 1972), 148.

[55] Richard Harris, "A double irony: the originality and influence of John F.C. Turner," *Habitat International* 27, no. 2 (June 2003): 245-269.

[56] For more on this, as well as a historiography of environmentalism within design, see Pauline Madge, "Design, Ecology, Technology: A Historiographical Review," *Journal of Design History* 6, no. 3 (1993): 149-166.

[57] See Chapter 10: Conspicuous Consumptives: Design and the Envriconment, Pollution, Crowding, Starvation, and the Designed Environment. Victor J Papanek, *Design for the Real World; Human Ecology and Social Change*, 1st ed. (New York: Pantheon Books, 1972).

[58] William Wayne Caudill, Frank D. Lawyer, and Thomas A. Bullock, *A Bucket of Oil: The Humanistic Approach for Building Design for Energy Conservation*, First Edition. (Cahners Books, 1974), 8.

[59] Giovanna Borasi and Mirko Zardini, eds., *Sorry, Out of Gas : Architecture's Response to the 1973 Oil Crisis* (Montréal ;Montova Italy: Canadian Centre for Architecture ;;Corraini Edizioni, 2007).

[60] Mirko Zardini, "Think Different," in *Sorry, Out of Gas : Architecture's Response to the 1973 Oil Crisis* (Montréal ;Montova Italy: Canadian Centre for Architecture ;;Corraini Edizioni, 2007), 49.

[61] A few examples of these "primers" are: David Wright, *Natural solar architecture: a passive primer* (Van Nostrand Reinhold Co., 1978); David A Bainbridge, *Village Homes' Solar House Designs: A Collection of 43 Energy-Conscious House Designs* (Emmaus, Pa: Rodale Press, 1979); Allan Konya, *Design primer for hot climates* (Architectural Press, 1980).

[62] Ward, "The Lack of 'Cursive Thinking' within Social Theory and Public Policy: Four Decades of Marginality and Rationality in the So-Called Slum," 284.

[63] Mary McLeod, "Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism," *Assemblage*, no. 8 (February 1, 1989): 23-59.

[64] Richard Berke, "Dukakis Says He Would Commit $3 Billion to Build New Housing," *New York Times (1923-Current file)*, June 29, 1988.

[65] McLeod, "Architecture and Politics in the Reagan Era."

[66] Ibid.

[67] World Commission on Environment and Development, *Our Common Future*.

[68] McDonough, *The Hannover principles*, 17.

[69] Ibid., 30.

[70] Ibid., 50.

[71] Monica Serageldin, "The Development and Morphology ofInformal Housing," in *The Architecture of Housing*, ed. Robert Powell (Aga Khan Award for Architecture, 1990).

[72] Lisa R. Peattie, "An Argument for Slums," *Journal of Planning Education and Research* 13, no. 2 (January 1, 1994): 136.

[73] NJ Habraken, *The Structure of the Ordinary: Form and Control in the Built Environment* (Cambridge, Mass: MIT Press, 1998), 3.

[74] Ibid., 303.

[75] William S. Saunders, "Design Politics... And Parametrics," *Harvard Design Magazine*, Spring/Summer 2008, 4.

[76] Felipe Hernández, Mark Millington, and Iain Borden, *Transculturation: Cities, Spaces and Architectures in Latin America* (Rodopi, 2005).

[77] Ibid.

[78] Hernández and Kellett, *Rethinking the Informal City: Critical Perspectives from Latin America*.

[79] Ibid.

[80] Robert Neuwirth, *Shadow cities: a billion squatters, a new urban world* (Routledge, 2006).

[81] Mike Davis, *Planet of slums* (Verso, 2006), 19.

[82] Tom Angotti, "Apocalyptic anti-urbanism: Mike Davis and his planet of slums," *International Journal of Urban and Regional Research* 30.4 (December 2006): 961.

[83] For more on this, see the section "Why do the Favelas seem so Scary?" in Fernando Luiz Lara, "Beyond Curitiba: The rise of a participatory model for urban intervention in Brazil," *Urban Design International* 15, no. 2 (June 2010): 119-128.

[84] Felipe Hernández, *Beyond Modernist Masters: Contemporary Architecture in Latin America* (Basel: Birkhäuser, 2010), 61.

[85] Ibid., 74.

[86] PM Ward, "The Lack of 'Cursive Thinking' within Social Theory and Public Policy: Four Decades of Marginality and Rationality in the So-Called Slum," 295.

[87] Ann Varley also mentioned in her lecture that this has again become problematic among discussions of informality

[88] Javier Auyero, *Flammable: Environmental Suffering in an Argentine Shantytown* (Oxford: Oxford University Press, 2009), 76.

[89] Garrison, Michael, "History of the Sustainable Design Program, 1973-2010," in *Traces and Trajectories: The University of Texas at Austin School of Architecture at 100*, ed. Richard Louis Cleary (Austin, Tex: University of Texas at Austin School of Architecture, 2010), 124.

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