Ekistics, Architecture and Environmental Politics, 1945-1976:
A Prehistory of Sustainable Development

by

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ABSTRACT

The dissertation examines Ekistics, a field defined by the architect and planner Constantine Doxiadis as the "science of human settlements" that championed the radical expansion of architecture's scope, called for its alignment with international development, and emphasized the profession's responsibilities towards global environmental exigencies. Spanning the disciplines of architectural history, environmental history, and cultural studies, the study analyzes the intellectual lineage of Ekistics' conceptions of the global environment, and the complex historical circumstances in which they were shaped: international policies for development, postcolonial agendas of modernization and nation building, scientific controversies on global interconnectedness, and architectural critiques of modernism.

The study focuses on Ekistics' planning models of "dynapolis" and "ecumenopolis," and on physical interventions proposed by branches of Doxiadis's enterprise in the Mediterranean margins of Europe and the Middle East, where Ekistics had widespread appeal. The study also analyzes Doxiadis's relationship with key figures in postwar architectural culture, notably Jaqueline Tyrwhitt, who was also the editor of the journal *Ekistics*, Buckminster Fuller, who embraced Doxiadis's vision of world cities, and Hassan Fathy, who operated as a proponent of local "traditions" in the midst of the Ekistics group. Furthermore, the study examines Doxiadis's and his colleagues' interpretation of such concepts as Patrick Geddes's notion of an interconnected "environment," Conrad H. Waddington's notion of "systems," Jean Gottman's notion of "megalopolis," and Rachel Carson's notion of an ecological "balance."

By proposing an alternative focus on Ekistics, which for the first time examines the environmental themes underlying its transnational practice, the study fills a gap in current scholarship, by uncovering the profound impact of 1950s and 60s environmental consciousness on architectural culture, before the popularization of environmentalism in the 1970s. Furthermore, it contemplates the extent to which postwar environmental consciousness in architecture is entangled with postwar modernization and development discourses directed at the so-called third world. In the process, the study suggests that the history of postwar environment-development politics can also provide a fresh critical perspective on today's popular topic of sustainability.

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INTRODUCTION

The subject of this study is the formation of a new architectural conception of the environment in the aftermath of the Second World War, as the profession assumed new planetary ambitions and responsibilities. When United Nations and United States specialized agencies brought what Harry Truman called "underdeveloped areas" of the earth to the center of attention, architects were presented with an opportunity to align modernist visions of social reform with the postwar dream to secure world "peace, plenty and freedom" through growth and development.[1] As architectural modernism spread well beyond its birthplaces, southward and eastward, following the flow of foreign capital and technical expertise in those directions, it became entangled with the postcolonial histories of decolonization, modernization, and nation building, and it confronted new questions on architecture's commitment to science and technology, and its responsibilities towards society and nature. Even if development institutions reaffirmed a faith in the power of science and technocratic expertise to reshape world order, the traumas of the war, and Hiroshima, which presented the world with the first global environmental threat, stood as inescapable reminders of science's devastating side.[2] The ills of urban-industrialization that were in the meantime increasing exponentially as modernization traced a global trajectory, augmented anxieties about shared problems.[3] For architecture, these were the beginnings of a new global awareness.

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[1] Truman's Inaugural address in January 4th, 1949 inscribed development in the agenda of urgent world business, by calling for a "worldwide effort for the achievement of peace, plenty, and freedom"; An Act of International Development and approved by Congress in 1950. See Brown and Opie, *American Foreign Assistance*, 1953. United Nations meetings emphasized the unity of mankind and the need to "promote social progress and better standards of life in larger freedom... to and to employ international machinery for the promotions of economic and social advancement of all peoples." *Preamble to the Charter of the United Nations*, New York: UN Office of Public Information, 1968. Very soon, UN policies called for a total restructuring of underdeveloped societies through foreign aid and technology transfer.

[2] Most acutely aware of this dark side of Enlightenment and progress were the Frankfurt School thinkers, whose work became an influential intellectual backdrop for rethinking postwar realities. E.g., Max Horkheimer and Theodore Adorno, *Dialectic of Enlightenment*, Translated by J. Cumming (New York: The Seabury Press, 1972).

[3] In their insightful introduction to *Anxious Modernisms* (Cambridge: The MIT Press, 2000), Goldhagen and Legault have described "anxiety" as the common characteristic among many architectural responses to the new postwar society. This dissertation uncovers another aspect of this

Architectural negotiations between the postwar optimism for development on the one hand, and environmental concerns on the other, unfolded against the background of a long history of reformist visions that negotiated between the modern city and the country, nature and industrialization, self-reliance and modernization. Community experiments in the United States and Europe, also transplanted in the colonies, advocated the contact of architecture and nature in the name of social reform, since the middle of the 19th Century. Ebenezer Howard's Garden City designs from the 1880s were prominent among critical responses to urbanization and modernization in Britain, and the ambivalence of his pastoral impulses inspired experimental communities in France, Germany, Russia, and British colonies.[4] Patrick Geddes' 1915 guide to social evolution, also tested in different corners of the world, made an even more ambitious claim regarding the interdependence of nature, built forms, and social surroundings. In the meantime, Olmstead's suburb designs in the US (1852-1903); Tessenow's Hellerau in Germany (1904-1930s); Ginzburg's Green cities for the Soviet Union (1917-30s); and versions of the Israeli Kibbutz in early 20th Century, among others, took town-country debates to a variety of political ends.

By the middle of the twentieth century, the politics of earlier community experiments—whether they had socialist affiliations (e.g., "back to nature" movements in 1880s England) or they emphasized the collectivity of the nation (e.g., the "reform of life" movement in early 20th Century Germany," or mystical attachments to the land in 19th Century US)—were overshadowed by the apolitical claims of international development institutions (although these institutions' emphasis on capitalist growth was a product of the bitter ideological divide of the cold war). Earlier studies of the socio-spatial relationships between work/recreation, artifacts/nature continued to provide clues for a new wave of planned cities (e.g., British New Towns, or capitals of newborn nation states). But new

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disciplinary anxiety, caused by the combined impact of international development and the emerging global environmental consciousness. For more on this book see the Conclusion to this dissertation.

[4] Ebenizer Howard's Garden City attempted to mediate between the modern city and the country, by establishing a new contact with nature. Its influences tracing back to Ruskin's and Morris's critique of the industrial city, Chadwick's health reform proposals, and England's "back to the land movement."

voices, more powerful and diverse, entered western architectural discourse, to amplify earlier ambitions for shaping nature and society: Gropius' call for a "total architecture"(1949); Fuller's urge to think "in the biggest way you know how"; and the Smithsons' casting of communities as "total complexes" (1954) only foreshadowed the new reality: The aspiration to shape the totality of the human environment was charting new directions.

Another key theme that influenced architectural attitudes towards the development frenzy was the commitment to technocratic expertise as a universal facilitator of progress. Technocratic ideals had already been championed by the CIAM Athens Charter of 1933, the key manifesto of modern urbanism that advocated rational and efficient urbanism to be carried out by a central state power under the guidance of expert planners. Drawing on Frederic Taylor's *Principles of Scientific Management* (1911) that trace back to Saint-Simon's proposals for the rational engineering of social life, the social optimism of this technocratic model was even more appealing after the war, when the daunting tasks of reconstruction, rehousing, and city building in multiple contexts around the world augmented the need to objectify, chart and analyze needs, resources, and social relationships. In the meantime, however, mounting critiques of prewar modernism—which were, in fact, simmering since the 30s—questioned CIAM doctrines, to highlight extra-technological and non-functionalist concerns, sentiments, emotions, and values.[5] Sigfried Giedion himself called for healing the split between "thinking and feeling."[6] And while the task of humanizing modernism lead some to symbolic representations, or aestheticism (or propelled them to look outside the discipline for an architecture without architects) others tried to overcome the ghosts of modernism's past by establishing new alignments with the conceptual framework of science. For one, the sciences of psychology, sociology, and anthropology presented new clues for reconciling earlier versions of functionalism with humanistic concerns. Moreover, a range of new quantitative techniques (from ergonomics, operations research, systems analysis etc) promised to refine or amend the rationalization and systematization of architectural

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[5] Lewis Mumford was perhaps the most vocal critic of the mechanistic view that dominated modern architecture. Mumford, "Function and Expression in Architecture," *Architectural Record* (November 1951).

[6] Giedion, *Space, Time and Architecture*, [1941] (Cambridge, MA: Harvard UP. 1967), 2-28.

production.[7] Such new tools would be especially significant to architects who joined the ranks of development experts and searched for new forms of social order on a worldwide scale.

Objectives and Outline

This dissertation examines ekistics, a field defined by the architect and planner Constantine Doxiadis as the "science of human settlements" that championed the radical expansion of architecture's scope, called for its alignment with international development, and emphasized the profession's responsibilities towards global environmental exigencies. Though largely overlooked by current histories of the period, ekistics was formative in theorizing the changing relationships of mid-20th Century architecture with science, technology, nature, and ecology. Ekistics was advanced by the many branches of Doxiadis' enterprise: the architectural and planning firm, Doxiadis Associates (DA), that collaborated with international funding institutions and national governments to design complexes, infrastructures, urban plans and regional studies in Ghana Greece, India, Iraq, Jordan, Lebanon, Pakistan, Spain, Syria, the Sudan, Venezuela and the United States; the journal *Ekistics*, which, by the early sixties, was circulating in 94 countries; and the Athens Technological Organization (ATO), an educational and research institute that prescribed methods for urban and socioeconomic development. Within less than a decade of his practice, Doxiadis was described as "the world's busiest planner," and his journal published a world map indicating his firm's projects spreading on four continents.[8] Not to mention that Doxiadis coined more terms than any other theorist in the field—terms which centered on themes of bigness and interconnectedness (ecumenopolis, ecumenokepos, dynapolis, eperopolis, anthropocosmos, anthroposphere). Doxiadis established a global network of colleagues, that apart from architects and planners, included representatives of anthropology, economics, engineering, sociology, psychology, law, genetics, history, philosophy, literature, and

[7] Attempts to rationalize and systematize architectural production reach back from Semper's notions of functionalism and Violet Le Duc's rational philosophy of architectural structure, to the CIAM's doctrines for functional determination and technical advancement.

[8] James Clayton, "A Cruise Party Ponders the Menace of the City," *Washington Post*, July 21, 1963. Reprinted in *Ekistics* (October 1963): 235-241.

geography. He consulted with both CIAM veterans (including Tyrwhitt and Giedion) and architects who rejected modernism's canon (Pikionis, Fathy), as well as architects who operated on the margins of western architectural discourse (Makiya). He collaborated with planners and economic development experts, such as the influential economist Barbara Ward, and the housing experts Charles Abrams and Edmund Bacon. And he secured the endorsement of public intellectuals and popular icons, including the anthropologist Margaret Mead, the historian Arnold Toynbee, the designer Buckminster Fuller, the communications expert Marshall McLuhan, and the environmentalist Rene Dubos—all of whom, at different points in their careers and to different degrees, contemplated ekistics as an appealing response to the global explosion of cities, networks, and information. The multinational composition of the group, and Doxiadis' own quasi-western identity (a west-educated Greek architect and planner who collaborated with both western funding institutions and third world governments) increased ekistics' authority as a corrective to eurocentric modernism.

This study is not meant as a comprehensive survey of Doxiadis' massive enterprise. Rather, it dwells on specific aspects of ekistics' interventions, real or imagined, that reflect its conceptions of the environment and the complex historical circumstances in which they were shaped: international policies for development, national agendas of modernization, scientific controversies on global interconnectedness, and architectural critiques of modernism. The dissertation examines projects in the Mediterranean margins of Europe and the Middle East, where Doxiadis Associates had its most extensive practice; it also analyzes key global strategies and theories advanced by the Athens Center of Ekistics. The goal of this study is twofold: To demonstrate ekistics' role in postwar architectural debates on international development and the global environment. And, to uncover the larger constitutive significance of early environment-development discourses in the postwar architecture of the 1950s and 60s—before the popularization of environmentalism in the 1970s (and certainly much before the celebratory introduction of "sustainable development" into the disciplinary lexicon, from the 80s onward.)

The dissertation situates the thirty-year history of Doxiadis' practice within the early history of postwar environmentalism, from the mid forties when the UN gave credibility and

authority to the concept of 'one world'; to the fifties, when international conferences emphasized resource shortage as an important dimension of global interconnectedness; to the sixties, when the cameras of the US space program captured images of a lonely and fragile planet hanging in space; to the early seventies, when Ward and Dubos wrote *Only One Earth*, and the UN convened a series of conferences that introduced environment to the international agenda—including, by the way, the 1976 Conference on Human Settlements (1976)—which paid tribute to ekistics' legacy. The dissertation also situates ekistics within key architectural debates of the time—the CIAM factions' debates on housing; Ecochard's refashioning of the Athens Charter in third world cities; Fuller's meta-scientific and supposedly postpolitical visions of the globe; Gottman's notion of an expansive megalopolis; and Fathy's notion of tradition.

In chapter One, I analyze the key themes in Doxiadis's rhetoric, first as he became involved with post war reconstruction in Greece in the late forties, and then, as he assumed the persona of an international development expert in the fifties and sixties. Particular emphasis is given to Doxiadis' outspoken interventions in United Nations meetings, his vigorous emphasis on the crisis of the architectural profession, and his tenacious efforts to redefine the identity of the architect as an expert in modernization and resource management— all of which led to the emergence of his concept of ekistics. I discuss the theoretical underpinnings of ekistics, and the general principles of the methodology Doxiadis and his colleagues outlined, to situate ekistics within the context of postwar debates on urbanization and development.

In chapter Two, I focus on specific planning models and physical interventions proposed by branches of Doxiadis's enterprise during the early phase of his international career (1953-63). I examine two main planning models (the dynapolis, ecumenopolis) and manifestations of these in Doxiadis Associates' plans for restructuring urban environments in Iraq (1954-58), Syria (1958), and Pakistan(1959), as well as Doxiadis's vision of an urban "entopia." Expanding on the general discussion of ekistics' driving concepts presented in Chapter One, I discuss the firm's research methods that mapped local resources, building traditions, living patterns, and social needs in an all-encompassing planning system. In the

process, I contemplate the extent to which ekistics proposed a corrective to eurocentric modernism, and uncover the evolutionary biases in its conceptualization of culture and nature.

In chapter Three, I provide a window into internal debates within Doxiadis Associates and the Athens Technological Organization. I concentrate on the architect Hassan Fathy's five-year collaboration with the group (1957-61), to analyze how his evolving views on local knowledge systems, his emphasis on "traditional" spatial conceptions, and his commitment to architecture's disciplinary specificity came up against Doxiadis's aspiration to systematize a scientific approach to development. I reflect on Fathy's mass housing proposals for Iraq and Pakistan, and his contributions to debates on ecumenopolis. Fathy's ambivalence towards ekistics' tenets, I argue, brings another layer of complexity into ekistics' efforts to reconcile the rational and universal with the local and particular.

In chapter Four, I examine the shifts in Doxiadis's thought from 1963 onward, when he recast ekistics' environmental mission in a new perspective. I first discuss a series of new arguments that Doxiadis presented to the United Nations and then advanced at the seminal Delos conference, which underlined the connections between international development and global environmental concerns—and also highlighted ekistics' significance as a corrective to the Athens Charter. I examine new managerial proposals outlined for the city of the future, and new directions taken by Doxiadis's firm, to demonstrate how ekistics augmented his alignments with ecological thought, and embraced new themes of ecumenism. I then reflect on ekistics' influence on two UN conferences of the 1970s that cast environmental protection as a problem of global management.

In the Conclusion, I reflect on the trajectory of Doxiadis' thirty-year practice and point to environment-development politics as a new context of theorization in the historiography of postwar architecture.

On Historiography

Despite the recent upsurge in studies on postwar architecture, ekistics and its influence on architectural culture have remained largely unexplored. The handful of critical analyses of

Doxiadis' work have examined the impact of his interventions on postcolonial processes of nation building in Pakistan and Lebanon (Ahmed, 1992; Sarkis, 1998) or his alignment with McLuhan's and Fuller's visions of global networks (Wigley, 2002).[9] This dissertation will propose an alternative focus on ekistics, which for the first time examines the environmental themes underlying its transnational practice. Moreover, it demonstrates ekistics' role in inserting environmental concerns within architectural strategies for modernization. As such, the dissertation contributes to an emerging scholarly field that examines the interconnective discourses of architecture, decolonization, and development, (Nalbantoglu & Wong, 1997; Cohen & Eleb, 2002; Vale, 1992),[10] while at the same time it fills a gap in current scholarship, by uncovering the profound impact of postwar environmental consciousness on architectural culture. In this respect, I draw on an extensive body of work in environmental history and science and technology studies, that have exposed the distinct impact of the postwar global environmental consciousness on practices of government, science, and literature (Miller and Edwards, 2001; Troumbis, 1999; Barbour 1995; McCormick, 1989; Worster 1988).[11]

My analysis of ekistics' urban interventions critiques its conceptions of the natural and the cultural, and in the process, contemplates the extent to which architectural history can inform and be informed by critical expositions of the constructedness of nature, that question the founding divisions between allegedly "technical" concerns with the environment and

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[9] Imran Ahmed, "The Journey from New Delhi to Islamabad: Dependence and Subversion in the Ambivalent Expression of Nationhood," MIT Masters Thesis, June 1992; Hashim Sarkis, "Dances with Margaret Mead: Planning Beirut Since 1958," in Peter Rowe and Hashim Sarkis, eds., *Projecting Beirut: Episodes in the Construction and Reconstruction of a Modern City* (New York: Prestel, 1998); Mark Wigley, "Network Fever," *Grey Room* 4, (Summer 2001): 82-122.

[10] Nalbantoglu & Wong, *Postcolonial Spaces* (New York: Princeton Architectural Press, 1997); Jean Louis Cohen and Monique Eleb, *Casablanca: Colonial Myths and Architectural Ventures* (New York: Monacelli, 2002); Lawrence Vale, *Architecture, Power and National Identity* (New Haven, Yale UP, 1992).

[11] Miller and Edwards, *Changing the Atmosphere* (Cambridge: MIT Press, 2001), esp. Jasanoff's chapter, "Image and Imagination: The Formation of Global Environmental Consciousness," 309-337; Andreas Troumbis, *Λογία Οικολογία*, (Athens: Τυπωθήτω, 1999); Michael Barbour, "Ecological Fragmentation in the Fifties," *Uncommon Ground*, in William Cronon, ed. (New York and London: Norton, 1995), 233-235; John McCormick, *Reclaiming Paradise: The Global Environmental Movement* (Bloomington, Indiana UP, 1989); Worster, Donald, *The Ends Of The Earth* (1988).

political issues of governance, power, and control (Jasanoff, 1996; Cronon, 1995; Haraway 1989; Merchant 1980, 1995).[12] Equally valuable are critiques of the development industry in the region of the Mediterranean and the Middle East (Mitchell, 1991; Gendzier, 1985) that expose the political choices (including colonial biases) embedded in this industry's strategies.[13] I also draw on broader critiques of "sustainable development"—a term advanced by the influential 1986 report "Our Common Future" that epitomized the connection between environment and development, and was embraced by international institutions and governmental organizations. The tenets of "sustainable development" confine nature to a passive role, as an appendage to a global environment, which is itself perceived as a resource of economic value, a domain of politics and planning, and an object of regulation and management. (W. Sachs, 1995, 1992; Harvey, 1998; A. Escobar 1995; V. Shiva, 1989; Adams, 1990).[14] This conception of the environment, its critics suggest, was already advanced by a series of UN conferences in the 70s, and it was rooted in the managerial outlook of development institutions during the 50s and 60s.[15] This dissertation draws on the historical

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[12] Jasanoff, 1996 "Science and Norms in International Environmental Regimes" in F.O. Hampson and J Reppy, eds., *Earthly Goods: Environmental Change and Social Justice* (Ithaca, NY: Cornell UP, 1996): 173-197; Willian Cronon, ed., *Uncommon Ground* (New York: Norton, 1995); Donna Haraway, *Primate Visions: Gender, Race and Nature in the World of Modern Science* (New York: Routledge, 1989); Carolyn Merchant, The Death of Nature: Women, Ecology and the Scientific Revolution (New York, 1980)

[13] Timothy Mitchell, "America's Egypt: Discourse of the Development Industry," *Middle East Report* (March-April 1991): 18-34; Irene Gendzier, *Managing Political Change: Social Scientists in the Third World* (Boulder: Westview Press, 1985). Also, Arturo Escobar, "Power and Visibility: Development and the Invention and Management of the Third World," *Cultural Anthropology*, 3, 4 (November 1988). Irene Gendzier, *Notes from the Minefield: United States Intervention in Lebanon and the Middle East 1945-1958* (New York: Columbia UP, 1997).

[14] Wolfgang Sachs, ed., *Global Ecology: A New Arena of Political Conflict* (London: Zed Books, 1995), and *The Development Dictionary*: A guide to Knowledge as Power (London: Zed Books, 1992); David Harvey, "What's Green and Makes the Environment Go Round?" in Fredric Jameson and Masao Miyoshi, eds., *The Culture of Globalization* (Durham and London: Duke UP, 1998):327-355; Arturo Escobar, *Encountering Development: The Making and Unmaking of the Third World* (Princeton: Princeton UP, 1995); Vandana Shiva, *Staying Alive: Women, Ecology and Development* (London: Zed Books, 1989); W.M. Adams, *Green Development: Environment and Sustainability in the Third World* (London: Routledge, 1990)

[15] Wolfgang Sachs, "Environment," The *Development Dictionary* (London: Zed Books, 1992), 26-37. See also A. Biswas & M. Biswas, "Environment and Sustainable Development in the Third World: A Review of the Past Decade," *Third World Quarterly* 4 (1982): 479-91; M. Redclift, *Sustainable*

insights of these expositions, to uncover the complex affiliations between global environmental strategies and development politics, from the perspective of architectural history.

This dissertation's geographical focus on the margins of the West tells a story from a position where emerging concerns with the global environment were entangled with the postcolonial histories of modernization and development. Unlike the abundant studies of 1970s green designs that emerged out of the political upheaval of the 60s in Europe and North America, this study examines the emergence of environmental consciousness in a different geopolitical and temporal context. By demonstrating that ekistics' global environmental awareness emerged out of earlier strategies for modernization and development in the so-called third world, this study contemplates the extent to which postwar environmental consciousness in architecture is intertwined with the history of the third world's modern experience. In this sense the dissertation is a modest yet hopefully significant attempt to restructure east-west and center-margin distinctions in the history of postwar architecture (and perhaps, the history of environmentalism?). Studies in colonial and postcolonial urbanism that demonstrate how modernist claims to universal and scientific truths in urbanism were transferred to third world realities (Scott, 1998; Rabinow, 1992; Wright, 1991; McLeod, 1983) have guided my thinking in this respect.[16] James Scott's analysis of the visual aesthetic terms of the modernist understanding of rational order was particularly important. Furthermore, Edward Said's and Homi Bhabha's expositions of the fluid realities of culture have been a constant inspiration—even if direct reference to their work is not made in the following chapters.

This study tackles a key irony in the history of environment-development politics: Even though the epicenter of modern environmentalism—the broad cultural movement since

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Development: Exploring the Contradictions (London:Methuen, 1987); F. Sandbach, "The Rise and Fall of the Limits of Growth Debate," *Social Studies of Science*, 8 (1978): 495-520.

[16] Scott, *Seeing Like a State*(1998); Paul Rabinow, "France in Morocco: Technocosmopolitanism and Middling Modernism," *Assemblage* 17 (April 1992): 53-57; Gwendolyn Wright, *The Politics of Design in French Colonial Urbanism* (Chicago: Chicago University Press, 1991); Mary McLeod, "Le Corbusier in Algiers," also: "'Architecture or Revolution": Taylorism, Technocracy and Social Change,' *Art Journal* (Summer 1983): 132-147.

WWII that expressed increasing concern about the harm caused on nature and the environment by human actions—has been situated in North America and Europe, the processes of development (with which various versions of environmentalism are linked) are inescapably tied to the history of the third world's modern experience. Even today, as environmental movements flourish in western countries, their object of largest concern is often elsewhere (rainforests and endangered species east and south). If the history of the English "happened overseas," as Mr. Whiskey Sisodia puts it in Rushdie's *Satanic Verses,* so, perhaps, did the history of western environmentalism.

Sources and Methodology

This study approaches architecture as a complex cultural product constituted not only by built form, but also by written and visual expression. It thus relies on a wide range of sources: Doxiadis Associates' built interventions and unbuilt proposals, as well as their criticism and interpretation in professional journals, popular magazines, and newspapers; also, debates within the group of ekistics, as well as outside it, that reflect the post war disciplinary rethinking of modernism. Furthermore, I examine UN conferences—including the 1949 United Nations Conference on Conservation and Utilization of Resources, the 1963 conference on the Applications of Science and Technology for the Benefit of Less Developed Areas, the 1972 Environment conference, and the 1976 Habitat Conference. I also considered scientific controversies regarding ecology (notions of ecosystems, and ecological balance) and regional planning (systems approaches and regional science).

To cast ekistics within the larger discursive field of postwar environmental consciousness, I devote great portions of the dissertation to comparisons between ekistics' concepts (on "science", "local tradition," "ecological balance" and "global city") and other concepts developed either within the disciplinary domains of architecture and planning, or in other disciplines. If I cast my net widely—from the Smithson's notion of the "habitat," to Isard's theory of regional planning, to Carson's notion of the earth's balance—I do it to grasp the complex web of influences that shaped ekistics' concerns with the global environment. At

the same time, I also try to maintain my focus, by also examining concrete manifestations of ekistics' thought, its design proposals, and the physical forms of buildings and settlements.

The massiveness, variety, and contradictions of the written and visual records that Doxiadis' enterprise itself produced, has offered windows into the complexities of ekistics. Doxiadis' articles, books, and speeches; the firm's travel reports; the journal *Ekistics'* publications and editorial comments; the Athens Center's conferences proceedings, lecture series, and research projects; promotional pamphlets and internal memos: all these offered fascinating insights, including how ekistics constructed and promoted its public image. I was at once amused and perplexed by Doxiadis' tediously methodical arguments accompanied by aphorisms, his slippery or even, contradictory generalizations, his savvy use and reuse of buzzwords, and his distracted appropriation of disparate themes. Doxiadis' exchanges with Fuller, Fathy, Ward, Dubos, and Tyrwhitt (who edited his books and was an important reason for his success in western academic circles) and many others have, among other things, captured ekistics' multiplicity of goals represented. The dissertation considers definitional discrepancies among members of the group; highlights tensions and conflicts in Doxiadis' efforts to appeal to both third world governments and western funding institutions; and analyzes his tactics to engage with academic debates.

Just as important as textual sources, architectural drawings, sketches, and images of buildings (some of which I visited) were a constant reminder of the formal aspects of architecture, and revealed the complexities of the design process in different contexts. Also fascinating were other forms of visual expressions that came out of the ekistics group—the copious diagrams, graphs, and sketches that would appear and reappear in the front of magazines, the backs of books, or promotional pamphlets. These were key to demonstrating Doxiadis's efforts to transport ekistics outside the realm of space-making and image-making and into the realm of managerial organization. On the other hand, the built projects, and occasionally, some of Doxiadis's statements and personal correspondence, complicate the analysis once more to underline the impossibility of imposing a monolithic interpretation on his enterprise.

CHAPTER ONE

Revisualizing Modernism, Reconceptualizing the Environment: Ekistics and Postwar Development

In August 1939, with the war hovering over his country, the young architect Constantinos Doxiadis made his debut in Greek public life, with three articles in the newspaper *Eleutheron Vema*, on the protection of civilian population from air attacks. Doxiadis, who graduated from the prominent Metsovion National Technical University of Athens (1935) and had earned a Dr.Ing. from Berlin-Charlottenburg University (1936), was serving in his first governmental position as the Director of Town Planning for the greater Athens area (1937-39).[1] The articles argued that increasing people's safety, and defining national needs, required a rational approach to guide material choices, building forms, and site planning. In the name of air defense, Doxiadis argued that "the city of the future" should allow for "the dispersal of buildings in green areas, [concrete] frame construction, the use of the flat roofs, and the use of robust, non-flammable materials.[2] In case anyone missed the connection, Doxiadis explained that these formal and technological preferences were "what modern architecture has been promoting for years."[3] Indeed, Doxiadis basically reiterated the argument made a few years earlier by Le Corbusier, who promoted Ville Radieuse, as a strategy against air attacks.[4] Doxiadis's articles foreshadowed his ambition to expand modernist debates, and even, to emulate Le Corbusier's particular persona as a visionary planner.

During Nazi occupation, Doxiadis joined the resistance movement. He also organized a team of architects and technicians to document war destruction in the country. At once

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[1] In 1937 Doxiadis became the Director of Town Planning for the greater Athens area, and in 1939 he became the head of Regional and Town Planning at the Greek Ministry of Public Works.

[2] Eleftheron Vema, 15 August 1939. A longer version of these three articles was published in the professional Journal "*Technika Chronika*" which devoted an entire issue to the protection of civilians during war. *Technika Chronika* 170-180 (1939):530-

[3] Ibid.

[4] Le Corbusier made this argument in CIAM 3 in Brussels, 1930.

practical and ambitious, idealistic and entrepreneurial, Doxiadis was already thinking of the role he could play in the country's recovery.[5] Athens was liberated on October 13, 1944, and only ten days later Doxiadis unveiled a dramatic exhibition of comprehensive maps and plans showing his team's proposals for national reconstruction. Early in 1945 Doxiadis traveled with the exhibition to France, England, and the United States in quest of foreign funding for reconstruction, on behalf of his government.[6] The material of the exhibition was also incorporated into an oversized multilingual book (Greek, English, French and Russian). In the meantime, Doxiadis came to the forefront of the country's rebuilding efforts.[7] These were the beginnings of his concept of ekistics. In this chapter, I examine the key themes Doxiadis promoted, first as he became involved with postwar reconstruction in Greece in the late forties, and then, as he transformed into an international development expert in the fifties and sixties. In analyzing these themes, I situate ekistics within the context of postwar debates on urbanization and development.

Postwar Reconstruction and New Anxieties

> In peace or war, our goal should be the same: Development.
> -C.A. Doxiadis, 1950[8]

> He is the kind of foreigner that Americans are overjoyed to encounter in such situations [American Marshal Plan aid]—a driving go-getter, opposed to graft and impatient of politicians.
> - *The New Yorker*, 1963

At the founding conference of the United Nations held in San Francisco in 1945, Doxiadis was the leader of the Greek delegation. It is far from surprising, then, that the delegation's

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[5] Doxiadis also became involved in wartime professional debates on the architecture and planning of modern Athens. Dimitris Philipides, *Νεοελλινική Αρχιτεκτονική* (Athens: Melissa, 1984): 201-205.

[6] Christopher Rand, "The Ekistic World," *The New Yorker* (May 11, 1963): 49-87.

[7] Ministry of Reconstruction, *The Sacrifices of Greece in the Second World War* (Athens, 1946).

[8] Doxiadis, "Στα Μέσα του Αιώνα μας," *Nea Estia* (1950): 19. This also appeared in series of six articles in the newspaper "Vema". It also came out in English as: "Mid-Way Through the Twentieth Century: A Short Review of Greece's past and a Forecast of the Future within the Community of Nations."

memorandum focused on the construction of buildings and facilities as the foundation of world peace. Embracing the UN goal to promote development within the economic and political structure that emerged after the war, the Greek delegation called for "programs of housing and plans of technical development [for] every nation"; the "drafting and application of a rational physical plan for every country"; and "the best possible distribution of raw materials for building purposes."[9] Citing the "faulty and intensive exploitation" of resources during the war, the memorandum contended that building experts were key to instituting a new ethos of resource efficiency, by utilizing "new raw materials" and "novel methods of production."[10] So significant was building and physical planning, the Greek delegation argued, that the UN ought to establish a special committee or even a separate organization or agency that would be devoted to these issues.[11] This recommendation was ignored for almost two decades (it was not until 1963 that the UN established the first Ad Hoc committee on housing planning and development).[12]

Doxiadis vigorously criticized the United Nations for its failure to recognize the overall potential of architecture to contribute to international development. In an open letter "To Architects and to All Who are Interested in Physical Planning for the Reconstruction of the World in the United Nations" he warned:

> Legislators, financiers, military men and scientists were asked to give their opinion on the reshaping of the new post-war world, but architects and those responsible for physical planning have been ignored. This, however, is not wise, because the new world will be safe only after it has been reshaped on a new basis.[13]

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[9] "Text of the Memorandum of the Greek Delegation Concerning Implementation of the Competence of the Economic and Social Council," The International Conference on International Organization, Document 589, II/3/29 (May 25, 1945).

[10] ibid.

[11] "Declaration of the Greek Delegation," UN Document 744-II/3/44, June 1, 1945. Reproduced in Doxiadis's article, "To Architects and to All Who Are Interested in Physical Planning for the Reconstruction of the World in the United Nations" (Athens, October 12, 1945).

[12] See Chapter IV.

[13] Doxiadis, "To Architects and to All Who Are Interested in Physical Planning for the Reconstruction of the World In The United Nations" (Athens, October 12, 1945): 371.

Reshaping the world on a new basis, Doxiadis argued, involved a new approach to architecture and planning that would respond to new demands for housing and shelter, just as it would respond to needs for industrial production and economic growth. Thus, Doxiadis concluded, architects and planners should join the ranks of scientists, who were already being looked upon as experts in "rational" management of postwar problems.[14] Very soon Doxiadis would go as far as arguing that the postwar history had to be shaped, first and foremost, by "a generation of builders" who would assist in fulfilling the dream of "worldwide cooperation."[15]

Doxiadis's first opportunity to demonstrate the architect's importance to development was his involvement with Greek government efforts for the reconstruction of Greece, first as Undersecretary and then as Secretary of State for reconstruction (1946-48) and then as Coordinator of the Recovery program under the Marshal Plan (1948-50).[16] The destruction of Greece had been severe. Almost a quarter of the buildings in Greece were uninhabitable, and many forests were reduced to ashes.[17] The civil war (1946-49) brought additional destruction and mass migration to the cities.[18] Doxiadis put together a team that set out to materialize the reconstruction plans, and under his watch many bridges, railroads, power lines and houses

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[14] ibid.

[15] Doxiadis, « Στα Μέσα του Αιώνα μας" [Mid-Way Through the Twentieth Century] (December 1950): 20.

[16] Post-war reconstruction and development began in Greece in the late forties, first with the help of the UNRRA, and then with the US Congress aid to Greece. The Marshal Plan in 1948 offered greater assistance as part of the effort to prevent Greece from falling on the Soviet camp.

[17] "Αι Πολεμικαί Ζημίαι" [War Destruction], Report of the Ministry of Public Works, *Technika Chronika* (July-Sept 1945): 37. [Quoted in Antonopoulou, Sophia N., *Ο Μεταπολαιμικός Μετασχηματισμός*, 174, fn. 1.]

[18] Antonopoulou, Sophia N., *Ο Μεταπολαιμικός Μετασχηματισμός*,, 174. Doxiadis's estimations in 1950 were that the per capita income had dropped 40% compared to the income before the war. Furthermore, Greece was faced with a population problem since the early 1920s when 1.5 million refugees settled in Greece--a problem that was becoming more severe in the 40s as the second generation of these refugees was entering the work force. See Doxiadis, ""Δηλώσεις της Ελληνικής Ανασυγκροτήσεως." (A statement on the rehabilitation of Greece made by Doxiadis to an investment team from Washington and Paris), 15 September 1950. [From "Αρχείο Δοξιάδη," Vol. 15, 1950, 195-98.]

were rebuilt. In the meantime, Doxiadis was writing reports on behalf of the Greek Ministry of Reconstruction, outlining methods for "a rational reconstruction of the country" through the collaboration of technicians, architects, planners, and engineers, and indeed, the whole apparatus of the state.[19]

The belief that technical expertise in the production of architecture would facilitate socioeconomic reform rested on the background of earlier modernist positions, most vigorously expressed by the fourth International Congress for Modern Architecture (CIAM) in 1933, which produced what later came to be known as the Athens Charter. Drawing on Taylor's industrial model of scientific management outlined in his 1911 book, *Principles of Scientific Management*, the Athens Charter emphasized "rigorous analysis by specialists" that would respond to "the most rigorous economy," to achieve rational design and planning, maximum productivity and efficiency in cities, and ultimately, social reform.[20] Presenting architecture as a tool of social engineering, the Athens Charter of 1933 inserted architecture within the administrative and economic realms of the welfare state.[21] The social optimism of this technocratic model, which subsumed ideological conflicts transferring administrative

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[19] Doxiadis, "Economic Policy for the Reconstruction of the Settlements of Greece," Series of Publications from the Undersecretary's Office for Reconstruction, No. 3, quotation on 5. See also Doxiadis, *Oikistike Analyse* [Ekistic Analysis] No 1, Athens, 1946; and Doxiadis, "La construction comme probleme Hellenique," *L'Ellenisme Conemporain* (Jan –Feb 1947): 82.

[20] Le Corbusier, *The Athens Charter*, 1973.
A note on **CIAM**: The *International Congress of Modern Architects, (CIAM) dominated debates on* the formal and social agenda of European modernism before the war; aligning architecture with social reform, its charters attempted to rationalize design issues that spanned from building units to the planning of neighborhoods, to cities, regions, and the state as a whole. With the end of the war, CIAM continued to operate with the support of key celebrities, namely Le Corbusier, Walter Gropius and Sigfried Giedion, yet its rhetoric and practice underwent significant change. The task of transferring the methods and principles of international rationalism to a larger scale; changes in CIAM's geographical configuration (several European members had emigrated); and the critical reactions of a new generation of members skeptical of the formalist visions of early modernism: all these brought radical transformations to CIAM, and eventually lead to its dissolution in 1959. Its aftereffects in architectural education and practice continued through the work of former CIAM members (e.g., Sert's Urban Design Program at Harvard, Ernest Weissmann's long career at the United Nations, and the work and ideas of Team 10, propelled by the efforts of the Smithsons and Bakema). See Eric Mumford, *The CIAM Discourse on Urbanism, 1928-1960* (Cambridge, MA: The MIT Press, 2000).

[21] McLeod, "Architecture or Revolution; Taylorism, Technocracy and Social Change," *Art Journal*, (Summer 1983) 132-147.

power to specialists, scientists and technicians, and offered an apparently apolitical, while socially responsible approach, was applied by Doxiadis to argue that architecture would be the answer to the burgeoning task of reconstruction and international development. The postwar development processes created more favorable circumstances for such an approach. International agencies eager to integrate non-industrialized countries into the postwar economic and political structure, offered the necessary funding for grand architectural visions to finally materialize beyond the drawing board. In the highly political turmoil of Greece, Doxiadis' emphasis on technical management appealed both to the providers of foreign aid, and to the government, assumed to be the key agent of modernization. From his various governmental posts, Doxiadis formed a network of friends from international institutions and US agencies that would prove instrumental to his later career.

During his efforts to align architecture with the cause of national recovery, Doxiadis conceived of new relationships between architecture and the "environment," as it was being defined by funding agencies and development institutions, namely, as a resource of economic value and as an object of management. Two key themes in Doxiadis's rhetoric and practice during this period reflect the intricacies of his conception of the environment. The first was his view of the architect as a technician/manager for efficient resource utilization; the second was his emphasis on the architect as a manager of a broader socioeconomic "environment" necessary to foster development.

The architect as manager of natural resources

As to the first, Doxiadis initiated a series of pilot studies that experimented with building materials and design strategies to enhance economy, strength, and speed of construction.[22]

[22] See for example Doxiadis, *Experimental Settlement of Saint George, Keratsini, Piraeus*, Series of Publications of the Department of Reconstruction, C1 (Athens, 1947). This government publication described the experimental Settlement of Saint George, which was proposed by the Department of Reconstruction to serve as a model case for reconstruction of urban settlements around the country. Through this pilot project, Doxiadis professed a commitment to finding "the most suitable and cheaper materials," to minimize the dependence on imported materials (quotation on 7). In other publications, Doxiadis described how he led efforts to utilize timber from burnt down forests for construction, and form new woodworking factories, and increase local tile production. See Doxiadis, "Preliminary Report: On the Need for the Creation of a Department of Energy," 1949.

Particular emphasis was given to the utilization of local resources. For example, he led efforts to increase tile production, to utilize timber from burnt down forests, and to form new woodworking factories, all to minimize dependence on imported materials and foreign aid, which, as Doxiadis would point out, was "necessary and justified" but was "a weak point in the psychological problems it created."[23]

Doxiadis's experiments were in line with the United Nation's emphasis on resource conservation. Since1947, the UN and its subsidiaries had promoted the conservation and efficient utilization of resources as a global objective, and in 1949, the United Nations Conference on Conservation and Utilization of Resources (UNSCCUR) underscored the significance of scientific knowledge in discovering new resources and guiding the use of existing ones. It was through this emphasis on the "rational" management of resources that the notion of environment was shaped at that time.[24] Concerns with the ecological impact of large-scale projects, and also issues of regional planning and human ecology cast the problems of resource shortage and nature's protection as managerial in type. The depletion of resources was a concern in that it would curb the potential for growth and market expansion.

The architect as manager of the socioeconomic environment

Even as Doxiadis espoused the United Nation's concern with resource conservation, he criticized the hegemony of economistic criteria in development policies. Reflecting on the reconstruction problems facing Greece, he argued that while economic concerns and technical skills are crucial to fostering national recovery,

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[23] Doxiadis, "Greece and the World," Lecture at the University of Chicago, 21 February 1952. Also, in a 1950 memo circulated among government officials, Doxiadis showed that he was becoming weary of the fact that foreign aid for reconstruction was going to leave Greece with an astronomical debt. "Δηλώσεις της Ελληνικής Ανασυγκροτήσεως [On the rehabilitation of Greece] *Αρχείο Δοξιάδη*, Vol. 15, 1950. [Doxiadis Archive]

[24] McCormick, *Reclaiming Paradise* (1989): 27-37. This was, in many ways, the old argument for nature conservation but, due to the impact of war and της shortage of specific resources, it was more intensely pursued after WWII, through the UN and its subsidiaries. See also Anna Bramwell, *Ecology in the 20th Century* (New Haven and London: Yale UP, 1989), 211.

> what is essential is... to create a better life for [the country's] inhabitants, a better life which cannot be created merely by the erection of better houses, that is by mechanical aid to living, but by the existence of that harmonious relationship between the population and its environment.... The problem is to develop everything symmetrically, the man with his spiritual and material capacities and his environment.[25]

National plans for recovery had to provide more than a "mechanical aid to living." They had to achieve "a harmonious relationship" between people and their environment. The "environment" was defined in vague terms at this stage—as something that more or less encompassed the quantifiable and qualitative aspects of the built and the natural world, economic forces, and technological transformations. Shaping this "environment" was the new task of the architect. Doxiadis's emphasis on an overall environment was not simply meant as a warning against mechanistic conceptions of architecture; it was also, a criticism against mainstream development processes, which assumed that "economic" development was more urgent than "social" development. This schism between economic and social goals was advocated by a version of development economics, which favored the growth of industry and agriculture at the expense of housing, physical planning, and social services. Housing, in particular, was considered to be "unproductive" for it required high input and offered low output.[26] Thus, most development aid was channeled towards forms of economic production (factories, machines, railroads, highways, better seed and livestock) that were believed to foster economic development more readily. In contrast, in countries of Western Europe, housing was readily accepted as an immediate priority—and a large part of reconstruction aid was channeled towards housing, even if there were other burning needs for economic reconstruction (e.g., in England). The main difference was that in Western Europe, housing was created through interventions usually led by the welfare state; while in countries that

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[25] Doxiadis, *Experimental Settlement of Saint George, Keratsini, Piraeus* (Athens 1947), 17.

[26] Such a view made a split between economic and social development, and channeled international aid to other areas that promoted production. Housing, which was seen as a means for social development was not a prority. This view did not change until the 60s when the UN formally recognized housing as factor in development (1963). See Chapter IV.

were characterized as "poor" (including Greece), it was foreign institutions and private interest that shaped the agendas of development.[27]

Doxiadis struggled against this east-west divide on the issue of housing. Housing should be a priority for all nations, he argued.[28] In a lecture at the University of Chicago in 1952, titled "Greece and the World" he asserted: "Development policies that focus only on technological and economic growth without fostering a broader social transformation to support this growth create more problems..."[29] "How can one recognize the need for big industrial buildings to house equipment and machinery," Doxiadis wondered, "and ignore the need to house "the human element of the industry"?[30] Besides, housing *was* a "productive investment," he asserted, because it had the potential to increase labor output; it should be integral to any economic program.[31] This was an argument that would later be made by other UN consultants on housing, most notably, Charles Abrams, whose 1964 book *Housing in the Modern World* criticized the bias against housing that characterized development economics

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[27] For a critique of aid consultants' position on the "non-productive" nature of housing, and for an analysis of this position's impact on the reconstruction of Greece, see Σοφία Αντωνοπούλου, *Ο Μεταπολεμικός Μετασχηματισμος της Ελληνικής Οικονομίας και το Οικιστικό Φαινόμενο 1950-80* (Αθήνα: Παπαζήση, 1991), 129-31. For Greece's dependence on Foreign aid, see, T. Fotopoulos, "Εξαρτημένη Ανάπτηξη", *Οικονομικός Ταχυδρόμος* 10,17 (July 24, 1975). Also N. Ψυρούκης, *Ιστορία της Σύγχρονης Ελλάδας*, 2.

[28] In a memo to the Greek government regarding his participation in UN committees, Doxiadis explicitly criticized the UN for putting more emphasis on economic issues to the expense of housing and building. "Το Ιστορικόν τών Προσπαθειών δια Διεθνή Συνεργασίαν δια την Ανοικοδόμισην των Κατεστραμμενων Χωρών, Athens, 19/11/46." *Αρχείο Δοξιάδη* (1946): 647-49.

[29] Doxiadis, "Greece and the World," Lecture at the University of Chicago, 21 February 1952.

[30] Doxiadis, "The Rising tide and the Planner" (Address of Doxiadis before the American Institute of Planners, Hotel New Yorker, New York City, October 29, 1958); Reprinted in *Ekistics* 7:39, (January 1959): 4-10.

[31] Doxiadis, "Ekistics, The Key to Housing in Developing Areas," *Report to the International Council for Building Research Studies and Documentation* (1959), 18.

in the 40s and 50s. Abrams, in fact, acknowledged Doxiadis as one of the first development experts to recognize the significance of housing in development practice.[32]

Ekistics and the Global

> One might ask why architecture needs to turn to ekistics in our age... The answer is that the architect is forced to possess much greater knowledge and much greater ability if he is to cope with the rising tide of problems today.
> -Doxiadis, 1963[33]

Doxiadis's plans for national recovery came to an abrupt end in 1950, when the Greek parliament voted to abolish his Cabinet post. Seeing this as a result of personal rivalry (the vote was taken without much warning and with borderline quorum), Doxiadis left his country, embittered with his countrymen. He moved with his family to Australia, where he contemplated new housing and planning schemes to assist the government in absorbing an increasing flow of immigrants.[34] His efforts in Australia proved unsuccessful (the country's immigration policy changed), as were attempts to find a position at the UN. These setbacks, however, helped him cultivate an image of himself as a visionary planner let down by an uncomprehending society.[35] In 1953, Doxiadis returned to Greece to form his own private practice. He was now interested in operating beyond the confines of his country. He cast the spotlight on "underdeveloped" regions, parts of which he had glimpsed during his journey away from Greece. Doxiadis Associates (DA) was, from its inception, an international development firm.

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[32] Abrams, *Housing in the Modern World*, (1963), 103 & 211. Tyrwhitt also made the point repeatedly that Doxiadis pioneered in promoting the integration of physical planning into broader socioeconomic plans.

[33] Doxiadis, *Architecture in Transition* (London: Hutchison and Co., 1963), 97.

[34] Doxiadis's departure from the government is described in Rand, "The Ekistic World," and in Deane, *Master Builder for Free Men* (1963).

[35] Letter from Doxiadis to George McGhee, Assistant Secretary US Department of State, February 1951; Letter from Doxiadis to Kenneth Iverson, Ford Foundation Repreentative, September 1953; and other personal correspondence. [Doxiadis Archive]. Also, Rand, "The Ekistic World," 66.

Doxiadis presented his firm's practice as being based on an entirely novel design and planning approach, indeed a science in its own right. **Ekistics**, or "the science of human settlements," was fashioned by Doxiadis as a new field that would systematize a comprehensive approach to organizing the physical environment of the globe. The term was derived from the verb *οικίζω*, meaning, "to settle," and ultimately from the noun οίκος, meaning "house," "home," or "habitat." (In addition to the noun "ekistics" Doxiadis's also used the adjective "ekistic" and the noun "ekistician.") Ekistics aspired to shape a post-war global society through mass housing, urban development programs, and the rearrangement of entire regions. The firm's early successes—the commission for a housing program for Iraq (1955)—quickly boosted the rise of Doxiadis's enterprise. By 1959, DA had office branches in Baghdad, Karachi, Beirut, Addis Ababa, Khartoum and Washington. The successes of the firm secured financial support for the Athens Technological Organization (ATO), an educational and research institution established by Doxiadis in 1958 that transported DA's practice onto a level of research and long-term planning. Among the branches of ATO were the Athens Technological Institute, which trained junior engineers, draftspersons, interior designers and other technicians; and the Graduate School of Ekistics (officially established in 1963) that sponsored research, and hosted seminars and lectures, among the highlights of which were Fuller's notorious four-hour speeches.[36]

Just as he was securing major commissions, Doxiadis was theorizing profusely on ekistics, assuming the persona of a global planner, development expert and pedagogue. He lectured in prestigious Universities in the US—including the Universities of Chicago, Michigan, Princeton, Harvard, MIT, and at Swarthmore and Trinity Colleges; he spoke on radio shows in the US and Greece; and published in both professional journals and popular magazines. He also established the journal ***Ekistics***, in collaboration with Jaqueline **Tyrwhitt**

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[36] Buckminster Fuller (1895-1983) begun corresponding with Doxiadis in 1961 and was a regular visitor to the Athens Center of Ekistics throughout the sixties. He was one of the most enthusiastic participants at the Annual Delos Symposia organized by Doxiadis, 1963-72. He corresponded with Doxiadis often, and his articles were repeatedly published in Ekistics.

[37] The South-African architect and UN advisor Jaqueline Tyrwhitt was the director of this seminar, and also a UN advisor to the government of India on an exhibition of low cost housing. Since then, Tyrwhitt and Doxiadis became friends and close associates, strategizing together many of Ekistics' projects. *Ekistics*, "Jacky," Ekistics 50:300 (May-June 1983):1-2.

(1905-83), a key member of postwar CIAM who became Doxiadis's close colleague from 1954 when the two met at a UN seminar on Housing and Community Planning, in New Delhi, India.[37] Doxiadis and Tyrwhitt initially conceived of a bulletin of information on Tropical Housing and Planning that would be useful to DA staff, and to UN housing experts. From 1957, they changed the title to *Ekistics* and assigned it an international scope.[38] Tyrwhitt, who was a city planning professor at Harvard from 1955 to 1969 was the editor of *Ekistics* throughout this period, and up until 1972. She remained closely involved with the journal until the end of her life.[39] She also edited many of Doxiadis's writings, and played a key role (often behind the scenes) in advancing ekistics.[40] The journal's cover for the first two years was Buckminster Fuller's Dymaxion Map that showed the planet as a single network; later on, each cover featured a different map, diagram, or photograph, usually coming from ATO's research. (Figure 1) Every month, Tyrwhitt scanned the literature of various fields to select and summarize all articles related to "the new science of ekistics," often spelling out in her editorials the alignments between ekistics and UN debates or other development or architectural strategies. By the sixties *Ekistics* was circulating in 94 countries. In the following pages I discuss the theoretical underpinnings of Doxiadis's concept of ekistics, and the general principles of the methodology he outlined.

Planetary problems and the crisis of the profession

> We shall discover one day that we have created around us a habitat ...[with] worse living conditions, we could say inhuman living conditions.
>
> -C.A. Doxiadis, 1962[41]

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[38] The *Monthly Bulletin on Tropical Housing and Planning* started being published in 1955, and was renamed to Ekistics: *Ekistics: Housing and Planning Abstracts* in October 1957. From January 1962, its subtitle changed to *Ekistics: Reviews on the Problems of Human Settlements*, as the journal began to publish new submissions.

[39] After 1972, Tyrwhitt became a "consultant editor" but after the death of Doxiadis in 1975 Tyrwhitt, who had in the meantime relocated to Greece, assumed a more active role again as an acting editor of Ekistics (along with P. Psomopoulos) until her death.

[40] Wigley observes: "The ever-public Doxiadis would be unthinkable outside the ever-private Tyrwhitt. Mark Wigley, "Network Fever," *Grey Room* 4, (Summer 2001): 82-122, quotation on 95.

[41] Doxiadis, "Ekistics and Regional Science," Document R-GA 265 (Aug. 1962), 82-83.

> It is too late to speak of local or national issues, too late even to speak of an Eastern or Western world... The earth is the space we are talking about, neither more nor less than our whole planet.
>
> -Doxiadis, 1963[42]

Doxiadis justified the need for the new field of ekistics by arguing that there was a global "crisis of human settlements," triggered by the chaotic expansion of buildings, cities, and machines. "Humanity," Doxiadis proclaimed, echoing Reyner Banham, was at a great turning point, as it moved "from handicraft to industry," and "from human scale to the car scale, to airplanes, and space ships."[43] These changes, Doxiadis continued, brought problems: housing and resource shortage around the world, widespread proliferation of shantytowns, congestion in cities, and increasing destruction of nature. Doxiadis's arguments approximated those of development experts who presented new categories of global problems—"resource shortage," the "population explosion," "poverty" and "industrialization"—as the justification for exporting foreign aid and expertise to "underdeveloped" countries. What differentiated Doxiadis's position was that he placed these problems into the architect's and planner's global plate; his conviction was that shaping the physical environment was just as important as shaping economic development. "The deterioration of the human habitat" he warned, is already "taking place around the world at this moment," and he prophesied that solving the problem or food shortage or securing world peace, would prove meaningless if "we" (humanity) do not improve the living conditions of "our habitat." It is ironic, he continued, that,

> We are conquering the space beyond the earth but we are losing our battle over questions of terrestrial space.[44]

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[42] Doxiadis, *Architecture in Transition* (London: Hutchison and Co., 1963), 23. A similar point in made in the 1960 RIBA lecture.

[43] Doxiadis, "Architecture in Evolution" Royal Institute of British Architects Annual Discourse, *R.I.B.A Journal*, (September, October 1960): 3-22; quotation on 3. Rayner Banham's argument was that the modern 'new epoch' had began in the fifties, not in the twenties and thirties as LeCorbusier had prematurely proclaimed. See Banham, *Theory and Design in the First Machine Age* (London: Architectural Press, 1960).

[44] Doxiadis, "Ekistics and Regional Science," Document R-GA 265 (Aug. 1962), 82-83.

Doxiadis's choice of terms is interesting in itself: "terrestrial space," and "human habitat" underlined the transnational scale of the crisis. The world could no longer be divided in terms of national or geopolitical boundaries. "Our client is the whole earth."

It was this sense of global urgency that justified Ekistics' mission to reshape architecture and planning. In a talk at the Royal Institute of British Architects in 1960 titled, "Architecture in Evolution," Doxiadis emphasized that the demands for "far greater numbers of houses, of cities, of settlements" in "even shorter periods of time," put new burdens on architects, to collaborate with national and international development bodies "to serve the broader goals now set by humanity."[45] What was at stake was the very relevance of the profession. What "we" architects need to recognize, he wrote in *Architecture in Transition*, the first of his books that targeted an international audience,[46] is that:

> The activity taking place in factories (in the production of new materials and methods of production) and in areas of low-cost housing—no matter whether created in organized private or governmental settlements or in a completely haphazard way—is far more important than what takes place in the ateliers of many big architects. A chemist or a production manager may in the end prove far more important to the architecture of the future than many architects.[47]

Doxiadis's dismissal of planning practices had an equally harsh, urgent, and moralistic tone. Speaking as a fellow planner before the American Institute of Planners, in October 1958, Doxiadis asserted:

> Most of the human settlements, at this moment are built without any plan at all, and even where there is a plan, it is very seldom implemented in the proper way. The fact that the plans are not implemented may, on the other hand, not be as bad as it looks because the plans are very bad.[48]

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[45] Doxiadis, "Architecture in Evolution" 1960, 5.

[46] Doxiadis had already authored a series of books on the reconstruction of Greece, written in Greek, during the late forties. In 1960, he also wrote *Our Capital and its Future*, a book regarding the future of Athens, which was translated into English in 1961. Preceding these publications was his Doctoral Dissertation, Raumordnung im griechischen Städtebau (1937). But it was the *Architecture in Transition* that was written with an international audience in mind, and was published in English first.

[47] Doxiadis, *Architecture in Transition*, (London: Hutchison and Co., 1963), 24

[48] Doxiadis, "The Rising Tide and the Planner" (Address of Doxiadis before the American Institute of Planners, Hotel New Yorker, New York City, October 29, 1958) Reprinted in *Ekistics* 7:39 (January 1959), quotation on 5.

This criticism applied to North and South alike; Doxiadis went as far as saying that, when it came to the problem of human settlements, "the entire world is underdeveloped."[49]

Behind Doxiadis's rhetoric was his ambivalence towards modernist practices of the previous generation. On the one hand, he identified with the ambition for great works of social transformation that characterized the modern movement. Occasionally he would refer to Le Corbusier in particular, to say that ekistics was in many ways an extension of that master's vision. (In a memo regarding the establishment of ATO in 1958 he even expressed the conviction that Le Corbusier himself would recognize the affinity between his own ideas and those of ekistics had he not gotten so old.)[50] On the other hand, Doxiadis criticized modernist interventions for their failure to respond to "the totality of human needs," either because they had a mechanistic conception of function (he argued that a housing project had to do more than deliver shelter, heat, air, sewage and water), or because they insisted on "architect's architecture," which he dismissed as an anachronistic "megalomania."[51]

One diagram captured Ekistics' ambitious positioning vis-à-vis the history of the profession. The diagram represented the "totality of human needs," by surrounding the human figure with multiple concentric bubbles which represented the realms of "mind," "soul," feeling, etc. (Figure 2 The Total System of human bubbles, as defined by Total Man). This diagram was juxtaposed with the "static" Renaissance view of human scale that confined man to one circle circumscribing his physical body. "Man" of course, remained at the very center of ekistics' multiple circles, an emblem of its anthropocentric ethic, which will become more and more evident in the discussion below.

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[49] Doxiadis, "The Rising tide and the Planner," quotation on 6.

[50] Doxiadis, "Thoughts on the Creation of a School on Ekistics," R-EATI 56, July 1958.

[51] Doxiadis, *Architecture in Transition*, 24.

Doxiadis was also critical of regional planning practices of the previous generation that opposed urbanization. In particular critiquing Lewis Mumford (with whom Doxiadis exchanged some correspondence), Doxiadis proclaimed that the expansion of cities was an inevitable reality. He celebrated the postwar era as "the end of Town-Country debates," which he rejected for their utopianism, and announced that the current task was not to halt metropolitan development, but to promote it in an "orderly" fashion.[52] In this sense, Doxiadis indirectly aligned ekistics with postwar trends in regional planning that favored urban industrialization to promote capitalist economic growth (Chapter II).

Science and disciplinary interconnectedness

> It has often been said that man may exterminate himself through science. What we must also say is that man's hopes for a much better evolution lie in science, which, after all, is the only acquisition of a proved universal value that he can transmit from generation to generation. The whole difference between extermination and evolution lies in the goal that science will set.
>
> -C. A. Doxiadis, 1967[53]

Doxiadis's emphasis on an imminent destruction of the human habitat blamed *both* the development machine, for failing to acknowledge the potential of architecture and planning in preventing this crisis, *and* the dominant modes of architecture and planning, for being too self-indulgent or utopian to respond to real demands for development. Ekistics, "the science of human settlements," emerged out of this double critique. It promised to expand the scientific basis of architecture and planning, augment the scope of development, and support realistic action to manage an exponentially expanding and disorderly world.

The driving concept behind ekistics was comprehensiveness: It was not simply a science, but a "synthesis" of sciences. It was not concerned simply with designing buildings and cities, but with planning and managing the entirety of urban, rural, and natural landscapes of the globe. It aimed to accommodate socioeconomic imperatives of nations, and cultural

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[52] Doxiadis, "The New World of Urban Man" 1963.

[53] Doxiadis, "The Coming Era of Ecumenopolis" *Εποχές* 47, March 1967. Translated in *DA Review*, 3:29 (May 1967).

needs of regions, and emotional needs of individuals. It aspired to reconcile global demands with local needs. The assumption behind such colossal optimism was that these competing considerations were commensurable, and that "whole" solutions were in fact possible as long as there was collaboration among different rationalist approaches, and their experts. "Human settlements" replaced the terms "architecture" and "planning" in Doxiadis's lexicon, to demarcate an enlarged field of operation.

Science itself had to be understood in a comprehensive manner. Ekistics would "synthesize" all sciences that could possibly inform the understanding of urban and rural conditions, human needs, and the larger processes of industrialization, modernization, and resource utilization around the world.[54] The architect and planner who operated according to the principles of ekistics—the "ekistician" in Doxiadis's terms—would have to examine human settlements from the perspectives of geography, economics, sociology, anthropology, administration, technology, and from what Doxiadis called cultural-aesthetic points of view, to guard against both arbitrary self-expression and monotonic versions of rationalism. It was not uncommon among architects and planners of the time to assume that if they incorporated the input of social sciences, their interventions would have social instrumentality. Social scientists themselves initiated such collaborations in an effort to grasp the impact of the physical environment on human behavior and social patterns. Ekistics aspired to draw on the philosophical and methodological framework of even more fields, to shape the totality of the physical environment.

Even though ekistics sought alignments with economists, geographers, sociologists, and anthropologists, ekistics, both as theory and as practice, maintained its specificity by focusing on physical planning and building. This is how ekistics was described by Tyrwhitt in an editorial:

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[54] "Ekistics... co-ordinates economics, social sciences, political and administrative sciences, technology and aesthetics into a coherent whole, and leads to the creation of a new type of human habitat. To work on such a habitat, the architect must now enrich his knowledge so as to be able to cover the related fields and co-operate with the community developer, the urbanist, the planner, the economist, the geographer and the social scientist as a member of a single team." Doxiadis, *Architecture in Transition, 96-97.*

> Like geography, resource development, regional science, regional and city planning, landscape architecture, urban design, and architecture, Ekistics is concerned with the organization of terrestrial space. Like history, literature, economics and sociology, it is concerned with man—his aspirations, his thoughts and his acts. But Ekistics is no mere bundling together of a number of different facets of the human environment. It is an earnest and scientific endeavor to find ways of identifying and verifying the relations between the most significant factors that combine to make a viable human settlement.[55]

In this new scientific endeavor called ekistics, "design–minded" architects were still given a place, but only as long as their "architectural virtuosity" did not take precedence over practical solutions that science could yield.[56] Even the writing style of Doxiadis and members of his firm underlined the rationalism of their approach, with their numbered paragraphs, their tediously methodical formulations, their tendency to reduce ideas to lists, and their itemized plans of action.

Ekistics' multidisciplinary ethos was captured in a diagram that became ekistics' trademark. This diagram, titled "ekistics and the sciences directly contributing to it," represented ekistics as a circle that overlapped with the five circles circumscribing "economics," "social sciences," "political sciences and administration," "technical disciplines," and "cultural disciplines." (Figure 3) Ekistics, a science in its own right, maintained its own center, outside, and equidistant from the fields contributing to it, which were themselves slightly overlapping. The overlaps between the circles represented the interrelationships among scientific fields, and suggested the "ekistician's" task to juggle multiple considerations. Ironically, the static and symmetrical relationship of the circles was also emblematic of the uncomplicated treatment ekistics extended to other disciplines.

Doxiadis and his circle were not really "synthesizing" but rather "dancing" around sciences, leaping across wide expanses of disciplinary terrain.[57] For all its emphasis on

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[55] "What is Ekistics," *Ekistics* (November 1962), 192.

[56] Rand, "The Ekistic World," *The New Yorker* (1963), 55.

[57] I am referring to Hashim Sarkis's insightful article which describes Doxiadis and his circle "dancing" around disciplines, often overlooking definitional discrepancies among different fields, during the seminal 1963 Delos Conference organized by Doxiadis (to be further discussed in Chapter

embracing different scientific disciplines, ekistics' engagement with other disciplines was rather vague. Doxiadis may have talked repeatedly about the connections between ekistics and established scientific fields, but his references to other fields were sketchy and failed to contemplate the incommensurabilities among fields. To mention one example here, his paper on "Ekistics and Regional Science" simply made perfunctory comparisons between the two sciences, to demonstrate the affinity, and even imply the superiority of ekistics to a science that had gained widespread appeal in the post-WWII development theory. Doxiadis failed, however, to contemplate the methodological difficulties involved in transporting the principles of a predominantly economic analysis, onto the realm of physical planning.[58] In fact, he only focused on one theorist's (Walter Isard's) assumptions of an urban-centered ordering of economic activities, without even considering the alternative perspectives that had already been expressed within the field of regional science.[59] (Chapter II)

Of course, these open-ended alignments with other sciences may be, perhaps, precisely what made ekistics appealing to such a diverse group. Ekistics could take on a wide array of interpretations that were themselves incommensurable. Sociologists, psychologists and anthropologists could refer to ekistics' principles to demonstrate their fields' relevance to urban issues. Economists and administrators could use ekistics to expand their professions' control over urban processes. (Chapter III) Doxiadis himself remained unclear as to whether he saw himself as an architect, a planner, a scientist, or a development expert—and, as later

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IV). Hashim Sarkis, "Dances with Margaret Mead: Planning Beirut Since 1958," Harvard University Conference, 1997. Wigley also referred to the participants of that same conference as "dancing gurus." Wigley, "Network Fever," 2002.

[58] Doxiadis made perfunctory comparisons, arguing, for example, that ekistics had a broader scope than regional science, because it spanned its interests from the smallest scale of a small room or a house to the larger scale of regions, whereas regional science only examined spaces of a larger order (small towns cities, regions). Doxiadis presented a very general criticism that regional science's economic models were not adequate to address social, technical, administrative and aesthetic problems. See "Ekistics and Regional Science," *Ekistics* (Nov 1962); and Doxiadis, "Ekistics and Regional Science," Document R-GA 265 (Aug. 1962), 40-41.

[59] Doxiadis, "Ekistics and Regional Science," A paper presented to the second European Congress, Regional Science Association, Zurich, Switzerland, September 3-6, 1962." Document R-GA 265 (Doxiadis Associates, Aug. 1962).

chapters will explain, he was rather savvy in switching his professional hats, depending on his audience.

Doxiadis's references to discourses in architecture and planning—the two fields he aspired to reform, and even replace—were as cursory as his references to scientific debates. For example, his notion of "total architecture"—a term with which Doxiadis more or less substituted "whole solutions" when appealing to an audience of architects[60]—had significant parallels with Walter Gropius' vision of "total architecture" that also charged the architect and planner with the task of grasping the workings of the natural and built surroundings.[61] And his notion of the "human habitat" can be traced to postwar CIAM debates (see below). However, Doxiadis rarely footnoted his writings—as though his strategies to reform the profession had an ahistorical authority. The same can be said about his notions of neighborhood units, evolving cities, and megalopolises that will be discussed in Chapter II, and his notion of "balance" that will be analyzed most extensively in Chapter IV. Doxiadis appropriated architectural ideas and rhetorical formulations eclectically without contextualizing them. By maintaining a distance from architectural debates in Europe or North America, he was able to recalibrate these ideas in terms of a moral imperative for global development, rather than discipline-bound (or eurocentric) preoccupations. It was Doxiadis's ambiguous relationship to architectural shifts in Europe that allowed ekistics to appeal to such diverse camps. (Chapter III)

Matrices and the taxonomy of the cosmos

> Geddes's contribution was really his comprehensiveness of taking in the whole process [of design] and including the inner and outer world. Doxiadis' contribution is getting scale into the story.
>
> -Tyrwhitt, 1965[62]

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[60] Doxiadis, *Architecture in Transition*, 144.

[61] Walter Gropius, *Scope of Total Architecture* (New York: Harper and Brother Publishers, 1955).

[62] Tyrwhitt, "The Ekistics Grid," *Architectural Association Journal* 87 (Sept-Oct. 1965): 10-15, quotation on 12.

Doxiadis's diagrams, some of which I already mentioned, could perhaps in themselves tell the story of ekistics' polemic. Diagrams were often featured on *Ekistics'* covers, and they appeared in Doxiadis's books and articles, usually to represent themes of interconnectedness, hierarchy, and taxonomy of problems and solutions. Doxiadis liked to use a blackboard in meetings and lectures, and invented many such diagrams on the spot. Yet if there could be one single visual representation of Doxiadis's madly taxonomic universe, it would be the "anthropocosmos model," a system of classification developed by Doxiadis in the early sixties, to organize all knowledge generated about the constituent components of human settlements. The "anthropocosmos model" took the enlightenment encyclopedic thinking to new heights. Its aim was to capture nothing less than the entire cosmos of "anthropos"—a term with which Doxiadis often substituted the term "man," as a term inclusive of both genders. Then again, as I will show in many instances, this sensitivity did not go very far in recognizing gender difference as a factor analyzing human needs and aspirations, since the "human needs" and "human resources" categories were absolutely homogeneous.

The cosmos of anthropos was a matrix that classified all types and scales of settlements on the surface of the earth, taking into account size, area, population, density, functions, and other characteristics such as growth and decline. (Figure 4. The anthropocosmos model) The ordinate was defined by the five "ekistic elements" that constituted human settlements: nature, seen as the stage upon which settlements were created; the individual human, anthropos; society, the multiple groups anthropos created; shells the structures in which humans live, learn and work; and "networks," roads and railways, cable lines and pipelines that provided the linkages for urban systems. Doxiadis maintained that he conceived of the "five ekistic elements" after being inspired by the exhibition presented in the fourth CIAM in Athens, which he attended as a young architecture student. The exhibition presented the plans of 33 major cities, all drawn to the same scale, which used standardized symbols to show the major residential, industrial and recreational areas, as well as the traffic network and the relation between the city and the region.[63] Doxiadis's all-encompassing matrix aimed to systematize the interrelationship of these factors.

[63] Tyrwhitt, "Background to Doxiadis's Ecology and Ekistics," 14.

The abscissa was defined by the fifteen "ekistic units," that is, the types of human settlements, which were hierarchically arranged, from the individual human to room, dwelling neighborhood, all the way to metropolis, megalopolis, and beyond. Each type of settlement corresponded to a specific territorial and population scale, which had a definite mathematical (factor of 7) relationship to the next. The *Observer's* description of Doxiadis as "the man who thinks in multitudes,"[64] was well deserved! This organizational logic was derived from the work of Walter Chrystaller—the German geographer whose studies in the rational location of settlements in space and their hierarchical organization influenced Doxiadis, since the latter's graduate studies in Germany.[65] Later versions of the grid also added the factors of "time," "desirability," and "feasibility," and divided human settlements according to "evolutionary phases," economic technological or cultural criteria, and social factors. [66]

Doxiadis hoped that his elaborate grid would transcend the flaws of one-to-one correspondences between patterns of use and spatial divisions (and other such mechanistic analyses), through the multiplicity of its classification systems.[67] The emphasis on "interdependence" and "simultaneity" was in fact supposed to surpass the limitations of past classifications, such as those made in Le Corbusier's grid, by steering away from the narrow constraints of functionally determined form.[68] The assumption, often articulated by Doxiadis and Tyrwhitt, was that with the technical refinement of classification tools and data collection

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[64] Willard Manus, "The Man Who Thinks in Multitudes," *The Observer*, June 23, 1968.

[65] Chrystaller's *Central Place Theory*, which studied geographical patterns of market locations was the main influence behind Doxiadis' preoccupation with the size of settlements and their hierarchical interconnections. The "factor of 7" was a direct result of Chrystaller's influence. Tyrwhitt discusses Chrystaller's influence on Doxiadis' formulation of the Anthropocosmos model in the article, "Background to Doxiadis's Ecology and Ekistics," 14. For a biographical note on Chrystaller, and his dubious relationship with the ekistics group, see Chapter III.

[66] For the different types of classification, see Doxiadis, *Ekistics: An Introduction to the Science of Human Settlements* (1968), 31-41.

[67] Ibid.

[68] Editorial, "What is Ekistics," *Ekistics* 14, 84 (November 1962): 192. Le Corbusier's CIAM grid was developed in the 40s; Doxiadis found it limiting because it was focused on individual projects.

methods, ekistics would increasingly "fill the gaps" of knowledge regarding the design and management of surroundings. The story of humanity would ultimately be told by means of sheer volume of data. If the postwar generation of CIAM members challenged the 1933 Athens Charter by proclaiming "life falls through the net of the four functions" ekistics' relentlessly elaborate grid attempted to recreate a finer net that might succeed in holding life.[69]

Doxiadis's classification model was no doubt influenced by Patrick **Geddes's** attempts to devise tools of urban analysis by linking surroundings, resources and human needs in a research-based structure.[70] Geddes's "Notation of Life" grid attempted to establish a comprehensive guide to social evolution as a tool for urban analysis, while accommodating modifications according to the characteristics of each local case. Tyrwhitt had already revisited Geddes's ideas since the mid forties, in light of CIAM's post-war rethinking of architectural modernism.[71] Alison and Peter **Smithson** picked up on her analysis, and their idea of the "habitat," first presented in the Doorn meeting in January 1954, appropriated Geddes's "valley section" to emphasize the importance of understanding the dwelling in relation to the community that surrounds it.[72] As the Smithsons conceived of it, "habitat" was meant to capture the larger interrelationships of dwellings and their particular environment, and to underline the need for architectural solutions to respond to the problems of a

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[69] This phrase was meant as criticism against the Athens Charter, which proclaimed that the key points in town planning lie in the four functions: living, working, recreation, and circulation. It was expressed by the "commission six" at CIAM 9 in Aix-en-Provence, in 1953. See Alison Smithson ed., *Team 10 Meetings, 1953-1984* (Rizzoli, 1991), 9.

[70] Patrick Geddes (1854-32), a botanist by training, advocated these views in his 1915 book, *Cities in Evolution*, which put emphasis on social theories underlying modern planning. His book remained out of print for more than 30 years, until it was reprinted in 1949, under the supervision of Jacqueline Tyrwhitt. Patrick Geddes, *Cities in Evolution*, London: Williams and Norgate, 1949 (1915).

[71] Tyrwhitt spoke on Geddes in CIAM 8, in Hoddesson, in 1951. Earlier, in 1947 she edited Geddes' reports on Indian Cities. Jaqueline Tyrwhitt ed., *Patrick Geddes in India*, (London: Lund Humphries, 1947); and, as I mentioned earlier, she also supervised the reprinting of *Cities in Evolution* in 1949. See also, A. Pedret, MIT Dissertation [forthcoming].

[72] For a critical analysis of the differences between Geddes and the Smithsons' view of the relationship between environment and built works, see Arindam Dutta & Ijlal Muzaffar, "Housing the Indegene: The Making of a Third World Architecture" [unpublished].

heterogeneous world.[73] To them, the notion of the habitat surpassed the simplistic functionalism of the Athens Charter, which had already become a target at the ninth congress of Modern Architecture in Aix-en-Provence in 1953. The Doorn manifesto of 1954, which was based on the Smithsons' habitat, announced the impossibility of universal norms and called for "the study of particular functions in their appropriate ecological field" and for the understanding of particular communities as a "total complex."[74]

Tyrwhitt felt that the Smithsons' notion of the habitat did not go far enough, because it repeated the programmatic Geddes scale without incorporating additional considerations that had already emerged during CIAM meetings, regarding the interrelationships between built works and their environment.[75] Tyrwhitt found Doxiadis's system more effective in connecting buildings to their larger environment; furthermore, she said, Doxiadis combined physical planning and economic programming, and it bridged the gulf between planning, design, and construction, to respond to postwar demands more effectively.[76] In comparison with Geddes's model, Doxiadis's anthropocosmos aimed to establish clearer categories of settlement types.[77] As the editor of *Ekistics*, Tyrwhitt used a version of the anthropocosmos

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[73] The Smithsons' emphasis on cultural particularities reflected the expanded international outlook of post-WWII young CIAM; and their assertion that "the appropriateness of any solution may lie in the field of architectural intervention rather than social anthropology" summed up their efforts to underline the potential of architecture in its own right to tackle post-war problems. Alison and Peter Smithson, "Habitat," 1954. Alison Smithson, ed. *The Emergence of Team 10 out of CIAM; Documents* (London: Architectural Association, 1982), 13-15.

[74] "The Doorn Manifesto" of 1954, prepared by Bakema, Van Eyck, Van Gignel, Hovens Greve, Smithson, and Voelcker. Reprinted in Alison Smithson, ed. *The Emergence of Team 10 out of CIAM; Documents* (London: Architectural Association, 1982), 33-34. Alison Smithson elaborated on this later by calling for the study of "the ecology of the situation," and the study of "the human, the natural and the constructed, and their action on each other." Alison Smithson, ed. "Team Ten Primer" Architectural Design, special issue (December 1962): 75; also Alison Smithson, ed., Team 10 Meetings; 1953-1984 (New York: Rizzoli, 1993).

[75] Jos Bosman, "CIAM After the War," *Rassegna*, 14, 52,4 (December 1992): 6-21, quotation on 17.

[76] Tyrwhitt, "The Ekistic Grid," *Architectural Association Journal* 87 (Sept-Oct. 1965): 10-15.

[77] Doxiadis saw Geddes's divisions of place, work, and folk, as inadequate and confusing attempts to divide settlements into elements. Doxiadis was also critical of Le Play's, "lieu, travail, famille" for similar reasons. Doxiadis, Ekistics: *An Introduction*, 22.

model, the "ekistics grid" to classify the knowledge generated by each of the articles in the journal. She explained:

> In ekistic analysis, it is the relationship of "shell" to "dwellings" to other aspects of urban development that makes a particular solution successful – the architectural niceties of any structure have little real value unless they harmoniously relate to nature, the needs of man, societal values, and communication with other parts of the settlement.[78]

Medicinal Ethics: Scientific Diagnoses and Modernizing Prescriptions

The connections between Geddes and Doxiadis did not stop where Tyrwhitt left them. Doxiadis was also influenced by Geddes's notion of "diagnostic" surveys as the basis for social reform.[79] Doxiadis's notion of ekistics as a "descriptive" science seems to be a similar type of analytical endeavor. But Doxiadis once again tempered Geddes's call for "survey before plan," by arguing that description or diagnosis needed to be followed by "prescription," and "programs of action."[80] Ekistics, he pronounced, is ultimately at once "descriptive" and "prescriptive."[81] Doxiadis was, after all, eager to assume prescriptive authority that would align his practice with the aid agencies' vanguardist call for action. Unlike Geddes, whose initial vision embodied a political radicalism that opposed the social agenda of the centralized nation state, Doxiadis aspired to put his own analysis to the service of national and international reform programs of the postwar era.[82]

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[78] Tyrwhitt, ed. "*The Ekistic Approach: Human Identity in Ecumenopolis.*" A series of Readings for the Second Year Architecture students, Harvard University (GSD, 1969), 14.

[79] For this analysis I draw on Dutta and Muzaffar's astute analysis of the connections between Geddes and UN housing experts, in "Housing the Indigene" (cited above)

[80] Doxiadis, "Ekistics, the Key to Housing in Developing Areas" in *Mass Housing in Rapidly Developing Tropical and Subtropical Areas, Report to the International Council for Building Research and Documentation*, Subject No. 5, (1959): 1-38, quotation on 13.

[81] Doxiadis, "Ekistics and Regional Science," 1962.

[82] Geddes opposed the centralized nation state for eroding human development. See Weaver 1984, 47; and Hays, *Cities of Tomorrow*, 142. However, Geddes' operation in the context of India (1915-19), commissioned by British Governors needs to be analyzed in different terms. See Dutta and Muzaffar, "Housing the Indigene," 1997.

Doxiadis essentially combined the systematic analysis proposed (if not necessarily practiced) by Geddes with the development technocrats' campaign for drastic interventions.[83] On the one hand, he presented ekistics and its thorough analytical models as the reason why his firm was not acting like a "magician" who "has all the solutions up his sleeve and he pulls them out like rabbits." On the other hand, Doxiadis also rejected the idea of the expert-idealist who "finds that he needs many years in order to complete even the most basic analysis.... [and] cannot catch up with the problems."[84] What was needed, Doxiadis argued, was thorough analysis accompanied by the courage to ultimately intervene, even with incomplete research. The emphasis on analysis rendered ekistics with a scientific, value-free authority, while the commitment to generate prescriptions and speedy interventions nurtured a comfortable alliance with state power and foreign aid agencies.

One variation of the diagram, "ekistics and the sciences contributing to it," is most revealing. The disciplinary domains represented by ekistics and the five circles surrounding it, were circumscribed by the bigger, all-encompassing circle, "development." The multiple and complex world view that ekistics was supposed to provide through the synthesis of different disciplines, was ultimately circumscribed "development." Ekistics, just like all the other "sciences," was ultimately a tool for development, which was the overarching driving force. (Figure 5 "Development")

Replacing design with management

The anthropocosmos model's preoccupations with taxonomy and comprehensives set the basis for a managerial attitude towards architecture and planning. The analytic disintegration of settlements to five elements (regardless of the fantastic permutations with which these five

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[83] Dutta and Muzaffar argue that UN expert's call for drastic interventions, termed "action planning"—which proposed that the UN planner engage in a quick reconnaissance of the situation and immediate prescription—was explicitly aimed against Geddes' own method, "survey before plan." Ibid.

[84] Doxiadis, "The Rising tide and the Planner," Address of Doxiadis before the American Institute of Planners, Hotel New Yorker, New York City, October 29, 1958. This was the basis for Doxiadis's notion of cultural sensitivity. See Chapter II.

elements were combined) cast them as objects of management and ignored the fluid realities of human experience. The human subject remained abstract, with generic needs that corresponded to statistical standards of comfort, minimum sizes, and spatial units. However elaborate, human biological needs—which were themselves distinct from emotional needs—altogether overlooked issues of gender and race. To the extent that it was considered, cultural diversity was conceptualized in terms of the categories of needs and resources. Furthermore, the linear hierarchies between small and large settlement sizes subordinated an individual's needs to community demands, which were in turn, subordinated to national needs and ultimately, to global goals. The fifteen ekistic levels of population units established a strict correspondence between the size of communities and specific population numbers, and implied a connection between population numbers and pressures on resources—a favorite connection drawn among development experts. Nature itself was seen as a domain of human use. It was seen primarily as a resource, subdivided into categories such as "geologic resources," "topographical resources," "soil resources," and "water resources." Or, it was described as a source of emotional and psychological fulfillment—a theme that would gradually be given more importance. Thus ekistics' view of nature more or less combined the anthropocentric ethics of "resourcism" (valuing nature as a material resource) and "preservationism" (valuing nature because of its inspirational value), to cast nature itself as an object of expert analysis and management.[85]

Doxiadis's overall emphasis on humanity and global sharing, evoked timeless, even predestined imperatives, and obscured the specific historical choices–economic growth and capitalism—that were being advanced by development institutions. Doxiadis diagnosed current trends—"the rising tide" of an industrial system, and the growing tendencies to urbanization—as irreversible, to argue that ekistics had to join in. Yet ekistics did present a pocket of resistance: it questioned the primacy of economic criteria; and warned against the limitations of rationalism, even as it aspired to rationalize design and planning. In the process,

[85] This distinction has been proposed by environmental philosophers to differentiate between two kinds of anthropocentric ethic. For a broader analysis of different versions of this anthropocentric ethic, and key references see James Proctor, "Whose Nature?" in Willian Cronon, ed., *Uncommon Ground* (New York: Norton, 1995), 269-306.

it developed its own specific approach that negotiated the tenets of international development with the disciplinary rethinking of architectural modernism. The following chapter will examine how these negotiations, along with ekistics' models and design methods were translated into physical interventions.

CHAPTER TWO

Ekistic Treatments: The Management of Culture and Nature[1]

Doxiadis's perception of a global crisis was accompanied by a vision of a great future that would overcome the confusion of the present. In this chapter I analyze ekistics' planning models and physical interventions during the early phase of Doxiadis's international career (1953-63). I examine two main planning models (dynapolis and ecumenopolis) and manifestations of these in plans for the restructuring urban environments in Iraq (1954-58), Syria(1958), and Pakistan(1959), as well as in Doxiadis's vision of an urban "entopia."

Dynapolis: Aesthetics of Order with Regional Twists

> The proper name for the city of the future is Dynapolis, the dynamic 'polis' or city, which in contrast to the static 'polis' or city of the past will possess the characteristics of dynamic development, will have development built in it. Thus this city will be able to develop freely and naturally along a planned and predetermined course.
>
> -C.A. Doxiadis, 1960[2]

One of the key principles underlying Doxiadis Associate's (DA) urban interventions was "dynapolis" (another one of Doxiadis' neologisms), a model of urban growth, control, expansion and efficiency that was directional and cumulative. Its urban core was to expand continually along an axis, to avert the congestion, and do away with the permanence and monumentality typically attached to stationary city centers. (Figure 1) In formal terms, Dynapolis had special affinities to the "Linear City," envisioned decades earlier by Arturo Soria y Mata (1844-1920) who created near Madrid a new community developed on a linear pattern along streetcar lines. The business district of dynapolis would grow along an axis controlled by zoning and the siting of public buildings, road systems, and green areas. The

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[1] I borrow the term "ekistic treatments" from a 1963 *New Yorker* article on Doxiadis: "Doxiadis thinks that the entire world needs special ekistic treatment now." Christopher Rand, "The Ekistic World," *The New Yorker* (May 11, 1963): 49-87, quotation on 49.

[2] Doxiadis, *Dynapolis, The City of the Future*, Lecture at the Oslo Arkitektforening, Oslo, March 3rd, 1960, Document R-GA 185 (Athens: Doxiadis Associates, 1960), 26.

residential areas would expand along its flanks, to accommodate the growth of population, cars, and buildings. The residential periphery and the central business district would never burst into each other, even if each would progressively widen. Residents would ideally be placed conveniently near their work places for the sake of efficiency. Movement to and from the elongated center would be controlled by a series of centers along its line of growth, and access to the non-urban world would be facilitated through lateral movement. In a diagram, Dynapolis looked like a triangle whose base was constantly advancing towards one direction. The uniformity and regularity of the open-ended city's growing parts was supposed to prevent the confusion and discomfort Doxiadis associated with contemporary cities.

Like the interwar urban visionaries of CIAM, Doxiadis exhibited an aversion for the dark, narrow urban centers of old towns. Yet he tried to steer clear of the "extremes" that concentrated on economic criteria, technological solutions, or functionalist preoccupations alone.[3] In describing the "tyranny" of such extremes, Doxiadis indirectly critiqued CIAM versions of the "functional city," targeting simultaneously leftist-leaning proposals *and* urbanistic versions of Taylor's division of labor.[4] He also critiqued solutions that depended purely on technological fixes, implying criticism of Fuller's aestheticization of technology.[5] Yet he held on to modernism's rationality by also dismissing "romantic" regressions to "a simple pastoral life," expressing, perhaps, his opposition to the populist approach of the "townscape movement" in England.[6] Rejecting all such paths, dynapolis represented an

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[3] Doxiadis, *Ecumenopolis, The Settlement of the Future*, 157-163.

[4] The idea of a "functional city" made its first appearance in CIAM's La Sarraz Declaration in 1928. At that time, the notion of a rational organization of functions in town planning was tied to achieving an efficient collective life, and it was associated with the communist convictions of at least some of the participants at that meeting (e.g., May, Meyer, Stam, Rietvield). Other members of CIAM steered clear of leftist ideological projections, and adopted, instead Taylor's industrial model, either to cater to the capitalist interests of private industrialists (e.g., Le Corbusier's views in the late 20s) or to forge alignments between architects and the political authority of the welfare state (e.g., the Athens Charter of 1933).

[5] Doxiadis, *Ecumenopolis, The Settlement of the Future*, 161-63. Doxiadis also hinted to his opposition to Fuller's formal sensibilities in his critique of "spherical houses" in his 1960 RIBA lecture, "Architecture in Evolution."

[6] The Townscape Movement expressed opposition to the rational plan, and passion for variation and the idiosyncratic. See C. Rowe, *Collage City* (Cambridge: The MIT Press, 1978): 33-37.

optimization strategy that offered a comprehensive response to the postwar urban predicament.[7]

What made dynapolis particularly palatable to post-colonial governments of the time was the promise that it would be more amenable to local cultural preferences. In his countless speeches in academic conferences and development conventions, Doxiadis constructed an image of himself as a quasi-westerner who balanced the tasks of foreign experts with the tasks of what Charles Abrams called "inperts"—local officials qualified to direct development.[8] Even if Doxiadis believed that his planning approach embodied scientific truths that could have transnational applicability, he persistently gave assurances that "there are no solutions of universal value" and cited his own involvement with the reconstruction of Greece for having given him an insight into the significance the particularity of context and culture.[9]

Model Communities in Iraq, Syria, and Pakistan

> Doxiadis has the sort of European abilities that are needed—he is up on the latest planning techniques, and he runs his firm with northern (or, 'western') efficiency—but, being a Greek, he is free of the imperialist stigma, and, for the same reason, he can do things more cheaply, and often more suitable, for his Afro-Asian clients than a northerner could, because he is more familiar with their customs and standards. -*The New Yorker*, 1963[10]

> May I remind you that DA is a private organization of consultants and planners, a purely professional office, with no political color. Its large past experience in planning permits it to cut down the cost...
> -Hassan Fathy, letter to the Government of the United Arab Republic [no date][11]

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[7] Doxiadis, *Ecumenopolis, The Settlement*, 163-4.

[8] Abrams, *Housing in the Modern World*, 103-4.

[9] Doxiadis, "The Rising Tide and the Planner," Address of Doxiadis before the American Institute of Planners, Hotel New Yorker, New York City, October 29, 1958. Reprinted in *Ekistics* 7:39 (January 1959), quotation on 6. This is only one of many articles Doxiadis wrote in the late fifties criticizing the imposition of universal formulas. Apart from Doxiadis's own writings, there were also abundant articles in the journal *Ekistics* that critiqued planning practices that overlooked cultural particularity.

[10] Christopher Rand, "The Ekistic World," *The New Yorker* (May 11, 1963): 49-87, quotation on 53.

[11] Fathy's letter, filed as DA Document S-GAH 681; quotation on 4. [HFA]

The beginnings of dynapolis can be found in DA's plans for Iraqi towns, designed between 1955-1959. The Iraqi government became DA's first major international client when it solicited the firm to prepare a housing program for the entire country. Wealth from the oil industry had created favorable conditions for development in a young nation trying to establish itself to the outside world and nurture national pride among its citizens. The Development Board of the Iraqi government was making ambitious plans to build new roads, bridges, and dams, to create parks and community centers, and to provide power and irrigation facilities.[12] DA was asked to prepare a five-year plan to provide housing and community facilities; to create new village settlements in former desert areas; to facilitate the resettlement of thousands of slum-dwelling families in new urban quarters; and to train local workers in construction—all in the name of national development on a "rational economic basis."[13] The young firm quickly established a new branch in Baghdad. In the meantime, the journal *Ekistics* gave extensive publicity to DA's work in Iraq, generalizing the plans to a model for third world development. The October 1958 issue of *Ekistics* devoted its last pages to DA's plans for greater Mussayib; the next issue discussed the firm's proposals for Kerbala; and the next discussed a long-term plan for Kirkuk. Soon, it became customary to exhibit DA's current work in the journal.

By 1958, DA's involvement with Iraq expanded, when it was assigned the preparation of master plans for a number of Iraqi towns. At that point, urban housing schemes that were already being designed around the country were incorporated within larger "master programs." The capital Baghdad was of particular importance to the government of the thriving republic, and became the site of massive experiments by famous foreign architects

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[12] *The Economist* CLXXXIII, 5939, "Development in Iraq: Special Survey" (June 22, 1957); 14 page supplement after page 1076. Summary reprinted in *Ekistics* 5:28 (January 1958): 45-48.

[13] DA, "Iraq Housing Program," Pamphlet No. 5 (September 1959). See also, DA, *The Housing Program of Iraq*, 1959. In addition to the construction of houses, DA supervised the creation of vocational schools in Baghdad and Mosul, intended for training construction workers; DA also supervised irrigation and drainage works in the area of Greater Mussayib, located south of Baghdad, to increase cultivation areas.

invited to propose public buildings, educational, and health facilities.[14] Le Corbusier was invited to build a mammoth sports stadium, Walter Gropius to design a university, Alvar Aalto to design a large civic center, among others. DA was responsible for the overall master plan of the modern capital.

DA's master plan was intended to direct the future development of Baghdad. The Tigris River, which ran through the existing city, was used as the basis for establishing an imaginary axis "along which the city of Baghdad should develop." This Northwest-Southeast axis determined the orientation of the elongated rectangle that was supposed to define the city's future limits, which covered an area of approximately 500 square kilometers, to accommodate three million people, a population three times larger than that recorded in 1957. Major roads run either parallel or perpendicular to this axis, to provide "an easy connection of the city to the country." Residential sectors were organized according to a rectangular grid, and each of them represented "homogenous and integrated communities." "Green spaces" filled the gaps left between the rectilinear grid and the winding river; they seemed like orthopedic interventions to hold the rectangular grid against the river's organic shape. More "green spaces" were inserted between new residential sectors, to underscore the separation of different neighborhoods. (Figure 2. Baghdad plan) The commercial and business district incorporated the existing center, but its future growth had to abide by the rectilinear logic of the plan. Industries were pushed to the edges of the elongated rectangle that defined the city.[15]

The Master plan's restructuring of the city along functional lines became the basis for DA's proposal for a model community in **West Baghdad**, twenty minutes by car from the existing center of the capital. The "Western Baghdad Development Scheme" aimed to house a population of 100,000, from different categories of income, varying from very low to middle class, through different degrees of government support. This model community was to be self-contained and self-supporting with respect to everyday life. It provided for administrative,

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[14] Christian Science Monitor, "Architects Build Modern Baghdad," Second Section, April 2, 1958. Summary reprinted in *Ekistics* 5:32 (May 1958): 244-246.

[15] Doxiadis Associates, "The Master Plan of Baghdad," *DA Monthly Bulletin* 9 (January 1960).

social, educational, health and other community buildings, shopping centers, green areas, coffee houses and mosques. Echoing the social and functionalist logic of the "neighborhood units" of the post-WWII British New Towns, it provided key social facilities within walking distance, favoring pedestrian movement, which, according to Doxiadis's circle of consultants, was key to preserving the "human scale."[16] Tyrwhitt, in particular, was enthusiastic about the idea of residential neighborhoods that would constitute "relatively static cells" that would change at "a slower pace than the city."[17] The dimensions of each plot, roads, and public areas within these "human sectors" were predetermined. "Outside nuisances" such as the speed of the car, the pollution of machinery, industry, etc. that infringed on "normal life" were pushed outside the visual range of the living and recreation areas.[18] Pedestrian itineraries were carefully studied to protect them from having to cross (and see) the wheeled traffic, the idea being that human experience was supposed to unfold within a serene pedestrian environment. Doxiadis would later go as far as arguing that highways should not even allow the view of buildings, because these would distract drivers[19] --echoing, once again, Le Corbusier's dismissal of cross-use and functional complexity because it led the human mind to "lose itself and become fatigued."[20] Such narrow criteria for efficiency ignored the multiplicity of purposes in urban streets —they are more than a means of other transportation, they can also be used for leisurely drives, or they can provide aesthetic interest. Of course, the logic of this segregation of functions is rather clear: it increased the clarity of the urban plan, and facilitated the quantitative and classificatory tasks of Ekistic science.[21] By

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[16] Ibid., 7; Also, "Editorial," *Ekistics* (August 1958).

[17] Tyrwhitt praised Doxiadis's interpretation of neighborhood units in her paper, "Outline of Background Paper for Expert Group Meeting on Planning and development of Satellite and New Towns, 1964," 1963. [HU, GSD Library Documents] For the broader UN debates on New Towns, see, United Nations, *Planning of Metropolitan Areas and New Towns*, 1967.

[18] Doxiadis, Quoted in Tyrwhitt, "Outline of Background Paper," 11.

[19] Doxiadis would argue, a few years later, "we should not erect imposing buildings along our highways, where they can attract the attention of drivers." Doxiadis, *Architecture in Transition*, 108.

[20] Le Corbusier, quoted in Scott, *Seeing Like a State*, 110.

[21] See Scott's critique of Le Corbusier's insistence of the segregation of functions, geometry and standardization in *Seeing Like a State*, 107-111. DA may not have gone to the extremes of Le Corbusier, who advocated complete spatial segregation of housing, work, recreation and traffic—DA

compartmentalizing the unknowns of the urban plan in this way, Doxiadis was able to hold onto the possibility of computing formulaic solutions—much like earlier planners who evoked scientific rigor and provide a complete and comprehensive account of future developments.[22]

This logic of functional separation extended to the system of social ordering. The community of western Baghdad was broken down to smaller community scales arranged hierarchically. The smallest was "community class I," constituted by 10-20 families of similar income. A group of 3-7 such communities made a community "class II," also having a homogenous economic status. With few exceptions, house plots were rectangular, and their size depended on income groups. House types also corresponded to the income-based hierarchy, but each house had at least two rooms, a kitchen, a WC and shower, and also space for outdoor living. An agglomeration of class II communities plus an elementary school became a community "class III," which would then be combined with other communities of similar size but possibly of different income groups, plus a market and shops, a teahouse and a mosque, to constitute a community "class IV" of one to two thousand families. By integrating varying income groups into a Class IV community, DA aimed to help "develop common interests among people living in [different communities] that will lead to the creation of a healthy community spirit." As DA proclaimed (and their "expert sociologists" confirmed), the "proper" grouping amongst different communities would lead "to the development of social balance amongst the several classes of the citizens."[23]

The hierarchical structure grew even larger, by combining 8-12 such heterogeneous class IV communities into a community "class V" that would have from 120,000 to 240,000 people, and a "clearly marked center, with major shops, hotels, administrative buildings, and

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allowed some roads to reach into neighborhoods, and allowed for at least a limited range of activities in each neighborhood—but still, the firm was fixated on maintaining measurable categories.

[22] In his discussion on the High Modernist City, Scott points to the tendency to compartmentalize the unknowns in the plan as common to planners who evoked scientific rigor. Scott traces this tendency to Ebenezer Howard, who limited the variables of urban planning, to be able to develop formula to guide it. Scott, *Seeing Like a State*, 141.

[23] DA, "Iraq Housing Program" *DA Pamphlet* No 5, September 1959.

religious and entertainment centers."[24] (Figure 3. Sector 10, Western Baghdad development). Doxiadis explained the size of smaller community classes I, II, and III, by pointing to village communities found in Iraqi towns and villages.[25] But the reason for the overall hierarchical logic lies elsewhere. It was an attempt to provide a corrective to British versions of "self-contained" neighborhoods in New Towns, that prescribed the optimum size of neighborhoods, and were already facing criticism for failing to account for people's increasing dependence on the automobile, and industrial needs for mobility.[26] Doxiadis refrained from prescribing a single optimum size for neighborhoods, and instead, proposed a hierarchy of sizes, scales, and functions, that would allow for the creation of larger and more diverse communities than neighborhood units.[27]

Doxiadis' promise to nurture "social balance" was readily welcomed at a time when both the government and international bodies were nervously hoping that Iraq's transition from landlord system to a more egalitarian economy would be peaceful; as the *Economist* hinted, development bodies hoped that Iraq would not replicate the experience of Egypt, where a 1952 revolt brought the rise of Gamal Abdel Nasser and his socialist policies.[28] However, a military coup did happen in July 1958, which brought the brutal demise of the pro-Western Iraqi Monarchy, and radical changes to Iraq's sociopolitical agenda. DA's commission was cancelled a few months later. Until then, however, DA completed the

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[24] Doxiadis, "Architecture, Planning and Ekistics; Abstract from MIT Lecture 1957", *Ekistics* 7:44 (June 59) 446.

[25] Ibid. Only the smaller-scale communities (class I, II, and III) corresponded to Iraqi precedents.

[26] Tyrwhitt points to the pitfalls of New Towns in "Outline of Background Paper for Expert Group Meeting on Planning and development of Satellite and New Towns, 1964," 1963. [HU, GSD Library Documents, 10-11.] For a broader account of the criticism that surrounded British New Towns in the 50s, see Stanley Buder, *Visionaries and Planners* (New York and Oxford: Oxford UP, 1990): 187-89.

[27] A UN Seminar in 1962 on Satellite and New Towns echoed a general agreement that self-contained neighborhoods should accommodate 5-10 thousand inhabitants. Tyrwhitt, "Outline of Background Paper,"10.

[28] *The Economist* CLXXXIII, 5939, "Development in Iraq: Special Survey" (June 22, 1957) 14 page supplement after p. 1076. Summary reprinted in *Ekistics* 5:28 (Jan. 1958): 45-48.

construction of thousands of units that would become the precedent for many of the firm's future projects.

A 1957 article on Iraq's development in the *Economist* described the DA project as follows: "The idea is to build communities, not mere shelters. School here, market there, no road to cross to the playground and here is the gossip square."[29] The goal to create "communities"—a term which substituted "shelters" and "neighborhood units"— was common among housing experts, as an automatic justification of a culturally sensitive plan.[30] The irony in such an internationalized notion of community was not obvious to those who advocated it. As abstract as it was, "community" was supposed to help the urban dweller overcome a sense of void and loneliness. The advantages of "community" were even given an anticommunist spin: A *New York Times* article that praised Doxiadis's Baghdad project, contended that the void and loneliness felt in unsuccessful urban environments was threatening to make urban dwellers "overly susceptible to conversion by Communist agents."[31]

DA's inclusion of the local culture within its urban restructuring followed the lead of the French urbanist Michel **Ecochard,** who pioneered the refashioning of the Athens Charter in the context of third world cities. In his plans for "housing for the greater number" in Morocco's major cities between 1946-52, Ecochard emphasized the accommodations for the "natives," even as he adhered to the universalist precepts of the Athens Charter, and in doing so, he broke away from the city planning policies that dominated the planning of third world

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[29] ibid.

[30] United Nations, Economic and Social Council, Social commission, "Report on Concepts and Principles of community development and recommendations on further practical measures to be taken by international organizations," E/CN.5/325, 12 March 1957; reprinted in *Ekistics* 4:26 (Nov. 1957): 92-96. See also *Ekistics* Aug. 1958; the entire issue was devoted to "community projects."

[31] *The New York Times*, "Tribal Housing in Iraq," May 14, 1958. Summary reprinted in *Ekistics* 5: 33 (June 1958): 280-282.

cities before the war.[32] Like Ecochard, DA plans for Baghdad attempted to insert local character into a rational methodology of housing. The provisions for hamams and mosques in each "sector;" the care to keep a safe distance from archaeological monuments (not only in the plans for Baghdad, but also in later plans for Hama and Athens); and the occasional market that reproduced the vault of souqs: all these gestures aimed to accommodate cultural particularity within the modular functional plan.[33]

The transformation of the village dweller to an urban dweller was of particular concern to DA. The firm contemplated the criticism that surrounded the new cities of **Brasilia** in Brazil (by Costa and Niemeyer) and **Chandigarh** in India (by Le Corbusier's). Doxiadis clearly wished his urban plans to join the company of these "brave" new cities; but he promised that his cities would be more lively and provide more to the local population than access to light, space, bathrooms, electricity, and running water, by studying local patterns of living, and also, by doing away with the extravagance of signature designs.[34] Western Baghdad provided a so-called "gossip square" for each group of ten to fifteen attached houses to serve as "a modern substitute for the traditional gathering places of tribal life."[35] [Figure 4. Square in Baghdad] The "gossip square" was probably an idea from **Fathy**, who joined the ekistics group and the Iraq project in 1957, and was subsequently treated as an expert on Arab culture. The name was apparently inspired by an observation that similar points of interest in traditional neighborhoods of Baghdad were places where women would gather.[36] DA embraced the "gossip square" as an element that rendered the plan more appropriate to the local culture—even if it also left deep-rooted gender stereotypes intact. The square was small in scale and informal in character—very different from the huge squares of Chandigarh, with

[32] Cohen, "The Moroccan Group and the theme of the Habitat," 59-60. Ecochard had been the first to emphasize the particularity of problems faced by rural population moving into the city and leaving behind familiar lifestyles, and the community support system.

[33] Doxiadis Associates, "Iraq Housing Program," *DA Pamphlet*, No 5, Sept. 59.

[34] Doxiadis, "The Rising Tide of the Planner," 1959.

[35] *The New York Times*, "Tribal housing in Iraq."

[36] Doxiadis, "Abstract of the third part of a lecture series given at the Massachusetts Institute of Technology, spring 1957;" Reprinted in *Ekistics* 7:42 (April 1959), 295.

which Le Corbusier tried to substitute crowded bazaars and streets; and it was certainly more attentive to the habits and practices of the local past than the boundless public spaces of Brasilia.[37]

Western press coverage was favorable. *The New York Times* showed a photograph of a "gossip square" as an illustration of DA's cultural sensitivity (although, unlike Doxiadis' descriptions, the *Times* showed men doing the gossip!) The article's tone was evidently approving of DA's approach to housing, and their conceptions of social life and privacy.

> Iraqi housing authorities, instead of razing present slums and erecting tenements on their site, are creating groups of new sub-hamlets in the adjoining countryside to provide the close family and tribal relationship the rural Arab knew in his ancestral home.... The sub-hamlets are built in groups of ten or fifteen small attached houses beside a pedestrian way, at the end of which is a small 'gossip square.' Every house is so designed that its occupants are screened from the eyes of neighbors. They each have shower baths, flush toilettes, and a covered cooking space. Within the house, in the back, a section used by the women and children is partly screened. It can be wholly separated by a curtain from the entryway and front room. There the man can entertain his friends or a stranger without exposing his family to their gaze.[38]

To calibrate the dynapolis with respect to a cultural particularity, DA also explored local climate and materials. In the spirit of ekistics, the proposals for housing types and material choices were premised on massive data on climatic conditions, sun radiation and wind effects, geological formation, rainfall, vegetation, to compound the scientific legitimacy of the proposals. "Research programs" were launched to establish the most efficient orientation of buildings and passive cooling possibilities. Attention to climate also promised to maximize economy —a key theme that Doxiadis pursued since his work for the Greek state.[39] DA also established guidelines for the selection of materials and construction methods, to increase the quality and quantity of housing. They succeeded in addressing the lack of cement by

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[37] DA's plan come closer to the figure-ground relationships of older cities. See Holston, *The Modernist City*, 119-36.

[38] T*he New York Times*, "Tribal Housing in Iraq," May 14, 1958. Also in *Ekistics* 5: 33, June 1958, 280. See also the *Economist* and the *Christian Science monitor* articles mentioned above.

[39] For Doxiadis's techniques in Greece see Philipides, 336. See also *Architect's Working Details* (October 1964): 66-7

constructing two new cement factories, and by experimenting with mixtures of mud and cement or clay and cement. Much like UNESCO's "field consultants," DA provided remedies to the scarcity of skilled building labor by providing on-the-job training.[40]

DA's housing experiments in Baghdad did what UN consultants Weissmann and Henderson asked when they called for the evaluation of climatic variations, local materials, and labor, to use them "more fully and rationally," to increase productivity, temper mechanization and minimize cost.[41] In fact, DA transcended these policies, by encouraging experiments with different formal elements—courtyards, overhangs, screens—to accommodate vernacular formal preferences, and to increase thermal comfort. (Figure 5. Urban House Types) In some cases, DA hired local contractors, asking each to use their own familiar building technique, while DA engineers supervised to identify the most economical approach. (Figure 6. Low-cost houses in Western Baghdad; Figure 7. Upper income housing) Local knowledge systems had to be scrutinized, after all, in terms of the scientific criteria of efficiency.[42] Extensive debates were conducted within DA regarding the economic and cultural advantages of local building vocabularies (see Chapter III).[43] But ultimately, the final plans for Baghdad were dominated by a formal preference for uniformity and regularity. Overhangs shaped to provide maximum shading for windows; screens configured to increase wind pressure and provide privacy; and abstracted versions of a courtyard: these elements

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[40] UNESCO promoted the idea of "field consultants," from the late forties. UNESCO, "Report of the Reconstruction and Rehabilitation Commission," UNESCO c/11/Rev. 1, 22 (January 1947): 6. By the 60s, education and training became very important. See Barbara Ward. "The decade of Development; A study in Frustration" Essay first published in 1965 by the overseas Development Institute. Published in *Two Views On Aid To Developing Countries*. London, Institute of Economic Affairs (1966)

[41] United Nations, FAO, Inter-Agency Working Party on Housing and Related Community Activities, "Extension of Low-Cost Housing and Related Community Facilities" January 1959. Reprinted in Ekistics 7:44, 458-466, quote on 458. (The rapporteurs for this meeting were Julia Henderson and Ernest Weissmann.)]

[42] Doxiadis himself noted the importance in maintaining enough distance from local methods, in order to be able to see clearly the demands of efficiency. Doxiadis, "Pakistan Diary" 1954, 20. [Harvard University Archive, Development Advisory Service]

[43] Fathy and Marinos, "Applications of ideas on thermal comfort" R-GA 110, 2.5. 58; and Doxiadis, "Plans for the village in Mussayhib" S-D 823, 21 July 1958. More on this in Chapter III where I discuss Fathy's contribution to these debates.

were all transported into standardized housing modules. Their historical and social context vanished in the process, and they appeared as nothing more than relics of the past that were occasionally resurfacing within a new comprehensive order imposed from above.

The plans for Baghdad were only the beginning of DA's efforts to conceive a city of the future. In 1959 DA took on a new task to Master Plans for **Homs** and **Hama**, the third and fourth largest cities in Syria. Syria, which had united with Egypt the year before, to create the United Arab Republic, was in the midst of national agricultural, agrarian, and industrial reform, that had already begun in the interwar period under the French Mandate, and even before the country obtained its independence in 1943. DA's plans for the two cities promised to facilitate urban reform through large-scale functional restructuring.[44] Even though the proposals ultimately remained on the drawing board, they advanced the way of thinking that began in Baghdad.

In the planning of Syrian towns, Doxiadis had the benefit of earlier experience, because he had traveled to the country during February-April 1954 as a member of the International Bank for Reconstruction and Development. During the trip, Doxiadis produced a two-volume diary on Syria that became a key reference for his firm's master plans five years later.[45] These diaries tried to chart climatic conditions, analyze demographic distributions, juxtapose construction methods, material choices and costs, and map the location of factories, agricultural fields, etc. But the fleeting survey also revealed another side of Doxiadis's thought. Abundant photographs of street life and living conditions in rural and urban areas, Christian and Muslim neighborhoods, accompanied occasionally by sketches and comments, revealed Doxiadis's sensitivity to the spatial qualities in the streets and spaces, to the play of

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[44] The journal *Ekistics* devoted extensive coverage to Syria's overall development. See for example, Charles Issawi, "Economic Revolution in the Middle East," *The Listener*, (BBC) vol. LVIII, No 1484, September 5, 1957, 333-335. Reprinted in *Ekistics* 4:25 (October 1957): 99-100. See also, A.J. Meyer, "Harvard University Seminar on Economy of the Middle East, October 10, 1957," *Ekistics* 4:25 (October 1957): 101.

[45] The Diaries accompanied Doxiadis's report on Syria, submitted to IBRD. This report served as a reference for the World Bank's *Community and Development*. See Doxiadis, *Syria Diary*, Vol I and II.

shade and light, and to the details of construction.[46] The diaries also documented archaeological sites. (Figure 8. Photos and a sketch plan of a house in the Hauran Area)

Different from the abstract diagrams favored in Doxiadis's later books on ekistics, the keen observations in the Syria diaries revealed a sensitivity to vernacular architecture and his attentiveness to scale—for which he was indebted to his mentor Demetris **Pikionis,** who guided Doxiadis' early training in architecture. Pikionis was, in the context of Greece, a vigorous critic of "the solutions offered from the West." Since the 1933 CIAM congress in Athens, Pikionis emphasized the "plethora of virtues" and the need for "sentiment" that modernist rationalism threatened to exclude from architecture.[47] Pikionis's own projects passionately emphasized site-specificity and sensitized Doxiadis to the significance of site and composition. Doxiadis's 1936 dissertation at the Berlin Charlotenberg University that studied the perceptual relationships of the different buildings on the Acropolis was shaped by these influences. Doxiadis corresponded with his old teacher, invited him to ATO events, and often recognized Pikionis as one of the major influences of his entire career, even though this is not obvious from his firm's grand projects.[48]

When it came to DA's master plans for Homs and Hama, the sensitivities exhibited in Doxiadis's diaries were ultimately subsumed by the preference for formal regularity that was supposed to do away with monumental and sculptural extravagance. Although Doxiadis's diaries, had commented positively on the beautiful old souqs, the markets open to the sky, and the closely packed districts of special crafts, the proposals for Homs, for example, concluded

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[46] Similar diaries were also produced for Lebanon and Jordan by other DA members a few years later. Hashim Sarkis observes similar qualities in Doxiadis's diaries for Lebanon. Sarkis, "Dancing with Margaret Mead."

[47] Dimitris Pikionis, "Around a Conference," *Technika Chronika* 39 (1933): 755-6.

[48] Tyrwhitt refers to Doxiadis's relationship to Pikionis as one of the three major influences in Doxiadis' early life. Tyrwhitt, "Background to C.A. Doxiadis's Ecology and Ekistics," 13-14. Also Psomopoulos interview, 2000.

that the old city suffered from an "irrational" use of land" and a lack of open space.[49] This judgment seems to have been more influenced by an adherence to prescribed definitions of density than by an understanding of souqs, mosques, and courtyards as spaces with a wide range of social purposes. The plan DA submitted to the government stipulated the creation of public gardens, open recreational spaces, and wider roads, lumping these proposals together with the upgrading of the basic services for water supply sewage treatment, and other public utilities.[50] What was hidden amid the celebrated comprehensiveness of the proposal was a bias in favor of a low-density sprawling city. The social and spatial qualities of the existing dense fabric that Doxiadis captured in his photographs were lost through the oversimplifications of master planning.[51]

DA's wholesale preference for lower densities was accompanied by the belief that the cities' efficient functioning depended on spatial and functional segregation. The preliminary zoning studies imposed an overall territorial order similar to that of Baghdad. The commercial and administrative centers of Homs and Hama were given a linear shape and the direction of their future growth was predetermined. Like Baghdad, Hama was divided into a hierarchy of communities that attempted to regulate the inhabitant's actions. The initial proposal allowed for a certain degree of controlled intermixing of different income groups (as in Baghdad's class IV communities), so as to transcend the troublesome distinctions between rich and poor.[52] But the final reports for the two cities favored a greater degree of class segregation. For Homs, DA recommended the distribution of income groups "with the highest income

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[49] Doxiadis Associates, "Plan for the City of Homs, Syria: Summary of Preliminary report No. 3 prepared for the government of the United Arab Republic, Province of Syria." Reprinted in *Ekistics* (1958), quotes on 278 and 274.

[50] See list, "Summary of Problems" in Doxiadis Associates, "Plan for the City of Homs, Syria," 278-9.

[51] Sensitivities to site, form and climate are more evident in individual institutional buildings Doxiadis designed for Homs and the University of Aleppo, in the late 60s; but the master plans for Syrian cities do not reflect such sensitivities. Such a tension is not of course peculiar to DA's practice; it is also evident in other's work (e.g., Le Corbusier) who moved back an forth between analysis, planning, and design.

[52] Doxiadis Associates, "Plan for the City of Homs, Syria: Summary of Preliminary report," quotation on 278.

groups along the commercial center and green areas."[53] In Hama, the final plan proposed that "the lowest income groups be located near the industries and the outer parts of the city, while the highest income groups... be next to the green areas and the civic center."[54] (Figure 9. Plan for Hama) Such stark class distinctions opposed DA's commitment to "gradual integration," but they seem to have been favored by the government. The firm's final plan followed its client's preferences, and, instead of transcending local power structures, it became part of them.

The dynapolis took full shape in the planning of **Islamabad**, where it was used in its purest form. As consultants to the Federal Capital Commission of Pakistan from 1959, DA proposed plans for a new administrative capital. For Doxiadis, who favored all encompassing social and physical planning over reparatory reformative plans, the opportunity to design a new state-created capital was ideal; a government eager to establish a post-colonial symbol of its power was a perfect client for Ekistic treatment. DA's plan envisioned a city that would grow in a unidirectional manner, as the federal administrative center of the new nation.[55] The adjacent existing city of Rawalpindi, which contained all the industrial and wholesale functions necessary to service the federal capital, would also grow in a unidirectional manner, along a second, parallel axis.[56] (Figure 10. Plan showing the separation of the two parts) Following the "dynamic growth" of the two city cores, residential sectors would keep being added along the long wide avenues of the city. The two cities constituted a "double

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[53] Doxiadis Associates, "The Future of Homs and Hama" *DA Monthly Bulletin* 11 (Athens: Doxiadis Associates, 1960), 4.

[54] Ibid., 6. Also Doxiadis Associates, "Rapport Final sur le Plan d' Emenagement et Programme de Developpement de la Ville de Hama, Prepare pour le Gouvernement de la Republique Arabe Unie, Province Syrienne." Document Dox-SA 7, 24 April 1961.

[55] For the nationalist agenda that the Islamabad plans needed to accommodate, see Imran Ahmed, "The Journey from New Delhi to Islamabad: Dependence and Subversion in the Ambivalent Expression of Nationhood," MIT Masters Thesis, June 1992, 95-107.

[56] Ibid., 100.

dynapolis" that would act as the center of national and regional development, and become part of a global network of cities (ecumenopolis).[57]

The aesthetics of order, hierarchy, and standardization that were promoted in Iraqi and Syrian cities in the name of efficiency and scientific rigor also shaped the spatial understanding the Pakistani capital. The available area was laid out in an orthogonal grid of "sectors" and sub-sectors to make the city more manageable. The quintessentially modern gesture of the grid was rationalized, in this case, by evoking the importance of pure geometry in Islamic Art—an interpretation that indulged the government's wish for the city to evoke Islamic qualities.[58] Sectors were divided into a hierarchy of communities similar to those in Baghdad: Each community class IV accommodated 3-4 income groups.[59] (Figure 11. Model; Figure 12. Plans of sectors) In the meantime, DA continued the experiments it began in Baghdad regarding standards of efficiency and comfort in house types. (Figure 13. Room with sun-breakers) Somewhere between the optimism of the planners and the righteousness of the state, socio-spatial segregation reached new heights. In his critique of DA's plan for Islamabad, Imran Ahmed has already analyzed how the city's rigid grid layout catered to the ruling elite's interest in rigid social hierarchy.[60] The functional division of the city into a central administrative area on the one hand (Islamabad), and a service area (Rawalpindi), separated both socially and spatially the military and bureaucratic oligarchy from the rest of the city. As in the plans for Syria, one can question the extent to which the segregation that exists in the city was a result of the designers' strategies, or a product of state policies and

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[57] Doxiadis described how Islamabad and Rawalpindi would become part of ecumenopolis in Doxiadis, "Islamabad, The Creation of a New Capital", 20. See also his reference to "Islamabad as a case study," in Doxiadis, "Ecumenopolis, The Settlement of the Future," ACE Publication Series 1, 1967. More on this later.

[58] See Ahmed, "The Journey from New Delhi to Islamabad," 101 & 122.

[59] Doxiadis Associates, "Islamabad, The New Capital of Pakistan," Bulletin 64 (March 1964), 11.

[60] Imran Ahmed, "The Journey from New Delhi to Islamabad."

pressures[61] — although one cannot help but notice the irony, namely, that DA's celebrated claim to cater to human needs was reduced to a class-based distribution of services.

Apart from the responsibility of the physical plan for shaping social relationships and priorities in Baghdad, Homs, Hama, and Islamabad, what is most vital for the purposes of this study are two larger ironies in DA's urban ordering. The first irony has to do with DA's conception of culture, the second, with their conception of nature. First: Doxiadis Associate's unified theory that moved from an urban whole to the individual area, from "macro" to "micro," and from international to national and then to local imperatives imposed a one-way hierarchical relationship that reduced each locale to a mere piece in a bigger managerial puzzle. The dual imperative for economy of means and cultural malleability was incorporated in the meta-rationality of Ekistic analyses of income groups, spatial distributions, volumes of traffic, statistical standards of comfort minimums and recreational requirements, and the aesthetic imperative of standardization: these were the parameters of the urban environment.[62] In the meantime, the autochthonous culture, delimited by climate, materials labor, or quantifiable habitation patterns, turned into an object of expert control. This is why Doxiadis sometimes described his proposals as a strong but necessary medicine, that would help facilitate the advancement of different cultures, which he assumed to be on a linear path to progress, only at different stages of this path.[63] The difference was temporal, not cultural.[64]

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[61] Ahmed's arguments assume a complete alignment between DA's intentions and the Pakistani State's agendas. In my view, many of Doxiadis's statements (which Ahmed quotes to validate his point) were not based on the design strategies of the Ekistics group, but rather, on his give-and-take with his client, the state. It is because of his constant negotiation between the methodology of ekistics and the demands of his client that Doxiadis's rhetoric (on Islamabad, and in the case of Homs, as I already mentioned) is filled with contradictions. See DA, "Islamabad, The New Capital of Pakistan," Bulletin No 64, March 1964. The Bulletin describes how DA tried to convince officials to allow at least for some integration of classes.

[62] Doxiadis himself noted the importance in maintaining enough distance from local methods, in order to see clearly the demands of efficiency. Doxiadis, "Pakistan Diary 20" 1954.

[63] The development expert that practiced beyond the confines of the western world, Doxiadis argued, did not only move across space, but across time. "We are traveling into the past when, visiting developed areas of the Himalayas or the Delta of Bengal, we find people who are living five thousand years back." Doxiadis, "The Rising tide and the Planner," Address of Doxiadis before the American

Doxiadis was looking at cultural difference though the optics of modernization theory, which advocated that different countries had to be brought up to speed with the west, and failed, in the process, to recognize development itself as a cultural process tied to the complex circumstances of the specific locale.[65] Aligned with this prevailing social science that lived its heyday in the 50s and 60s, Doxiadis believed that the architect and planner's task was to assess each culture's stage of development, and stimulate its progress, from above. Even if Doxiadis criticized eurocentrism, his critique was confined by a linear view of progress. UN consultants' statements expressed a similar view when they advocated the "reorientation" of local life to promote the "acceptance and adoption" of new techniques among the population of aid-receiving countries.[66] .

It was this restricted conception of culture that led DA to repeatedly apply similar solutions in different contexts. Doxiadis himself recognized that his interventions often arrived at "similar solutions regardless of what country [he] was in." "Everywhere I went," he explained,

> I tried to develop the local styles and to explain that architecture must not be imposed but should glow like a young tree in the local soil and sun. I tried to emphasize that

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Institute of Planners, Hotel New Yorker, New York City, October 29, 1958. Reprinted in *Ekistics* 7:39, January 1959, 7.

[64] Doxiadis linear conception of cultural progress is evident in comments he made on a planning legislation in India, which had applied several aspects of the British planning system, and imposed many land control laws. Doxiadis argued that the society of India was not "ripe" enough for so many land control laws. "Are we sure when we mention English legislation and schemes and present them as an ideal for all the other countries, that the countries are ripe enough to consider this legislation and try to imitate it... We cannot jump immediately to the higher level of planning that has been reached by the countries with much grater experience." C.A. Doxiadis, "Comments on Land Use Controls and Planning Implementation." Proceedings of the Southeast Asia Regional Conference, Meeting of the International Federation for Housing and Town Planning, New Delhi, Feb 1-7, 1954 (Government of India Press, 1957) 427-8. Excerpts reprinted in *Ekistics* 4:27 (December 1957), quotation on 129

[65] Daniel Lerner, *The Passing of Traditional Society* (Glencoe, 1958): 43-75; C. Black. *The Dynamics of Modernization* (New York, 1966); S.N. Eisenstadt. "Post-Traditional Societies and the Continuity and Reconstruction of Tradition." *Daedalus* (Winter 1973): 1-27.

[66] United Nations, FAO, Inter-Agency Working Party on Housing and Related Community Activities, "Extension of Low-Cost Housing and Related Community Facilities," January 1959. Reprinted in *Ekistics* 7:44, 458-466, quotation on 458. See also UN, ECOSOC, Committee on housing Building and Planning, "Provisional Agenda, January 1963" [UN Documents E/C.6/1].

> architecture must grow over the generations from the seed that we place in the earth into the sturdy and stately tree we want it to become. I still believe that, but I often found the plans persisted in showing many similarities, despite my wish to plant a different seed at each place. There were many forces compelling me to adopt similar solutions, so that, although I started every time with the ardent desire to be influenced by the locality—and was so influenced—yet still I could not forget some major factors which are bound to influence architectural creation in the future. Thus, I found myself offering related solutions to different problems in places as far apart as Pakistan and Greece, Philadelphia and Iraq.

This was no paradox to Doxiadis, because one should not be afraid to repeat something that is good. "After all," he proudly concluded, alluding once again to a medicinal ethos, "the doctor is not afraid to use a medicine because it has been used before."[67]

The second irony in DA's approach is that their insistence on order, perceived as the other side of efficiency's coin, extended to their treatment of the natural environment. Like culture, nature was compartmentalized into elements to be utilized. Hills and beaches near the dynapolis were assigned the role of public recreation areas; and forests were designated as the "lungs" of the growing city, crucial to its functioning.[68] Parks and green areas, classified in terms of land percentages, were assigned a soothing, recreational role. Or, they were used to compound the functional divisions outlined in the master plans. In the Pakistani capital, for example, a strip of parkland underlined the separation between Islamabad's administrative center, and the less glamorous Rawalpindi. In the meantime, cars, highways, and industrial areas would increase unencumbered, along with the sprawling city, as long as they were outside visual range of living, recreation, and park areas. DA's attention to the natural environment was limited by the same aesthetic of order that shaped the functional plan. This was only the beginning of ekistics' compartmentalization of nature that would reach new heights in its plans for the global city of the future.

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[67] Doxiadis, "Architecture in Evolution," 21.

[68] Doxiadis uses this term explicitly in his 1960 plan for Athens. Doxiadis, *Our Capital and its Future*, 1960.

Ecumenopolis: The City of Everywhere, Anytime

> Ecumenopolis may be turned into an urban settlement, which will find itself in the same relation with the whole space of this earth, in which the Ancient Greek city-state was in its countryside [sic], within the narrow valley in which it was created.
>
> -Doxiadis, 1961[1]

As DA was testing versions dynapolis from Islamabad, Pakistan to Eastwick, Pennsylvania, the Athens Technological Organization assumed an even more ambitious task, to research the processes of urbanization around the globe. The goal was to outline the development of "ecumenopolis," the "city of the future." "Ecumenopolis" was yet another term invented by Doxiadis whose neologisms were, by this time, forming a new disciplinary lexicon of their own. (The "Glossary" was to become indispensable to each one of Doxiadis's books). Ecumenopolis—a term with quasi-spiritual, even quasi-theological connotations of ecumenical unity—was supposed to join together all urban regions into urban continents (what Doxiadis named "eperopolis") to create ultimately, an urban network that covered the earth. At that point, the world would have moved from civilization to "ecumenization."[2] The resulting global city was not a utopia Doxiadis was quick to clarify, but an "entopia," what he defined as a "practicable reality."[3]

The premise of ecumenopolis was that as technology swallowed up industrial and agricultural labor, cities around the world would increasingly expand until they formed an interconnected system of urban concentrations that, along with the open land and water surrounding them, would cover the entire earth as a continuous settlement. Ecumenopolis was to be the final outcome of the trend of "megalopolis," the coming to contact of several metropolitan areas. This trend was already associated with regions in developed industrial countries, from Maine to Georgia, from Buffalo to Chicago, from London to Manchester.

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[1] Doxiadis, "Ecumenopolis, The Settlement of the Future," Athens Technological Organization, R-ERES 18, June 23, 1961/1967: 188.

[2] Doxiadis, "Delos One Hundred," Ekistics (October 1963), 49.

[3] Doxiadis used the term entopia—derived from the Greek εν τοπω, "in place"— to underline the distinction from "utopia," ("no place"). Doxiadis, *Between Dystopia and Utopia*, 1966.

Doxiadis's position was aligned with the French Geographer Jean **Gottmann's** analysis of megalopolises in the US.[4] Contrary to Lewis Mumford—who denounced Gottmann's as a vision of "cities dissolving into endless masses of low-grade undifferentiated urban tissue" [5]—Doxiadis accepted the megalopolis as a key premise for postwar planning around the globe. He extended Gottmann's logic, to predict the gradual contact of megalopolises to form a global urban network. (Figure 1. Ecumenopolis) If settlements, industries, transportation systems, and agricultural production were planned correctly through comprehensive research, Doxiadis's argument went, this global settlement could comfortably sustain 22-30 billion by the end of the twenty-first century. From that point on, population and settlement patterns would ideally remain static.[6] If Le Corbusier's Ville Radieuse was "a city of nowhere" in El Lissitzky's eyes, the Doxiadis was envisioning a city of everywhere, for all time.[7]

The Athens Technological Organization took on the task of planning the orderly transformation of the physical environment of ecumenopolis, to prevent the dehumanizing impact of massive urbanization. In the summer of 1960, it launched the "City of the Future" (COF) research project, first with the financial support from the DA office, and then also with a grant from the Ford Foundation, with which Doxiadis already had a good relationship.[8]

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[4] Gottmann, *Megalopolis: the Urbanized Northeastern Seaboard of the United States* (Cambridge: MIT Press, 1961). Gottmann later became an advisor for the COF project.

[5] Mumford, "A New Regional Plan to Arrest Megalopolis," *Architectural Record* (March 1965): 147-154. Mumford mailed a copy of this paper "A New Regional Plan to arrest Megalopolis" (in which he critiqued Gottmann's Megalopolis) to Doxiadis with the note, "To Doxiadis, an alternative to Dynapolis!"

[6] The first of Doxiadis's writings on the subject of ecumenopolis was "Ecumenopolis, The Settlement of the Future," an internal report at the Athens Technological Organization, R-ERES 18, June 23, 1961; this document was re-issued practically unchanged, as No 1 of the *ACE Publication Series of Research Reports* in 1967.

[7] El Lissitzky made this comment on Le Corbusier's plan's for the reconstruction of Moscow (1930), which Le Corbusier soon retiled the "Ville Radieuse," or "Radiant City."

[8] ATO received a Ford foundation grant for the COF project for 1961-62. DA's school buildings for Lebanon had already been sponsored by the Ford Foundation in 1960. Other DA projects that were funded by the Ford Foundation are: DA's 1957 design and construction of the Education Extension Center, and a Teacher-Student Center in Dacca, Bangladesh; design and construction of the Academy for Village Development, Comilla, Bangladesh (1957); DA's design and construction of the Education Extension Center in Lahore, Pakistan (1957); DA's design for Schools in Karachi, Pakistan (1959) .

Very quickly, this project involved a multidisciplinary group of experts. Apart from Doxiadis and Tyrwhitt, key members of the initial team were: J. Papaioannou, who later co-wrote with Doxiadis a book on ecumenopolis; the Greek architect-planner Myrto Antonopoulou-Bogdanou who supervised many of the publications on the City of the Future; the American social scientist and Professor at the University of California Richard Meier; the Mexican architect Gomez Mayorga; the US geographer and planner G. Gutenschwager, and the Egyptian architect Hassan Fathy, among others. The team would change as the COF project continued, up until the end of Doxiadis's career.

The COF team operated in diachronic and trans-cultural dimensions to survey cities in several parts of the world and to conduct meticulous analyses of their economic development prospects, population growth, and resource constraints.[9] ATO students joined the project to help produce fantastically detailed maps of the world's regions, examining how to promote economic development hand-in-hand with an orderly transformation of the physical environment. At a time when development policies were extending their time frame to inaugurate a "development decade" (because the short-term development programs of 1950s had failed to lessen the 'North-South' gap), the COF also amplified its emphasis on long term planning.[10]

Doxiadis presented the formation of ecumenopolis as an inevitable reality. "Our challenge," he stated in a characteristic moralistic tone, in his first report on ecumenopolis, "is

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[9] Early COF reports included for example: Papaioannou, "Megalopolises: A First Definition." Reprinted in *ACE Research Report* 2, (Athens Technological Organization, 1967); and R. L Meier, "The influence of Resource constraints upon planning for worldwide Economic Development," August 1961. Reprinted in *Athens Center of Ekistics Publication Series, Research Report* 3.

[10] By the early sixties, development experts were increasingly shifting their focus to long term planning. Unlike the war-devastated countries of Europe, which were able to achieve an impressive momentum of growth in half a decade, developing countries were believed to require longer-term policies. Doxiadis's close colleague Barbara Ward, resounded this point arguing that the optimistic hope for 'development in a decade' had to give way to "a wiser sense of 'development in half a century." Barbara Ward, "The decade of Development; A study in Frustration" in *Two Views On Aid To Developing Countries* (London: Institute of Economic Affairs, 1966), 14.

whether we let this happen, or if we are going to guide humanity towards it."[11] All COF was doing was to propose a pragmatic response to urbanization, which was, in Doxiadis's mind, as inevitable as the drive to economic growth. Doxiadis's close associate, Gerald Dix, reaffirmed the realism of ecumenopolis: "Doxiadis did not particularly welcome ecumenopolis nor yet the larger areas of megalopolitan growth of America, Japan and elsewhere, but he regarded them as inevitable, and if they were inevitable, it would be better to give them order and coherence, to ... use our energies to care for the quality of life instead of wasting them fighting for the impossible."[12] Many members of the ekistics group submitted similar arguments to rebuff criticism that ekistics was unduly promoting urbanization. Paradoxically, the grounds for these criticisms can be found in the celebratory tone of some of Doxiadis's own statements:

> Ecumenopolis, which mankind will have built 150 years from now, can be the real city of man because for the first time in history, man will have one city rather than many cities belonging to different national, racial, religious or local groups, each ready to protect its own members but also ready to fight those from other cities... Ecumenopolis, the unique city of man, will form a continuous, differentiated, but also unified texture...[13]

Statements such as this did not describe the imminent global city as an inevitable outcome of urbanization whose dehumanizing impact could only be toned down; they presented ecumenopolis as an opportunity for international peace and cooperation.

Conflicting signals were, of course, typical of Doxiadis's rhetoric. He often shifted the emphasis of his arguments to bolster their appeal to a wide audience. Warnings about the grave threats posed by modernization built on postwar anxieties about technological excess,

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[11] Doxiadis, "Ecumenopolis, The Settlement," 208.

[12] Gerald Dix, "Introduction," in Doxiadis, *Ecology and Ekistics*, ix. Doxiadis made this point repeatedly: "The inhuman dimensions of this type of city, this ecumenopolis, will be inevitable. But we have to make life within it more human by developing many small communities within the total ecumenopolis." Doxiadis, "Energy and the New Civilization; A Systems approach to the cities." *DA Review* 3:29 (May 1 1967): 2.

[13] Doxiadis quoted in Charles Abrams, *The Language of Cities* (New York, the Viking Press, 1971): 98.

while optimistic promises for the "co-habitation of nations" resounded postwar dreams.[14] Besides, a positive spin on the future moved the issue of global urbanization away from critical questions of agency, namely, which political agendas are served by urban-industrialization and capitalist expansion? The noble cause of the "survival of humanity" validated COF's endeavor, but, as the rest of this chapter will show, it insisted on leaving intact the deeper mechanisms of development.[15]

Like dynapolis, ecumenopolis was primarily based on the conviction in the comprehensive capacity of science to control urbanization, plan industrialization, and manage resources. The logic of hierarchically structured communities connected with transportation and communication systems was now reproduced on a global scale. In its entirety, the ecumenopolis constituted a community class XII, which was broken down to 6-7 communities class XI, each of which would be broken down to 40 communities class X, etc. until they were broken down to human communities class IV—the largest urban sub-unit which maintained the human scale. As in dynapolis, class IV communities would usually have the size of 6-15,000 inhabitants.[16] Functional separation was also taken to new heights.

A rendering of "**entopia**," a metropolis that was envisioned as a part of the "Mediterranean Megalopolis, produced by ATO years later, helps visualize the built part of ecumenopolis." (Figure 2. Entopia) The rendering (a rare mode of representation among a group that favored charts and diagrams) represented a plausible reality for approximately 2100 AD. The sprawling metropolis was organized as a blend of communities that would obey common zoning laws to do away with "the mistakes of today, such as the skyscrapers": Some communities, such as the one on the hill to the left, was an old community that was duly preserved; others were composed of new buildings. Certain communities were open to all religious groups, whereas others corresponded to specific religious centers, to

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[14] Doxiadis, "Ecumenopolis, "The Settlement of the Future," 191.

[15] Ibid.,195, 208.

[16] For smaller scale communities, the Athens center of ekistics established another research project, the "Human Community" (HUCO) that examined the content of sectors.

accommodate distinct religious needs. A nudist community (right) accommodated those special interests. This uncomplicated version of pluralism assumed that social tensions would be resolved, and even though each community would have "its own special character," all would be "integrated into a harmonious whole."[17] The territorial order was further enhanced by the underground placement of transportation means. "Deepways" replaced highways. Factories also existed underground, either under public installations or below green open spaces, apparently because they were classified as utilitarian elements, and not as the places where many workers would be spending much of their time! The energy required for these underground roads and structures would be secured through resource management, and the cost of the new and cumbersome mechanical systems was a fair price for creating better cities.[18] The view of this harmonious city of human scale that would keep the intrusions of mechanization out of sight and out of mind would be enjoyed from the few taller buildings, which were supposed to have restaurants on their tops, or, from the "people's pyramid," on the saddle of the hills to the right, that would serve as the metropolis' shared symbol.[19] All in all, "entopia" was the ultimate expression of Doxiadis' fixation on visual order, and his disdain for cars and high-rises. The irony is that even though Doxiadis proclaimed the inevitability of cities, "entopia" reflected a lack of urbanity: the imperative for orderly urban growth and efficiency translated into the dispersal of low-density housing settlements, the rebuilding of wider and faster highways, and an overall anti-urban aesthetic.

Like entopia, the overall vision of ecumenopolis projected a peaceful and egalitarian future world; but its teleological story was premised on notions of human collectivity, and shared, communal priorities. Economic, industrial, and cultural exchanges among different urban centers of ecumenopolis were supposed to be guided by administrative policies and programs, even a "world Government."[20] Doxiadis pointed to the transnational economic and

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[17] Doxiadis, "Entopia"; a short description that accompanies a rendering of entopia printed on DA's greeting cards, 1974.

[18] See also Doxiadis, "Energy and Human Settlements," 1968.

[19] Doxiadis, "Entopia," (DA's greeting cards, 1974).

[20] Doxiadis, "Ecumenopolis, The Settlement of the Future," 190.

defense pacts such as NATO and the Warsaw Pact not as confirmations of insurmountable ideological differences, but as signs of the trend that would eventually lead to a comprehensive system of administration. As in dynapolis, the declared concern with cultural particularity had to do with the differences in each culture's capacity to adopt to centralized public affairs: "local civilizations" needed to be given time for a gradual absorption of development, until they can be "replaced or balanced by a world civilization."[21] "East and West" were on a "common course" to develop the same technology and to achieve a rise in living standards, to ultimately establish an even geography of development.[22] All in all, the COF's 21st century ecumenopolis projected the postwar dream of "one world" in three dimensions.

In order for ecumenopolis to "allow the maximum number of people to live on this Earth in the best possible conditions," the global urban network joining east and west, north and south needed to achieve a "complete balance between its own forces and the forces of the countryside"—much like the ancient Greek city-state, Doxiadis argued, which existed in balance with the surrounding countryside (see quote at beginning of this section).[23] Assuming the existence of an omnipotent central power that could impose this kind of order, the team divided the "countryside"—a term being used interchangeably with "non-built up areas" to underline its direct correspondence with built areas—in two zones, the agricultural and the natural. The agricultural zone of the earth was the cultivable land, and its size would be calibrated according to total food production demands. The "natural zone" was assigned a function analogous to that of small squares in old towns: it provided opportunities for recreation, and a "breathing space" for the earth's urban settlements.[24] The natural zone would be comprised of "the best types of forests, the most beautiful riversides and lakes, the

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[21] Doxiadis, "The Course to Synthesis, Human Settlements in East and West," R-GA 311 (August 1963): 1-17, quotation on 14.

[22] Ibid.

[23] Doxiadis, "Ecumenopolis, The Settlement of the Future," 164, 165.

[24] Ibid., 201.

tops of the mountains, and other areas which are not good for cultivation or residence."[25] Unlike the cultivable land, which was that aspect of the countryside that had a utilitarian purpose, the natural zone had a soothing power, supposed to cater to the human mind and soul. It was not yet clear in this proposal how this grand ordering would translate to specific plans. What seemed clear is that the preoccupation with visual order and functional segregation prevailed.

At these early stages of the ecumenopolis theory, the definition of "complete balance" among the earth's urban, agricultural and natural zones remained elusive. The term, chosen by Doxiadis in his polemical 1961 report on ecumenopolis, helped evoke quasi-mystical conceptions of nature's balance; such connotations were in tune with Doxiadis's insistent emphasis on intangible human needs. Yet Doxiadis's notion of "balance" did not refer to an age-old predetermined state that needed to be preserved; rather, it signified a maximum of acceptable limits for future exploitation. Doxiadis rationalized the parameters of this balance in terms of surface area ratios between the different zones: a certain degree of urban density was supposed to correspond to particular surface areas for cultivation and recreation; if, for example, future technological progress reduced the requirements for food-producing land, then built areas and natural areas would increase in an analogous way.[26] This because in Doxiadis's mind, the balance between "built-up" and "non-built up" zones on earth was completely tied to humanity's socioeconomic future.

At a later stage in his career, Doxiadis's idea of balance would incorporate emerging views of the earth as an intricately interconnected web of life (Chapter IV), which helped render the urgency for earth's protection with an apolitical aura. But even at these early beginnings of ecumenopolis theory, Doxiadis's socio-economically based notion of balance remained beyond political debate. The COF teams' organization of "the contact of man with

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[25] Doxiadis, "Ecumenopolis, The Settlement of the Future," 165. See also Doxiadis, "The Future of the City," Paper prepared by Doxiadis for *Newsweek International* (March 1968): 4.

[26] Doxiadis, "Ecumenopolis, The Settlement of the Future," 165.

nature," confined nature as an object of supra-political expert control.[27] Like the configuration of built settlements, access to forests, lakes, and mountains, and the extent of their appropriation, were prescribed by ekistics' territorial and population scales. Problems in the location of national resources, and imbalances in technological and military power or in international trade that could shape the range of "contact" with nature, were assumed to be solved according to shared human goals and needs. In its zeal to replace localized public affairs with large-scale organization and action, the COF slipped too hastily into an overly organic view of a global society. COF's double goal, namely, to achieve even development across the globe's urban centers, and to maintain an overarching balance between urban centers and nature, embodied ideological preferences whose intellectual lineage reached far beyond the ekistics circle, to theories of regional planning and human ecology.

Regional theories and the ideology of even development

The conception of ecumenopolis as "a continuous network of nodal points and many radial branches which are covering the whole Earth like a great octopus"[28] was in tune with the assumptions of regional theories that mapped people and cities as part of a coded system without particular attention to the unequal geographic and social contours of capitalist economic growth. Unlike regional planners of the interwar generation that opposed metropolitan expansion, postwar regional theorists promoted "urban-industrialization," as they turned most of their attention to the urban and regional development of the so-called third world countries, where there was more immediate interest in their ideas.[29] From the fifties, regional science was rapidly gaining currency, and Doxiadis espoused many of its conceptual tools. In a paper presented to the Second European Congress of the Regional Science Association, Zurich, Switzerland, Sept. 3-6, 1962, he analyzed the commonalities

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[27] Doxiadis, "Ecumenopolis, The Settlement of the Future," 157, 173.

[28] Doxiadis, *Ekistics and Regional Science* (A paper presented to the Second European Congress of the Regional Science Association, Zurich, Switzerland, Sept. 3-6, 1962) Document R-GA 265 (Athens, Doxiadis Associates, August 1962), 66.

[29] Weaver, *Regional Development and the Local Community: Planning, Politics and Social Context* (New York: John Wiley, 1984), 76.

between regional science and ekistics, proving yet again his marketing genius. Both regional science and ekistics were interdisciplinary social sciences that examined space in relation to its functions, he argued; but when it came to the study of human settlements, ekistics was more comprehensive because it reached beyond issues of economic exchange into matters of the social and aesthetic viability of the physical environment. Doxiadis was particularly influenced by Walter Isard's model of space economy—even if no footnotes in Doxiadis's writings drew attention to this connection.[30] It is by drawing on the work of this American regional planner that Doxiadis conceptualized the globe as a system of nodes and linkages defined by urban centers. In Isard's theory, market mechanisms would arrange economic activities in their optimal, profit-maximizing locations, creating a hierarchical economic landscape that was supposed to exist in equilibrium. The boundaries of the nation state were replaced with geopolitical ones.[31] Clyde Weaver's description of Isard's theory could very well serve as a caption for COF's map of ecumenopolis:

> Cities became point locations exerting varying amounts of economic attraction, depending primarily on their size. Their main locational characteristic was their relative situation vis-à-vis other places in a theoretically unlimited urban system. All connections with the concrete world of cities and regions with proper names and individual identities... were lost, etherealized into the n-dimensional realm of economic space.[32]

Like Isard's theory, the socio-economic megastructure of Doxiadis's city of everywhere promoted the widespread adoption of the present pattern of Euro-American economy and compounded the notion of a linear cultural progress. Even if Doxiadis's speeches at the UN criticized the dominance of economistic criteria in development policies (Chapter I), they did so only to underline the significance of the physical planning (and promote the interests of ekistics), not to challenge the rules of a global marketplace. Like the regional theories it was based on, COF's focus on a global network of cities, failed to anticipate the impact of globally extended multinational corporations that altogether altered

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[30]Doxiadis' book *Ekistics and Regional Science* made only a hasty reference to Isard (page 33), but it is not difficult to see that Doxiadis drew on Isard's 1956 book *Location and Space Economy*, that emphasized the spatial dimensions of economic activities.

[31] Walter Isard, *Location and Space Economy*, 1956.

[32] Weaver *Regional Development and the Local Community*, 80.

the economic role of metropolitan centers (as well as the countryside).[33] The spatial divisions of specialized labor and the constant move of jobs across regions and countries, did not achieve a harmonious economic interdependence (as regional theories predicted), but instead, increased the economic dependence of regional economies on external loci of economic power that increase, rather than eliminate, the uneven patterns of social and geographic income distribution.[34] Doxiadis's notion that the well-being of a local community can be seen in the context of a broader, global political economy, could have been more successful if Doxiadis's analyses of regional economies, settlement patterns, religious traditions, and even the more intangible criteria of human fulfillment and community happiness, were not subsumed by a grand centralized system.[35] If his analyses had, instead, contemplated the fundamental importance of localized democratic debate, cooperation and struggle, Doxiadis's vision might have provided a compelling alternative to the politics of separatism, such as those advanced by Fathy as a reaction to ecumenopolis (Chapter III).

Human ecology and the philosophy of interdependence

The perception of global space as a system whose stability and balance rested on the equilibrium of its components drew on the philosophical and methodological structure of **human ecology**, which was central to Doxiadis' overall formulation of ekistics. As it was initially defined in the early 1920s, human ecology adopted principles of biological and ecological theory to the analysis of human practice, particularly urban life, with the aim to study the spatial and temporal relations of human beings as affected by forces in their

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[33] Weaver, *Regional Development and the Local Community*, 5.

[34] Weaver explains this irony in postwar regional theories: namely, that regional theorist's efforts to achieve economic interdependence led to increasing the economic dependence of formerly viable regional economies on outside decision makers. Weaver, *Regional Development and the Local Community*, 79-86.

[35] The Athens Center of Ekistics eventually supported another project, to complement the COF project: the "Human Communities " (HUCO) project focused on smaller scale communities (from Class I to IV). However, the HUCO project also depended on generalized rules that overlooked political power structures.

environment.[36] Incorporated into the global ambitions of post war development, human ecology became the basis for understanding diverse people in varied environments.[37] Aid agencies did not pursue this connection systematically until 20 years later, at which time human ecology provided the premise of environmentalist thinking in development practices.[38] Doxiadis, however, adopted methodological principles from human ecology since the early beginnings of his career. The assumption that the structural patterns of communities and regions evolve over time and in space to achieve equilibrium became the basis for Ekistic analyses of settlement patterns and resource usage by human groups in different spatial and population scales.[39] Like human ecology, ekistics tied science to social management. In fact, ekistics aspired to extend the scope of human ecology, to include the study of human settlements in its analyses of the inter-relation of human beings and the physical environment.[40]

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[36] The term "human ecology" had been coined by a group of Urban Sociologists in Chicago in 1921; Park and Burgess, eds., *Introduction to the Science of Society* (Chicago: University of Chicago Press, 1921). See also R.E. Park et. al, *The City* (Chicago: University of Chicago Press, 1925)

[37] For the role of human ecology in development theories see Adams, *Green Development: Environment and Sustainability in the Third World* (London & New York: Routledge, 1990). For example, Adams quotes Worthington's reflection on the development decades: "Fundamentally, the problem of development was one of human ecology, the diverse people reacting with their varied environments." E.B. Worthington, *The Ecological Century, A Personal Appraisal*, (Cambridge, Cambridge UP, 1983), quotation on 97 [cited in Adams, 27.] See also, Gibbs, Jack P. and Martin, Walter T. "Urbanization and natural resources" American Sociological Review, 23:3 (June 1958): 266-277. Abstract in *Ekistics* 6: 36 (October 58): 133-35. For UN debates on human ecology since the forties, see McCormick, 1989.

[38] Adams, *Green Development*, 27.

[39] In a comparison between ekistics and human ecology, Troumbis argues that Ekistics defined the relation between human settlements and ecology much more clearly than human ecology. Andreas Troumbis, *Λογία Οικολογία*, (Athens: Τυπωθήτω, 1999), 20-21.

[40] Tyrwhitt's first editorial in *Ekistics* issue explains that the term Ekistics "embraces a rather wider field than that covered by the term 'human ecology': the inter-relation of man and environment, including the systems of human settlement." Editorial, *Ekistics* 4:25 (October, 1957). Ekistics departed from the Chicago School tradition of human ecology, which treated the physical environment as a spatial and temporal field primarily defined by socio-cultural processes, and emphasized the role of physical elements (networks, shells). For this distinction and for other architectural interpretations of human ecology see Stanford Anderson, "Studies Toward and Ecological Model of the Urban Environment," *On Streets* (Cambridge, The MIT Press, 1991): 267-306.

What is key to our understanding of Doxiadis's adoption of ecological theory is the notion of the ecosystem. As it evolved in the post-WWII period, the concept "ecosystem" acknowledged the idea of a "whole" as a supra-individual reality, while it also acknowledged an autonomous role for the parts. In human ecology, the notion of "ecosystem" led to the assumption that the components of a community, its structure and functions could be quantified, while the "whole" maintained its own significance.[41] In this way, the ecosystem combined the holistic tradition of ecology, which had given priority to the "whole" or the "organism," with the mechanistic conceptions of science that prevailed in the aftermath of WWII, which assumed distinct elements and their relationships to be measurable based on causal hypotheses and empirically testable methods.[42] The "successful ambivalence" that characterized the notion of ecosystem allowed ecology to gain scientific credibility while it also maintained a quasi-spiritual dimension.[43]

A similar ambivalence towards the holistic-reductionist debates permeates ekistics' studies of the relationship between dwelling, society, and the global environment. While

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[41] The notion of the ecosystem emerged in 1935 and it had tremendous influence on postwar models of urban analysis and geography. For a basic explanation of the influence of ecosystem theory on ecology and human ecology see "Ecology" *Encyclopedia of Urban Planning*.

[42] Sachs, "Environment," *The Development Dictionary*, 31. The notion of ecosystem had a profound impact on the holistic-reductionist debate in Post-WWII ecology. See Michael Barbour, "Ecological Fragmentation in the Fifties," *Uncommon Ground*, in William Cronon, ed. (New York and London: Norton, 1995), 233-235, esp. 246-250. Donald Worster's introduction to the history of ecology captured this ambivalence in more general terms when he described the "identity problem" that permeated ecology, namely, "the question whether ecology is primarily a science or a philosophy of interrelatedness." Donald Worster, *Nature's Economy: A History of Ecological Ideas* (1992, 1977), 378. Here, I only refer to the duality inherent in the notion of ecosystem in general terms, to argue that Doxiadis translated this concept into his own studies of the relationship of dwelling and society, local and global.

[43] Sachs, "Environment," 31. Sachs explains that the notion of "system" as it emerged in the post-WWII period, integrated an originally antimodern notion, the 'whole' or the 'organism' into scientific discourse, and combined the organicist heritage with scientific reductionism. Sachs refers to this as the "successful ambivalence" inherent in the concept of the ecosystem. For analysis of how later developments in systems analyses would compound managerial attitudes towards the environment see Escobar, Encountering Development, 206-7. Haraway's discussion of the denaturalization of the notion of organism, and the emergence of the Cyborg also captures how how the notion of systems established a new world view. Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (London: Routledge) 1991.

Ekistic methods of analysis concentrated on uniformly measurable elements (units of space, time, economic scales) in search of general laws, they also emphasized qualitative interpretations—human fulfillment, community happiness, and the higher unity and order of a global ensemble of settlements. It was by internalizing the concept of the ecosystem that Doxiadis and his circle were able to subscribe to scientific reductionism (exemplified by the city/country ratios of ecumenopolis) while claiming to respond to intangible human, spiritual needs for contact with nature.[44] This ambivalence allowed Doxiadis and his group to integrate their approach with post war scientific (and development) discourse *and* also criticize the scientific experiments of previous architects for their inability to recognize the complexity of human experience and the interconnectedness of human settlements.[45]

The assumptions of ecosystems theory, coupled with the conceptual tools from regional science, delimited Doxiadis' definition of global space as a system with a static and comprehensive balance, and nurtured a managerial attitude towards the environment, that would take full shape during the second phase of Doxiadis's international career. (Chapter IV).

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[44] Doxiadis, "Ecumenopolis, World-City of Tomorrow," in Robert Leo Smith, ed., *The Ecology of Man: An Ecosystem Approach* (New York: Harper and Row, 1972): 154-162.

[45] This ambivalence is not unique to ekistics, although ekistics was one of the first cases where this occurred. Ecosystems theory, and the idea of system became the premise for environmentalist trends in the seventies that maintained development aspirations. Like ekistics, such trends perceived global space as a system with a balance that has to be maintained through the careful management of economic growth, population growth, and technology. Sachs, "Environment," 26-32.

CHAPTER THREE

Internal Debates: Local Knowledge and Global Planning

In this chapter, I provide a window into internal debates within Doxiadis Associates and the Athens Technological Organization. I concentrate on the architect Hassan Fathy's five-year collaboration with the group (1957-61), to analyze how his evolving views on local knowledge systems, his emphasis on "traditional" spatial conceptions, and his commitment to architecture's disciplinary specificity came up against Doxiadis's aspiration to systematize a scientific approach to development. I reflect on Fathy's mass housing proposals for Iraq and Pakistan, and his contributions to debates on ecumenopolis. Fathy's ambivalence towards ekistics' tenets, I argue, brings another layer of complexity to ekistics' efforts to reconcile the rational and universal with the local and particular.

Consultants and different terms of reference

A charismatic speaker and authoritative manager, Doxiadis was undoubtedly the chief coordinator of ekistics' public image. His outspoken presence in UN meetings, his strong-minded involvement in academic debates, and his methodical cultivation of the media made his name inseparable from ekistics. Yet, behind the scenes, there was a large and phenomenally diverse group shaping ekistics. The eight-story central office on Athens' Lecabetus Hill had a large permanent staff of planners, engineers, and architects, as well as economists, sociologists and geographers—not to mention the many other office branches that opened in Beirut, Baghdad, Karachi, Addis Ababa, Khartoum, and Washington DC by 1959. The permanent staff at ATO and DA included some of Doxiadis's closest collaborators—notably, the planner John Papaioannou, who steered ekistics' research projects, and stimulated their growing emphasis on the natural environment, Panayis Psomopoulos who oversaw many DA projects, and Myrto Antonopoulou-Bogdanou, who supervised the publications on the city of the future project. Equally important were the many design consultants and research affiliates that Doxiadis was gathering around ekistics. Among the members of this extended ekistics circle, I already mentioned Jaqueline Tyrwhitt, Dimitris Pikionis, and Walter Chrystaller. Preeminent planners and development experts such as Charles Abrams and Jean

Gottman also became friends with Doxiadis and his group, along with popular icons such as Margaret Mead, and Buckminster Fuller. (This network would grow much larger from 1963 onward, as I will show in Chapter IV.) These consultants and affiliates that surrounded Doxiadis's enterprise from the fifties into the early sixties represented diverse disciplinary backgrounds, viewpoints, and agendas, and attached different meanings onto ekistics. For example, **Tyrwhitt**, a planning professor at Harvard who was actively involved with disciplinary debates on housing and urbanism, embraced ekistics as a long-awaited corrective to the modernist ethic. To make this point, she wrote many papers comparing ekistics with its modernist precedents, and her editorials in *Ekistics*, systematically underlined the connections between ekistics and other contemporary practices around the world.[1] The geographer Walter **Chrystaller** saw ekistics as an extension of his own efforts to determine the optimal organization of settlements, although the politics of his own career trajectory made him a dubious figure among the group. Chrystaller worked for the Nazi regime, to then join the communist party, in search of a political power that would allow the realization of his vision for Germany; Doxiadis himself limited his references to his teacher to occasional citations of his *Central Place Theory*.[2] Buckminster **Fuller** cheered on Doxiadis as a fellow outsider to the architectural establishment, and embraced ekistics' meta-scientific and postpolitical vision; he became one of the most active participants in the activities of the Athens Center of Ekistics, while he kept a distance from DA's interventions, whose aesthetic priorities were very different from his own technophilic preoccupations.[3] Margaret **Mead**, arguably the most famous anthropologist of her time, who approached ekistics from outside the domain of

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[1] Jaqueline Tyrwhitt and Gwen Bell, eds., *Human identity in the Urban Environment* (London: Penguin Books, 1972); Tyrwhitt , "The Ekistic Grid," *Architectural Association Journal* 87 (Sept-Oct. 1965): 10-15.; Tyrwhitt, "Background to Doxiadis's Ecology and Ekistics," *Ekistics* 266 (January 1978): 12-19.

[2] The German geographer Walter Christaller was one of the earliest influences on Doxiadis, since the latter's graduate studies in Germany. Doxiadis's use of *Central Place Theory*, was discussed in Chapter I. Chrystaller's proposal for Germany after the war was the relocation of war-devastated cities according to an optimal pattern outlined by central place theory. [From Scott, *Seeing Like A State*, 282-3.]

[3] Fuller, "Why Am I Interested in Ekistics" Delos Symposion 1965, Document C No 6, July 2 1965; Reprinted in *Ekistics*, 1965. More on this in Chapter IV.

architecture and physical planning, emphasized its potential as a social development strategy.[4] All these members of the extended ekistics group may have shared an aspiration to improve urban life, but projected their own interpretations on ekistics' terms of reference.

In public, of course, such incongruities were brushed aside as a consequence of ekistics' multidisciplinarity. But when it came to the exchanges within the group, these differences made for intense debate. The complete story of the debates would be too diffused to be meaningful here. This chapter will instead focus on the views of one member of the group, whose own complex ambivalence towards the tenets of ekistics helps bring a sharper focus on the complexities inherent in the complex entanglement of building-development-environment examined in this dissertation.

Fathy and Ekistics: Architecture and Social Reform

Doxiadis recruited Hassan Fathy in 1956, to be a DA consultant on the Middle East.[5] At the age of fifty-six, the French-educated Egyptian architect already had a long career behind him. He had performed building experiments of his own since the 1930s that were also incited by wartime building resource shortage and post-war demands for social reform in his country. His largest housing experiment, the design of New Gourna (1945-48), attracted Doxiadis's attention because of its innovative use of traditional know-how and local participation. The project was to re-house the inhabitants of Gourna, a village in Upper Egypt near Luxor. Fathy designed New Gourna with the support of the Egyptian monarchy, with which he had close ties;[6] the mandate was to develop a prototype for mass housing, and his own ambition was to

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[4] The American anthropologist Margaret Mead (1901-78) had a long friendship with Doxiadis since the fifties. Her polemicist book, *Coming of Age in Samoa: A Psychological study of Primitive Youth for Western Civilization* made her both famous and controversial since it was first published in 1928. Of greater interest to ekistics was her book, Mead, *Cultural Patterns and Technical Change*, (Holland: UNESCO, 1955) as well as many of her papers on the social problems of development and urbanization, e.g., "Neighborhoods and Human Needs," in Gwen Bell and Jaqueline Tyrwhitt, eds. *Human Identity in the Urban Environment*, (London: Penguin Books, 1972).

[5] Letter from Doxiadis to Fathy, 14 September 1956.

[6] Fathy had ties to the regime not only because of his privileged social status, but also because of family connections. [Interviews with Fathy's students 1999.]

sensitize the society to the needs of the rural poor.[7] Fathy organized the new village's houses around courtyards, drawing on spatial conceptions from Cairene residential architecture; while roofing the houses with mud brick domes, drawing on a Nubian vernacular, which was just as distant from the Gourni, geographically and culturally, as Cairo's urban houses. (Figure 1. New Gourna) Fathy's eclectic fusion of formal precedents and building techniques from diverse cultural provinces of Egypt aimed to help revive pre-modern traditions. But his attempt to establish formal links with the past had a different effect on the Gourni. Rather than treat courtyards as the secluded and serene outdoor places Fathy envisioned, the local population assigned utilitarian functions to courtyards (as places for work, washing, raising animals), or they rejected them outright as a waste of space in a region where agricultural land was at a premium. Furthermore, they were skeptical of their dwellings' roofing system, because they associated domes with mosques or mausoleums.[8]

Partly because of the Gourni's reaction, and for many other reasons that were in some cases beyond the architect's own control, the construction of New Gourna was interrupted before completion in 1948.[9] Yet Fathy's sensual houses in quaint streets and squares attracted attention in the European press for their aspiration to put physical design at the center of postwar social reform.[10] Doxiadis decided to recruit him. Fathy welcomed the invitation, since his career in Egypt seemed increasingly precarious, due to the political situation. After the

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[7] Hassan Fathy, *Architecture for the Poor* (Chicago: The University of Chicago Press, 1973); Colin Ward, "For the Fellah With Nothing," *RIBA Journal* (February 1974):36.

[8] I base this on the insightful analysis of Fekri Hassan, and Christine Plimpton, "New Gourna: Vernacular Remodeling of Architectural Space," *Traditional Dwellings and Settlements Working Papers Series* XVI 49-77 (1989): 50-77.

[9] The main public buildings and about 100 homes were erected before the work was interrupted in 1948.Fathy's colleagues recount many reasons for the work's interruption. Interviews with Abdelhalim Abdelhalim & Nawal Hassan, 1999). Also, see Fathy, *Architecture for the Poor*; and J.M. Richards, "Gourna: A lesson in Basic Architecture," *The Architectural Review*, Vol CXLVII, 876 (February 1970): 109-118.

[10] Raymond Mortimer, "A Model Village in Upper Egypt," *Architectural Review* (September 1947): 97-99; "Le Nouveau Village de Gournah," *L'Architecture Francaise*, 8, (1947): 78-82. "Gourna" *Atlantic Monthly* 198 (October 1956): 156-57.

1952 revolt that overthrew the Egyptian monarchy and established Gammal Abdel Nasser's socialist regime, Fathy welcomed the move to Greece, not necessarily because he opposed Nasser's vision, but because he feared that his class background would be an obstacle.[11]

Fathy joined Doxiadis Associates in 1957. That was practically his first exposure to the mechanisms of international development; apart from some work at UNNRRA in Lebanon in the early fifties, he had, until then, worked only within the confines of his country. The multidisciplinary group of DA saw Fathy as a resident expert on the Middle East who could contribute the skills he demonstrated in New Gourna, to "organize the latent architectural and artistic forces existing in a locale."[12] From Fathy's perspective, Doxiadis's quasi-western firm was appealing because it rejected the homogenizing functionalism and eurocentric bias of mainstream modernism. Besides, Fathy may have even seen an affinity between his visionary proposals and Doxiadis's reconstruction efforts in Greece, that were also rejected by an uncomprehending society at home, causing Doxiadis to turn to international clients.

Once in the ekistics group, Fathy began to negotiate his sensibilities with ekistics' global and scientific preoccupations. He had to recalibrate his formal preferences according to DA's insistence on standardization; reshape his interest in traditional revival with respect to DA's commitment to international development; and negotiate his own ambitions for the reform of the profession with those of Doxiadis. Through his five-year collaboration with DA and ATO, Fathy formulated evolving notions of "tradition" that introduced new twists to Doxiadis's notions of science, development, environment, and the role of architecture. For these reasons—and also because from today's perspective, Fathy's participation in ekistics is

[11] Although Fathy never wrote about the political circumstances that pushed his decision, members of his circle describe his departure for Greece as a self-imposed exile. [Interviews with Nawal Hassan and Shahira Mehrez.]

[12] Editorial preceding Fathy's article "Aided Self-Help or Cooperation?" in *Ekistics* (May 1960), 335.

either ignored, or discounted as an aberration by current scholarship—Fathy represents one of the most intriguing memberships in the ekistics group.[13]

Fathy's Proposals for Iraq: "Tradition" in the Service of Science, and Vice Versa

> [In the past] successful solutions to the problems of climate were not the result of deliberate scientific thinking. They grew out of the countless experiments and accidents, out of the experience of generations of builders, who kept what worked and rejected what did not, and they were handed on in the form of tradition—rigid and apparently arbitrary rules for selecting sites, orienting the building, for the material and the plan [sic]—tradition reinforced by superstition, making some acts luck, some taboo.
>
> -Fathy, lecture at ATO, 1959[14]

When Fathy moved to Greece, DA had already secured a commission from the government of Iraq to prepare a five-year plan for the entire country, and because of his previous experience in rural housing, Fathy was asked to design new villages for Greater Mussayib, south of Baghdad, where 3,000-5,000 households would settle on newly irrigated and drained land. The Greater Mussayib project was to serve as a pilot for DA's future rural housing projects. This was Fathy's second chance to create a new paradigm for mass housing, this time outside his own country.

Responding to ekistics' requirement for exhaustive analyses of local resources and social conditions, Fathy launched the design process with a tour of Iraqi villages and archaeological sites. But unlike Doxiadis's fleeting surveys of the locale, Fathy's research cast a spotlight on architectural forms and construction methods. The veteran architect was looking for concrete design clues. In the report he submitted to DA, he identified mud-brick construction as a "constant" in local building methods, which "survived" though time, citing

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[13] James Steele, *An Architecture for the People: The Complete Works of Hassan Fathy* (Cairo: The American University in Cairo Press, 1997); James Steele, Hassan Fathy, Architectural Monographs 13 (London: St. Marton's Press, 1988); J.M. Richards, Islail Serageldin and Darl Rastofer, *Hassan Fathy* (Singapore: Concept Media, 1985); Jaques Berque, *Cultural Expression in Arab Society Today* (Austin: University of Texas Press, 1978).

[14] Fathy, "Climate and Architecture, Course Outline, 1959-60," 5.

examples in the regions of Hilla, Kerbala and Najaf.[15] He went to great lengths to describe the brick-making procedures, analyze the labor and equipment involved, and enumerate techniques for increasing material durability and construction efficiency.[16] In other words, he adopted DA's analytical tactics. This report articulated a much more systematic analysis of mud-brick construction than any of his earlier studies in Egypt, (for example, his 1952 report to the Egyptian Government.[17])

With similar diligence, Fathy analyzed the badgir (wind-catcher), as another architectural solution from the region's past that could be adopted anew for DA's mass housing tasks. He explained how the badgir provided natural ventilation in basements commonly used in hot summer days, and devised improvements for it; namely, to enlarge the opening and force the increased volume of outside air though a porous material that would act as a cooling device, in order to improve air circulation in the basement. (Figure 2. Fathy's study of the Badgir). Fathy then instructed the DA Research Center in Baghdad on how to test and measure the efficiency of the badgir, as well as that of mud brick construction, "under the light of scientific observation." Furthermore, he called on DA to "synchronize [construction] to ensure maximum efficiency."[18] Having perhaps recognized that his New Gourna project had failed to anticipate the complications of large-scale production, Fathy was now prepared to yield to ekistics' objectified construction processes.

If Fathy's written account aspired to DA's comprehensive claims and scientific detachment, his photographs revealed the architect's own aesthetic sensibilities and eye for tectonic detail. The photographs that accompanied his report did more than illustrate a variety

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[15] Hassan Fathy, "A Report on Housing for Greater Mussayib," Doxiadis Associates Documents R-QA (October 10, 1957).

[16] In addition to the report on Mussayib, Fathy wrote a report titled "Experiments on Mud Bricks," Doxiadis Associates Documents R-GA (April 13, 1957).

[17] Hassan Fathy, "Report on Egyptian Village Housing, Building Materials, and Methods of Construction to Administrator, Technical Cooperation Administration, Department of State" (Cambridge MA: Arthur Little, April 1952)

[18] Fathy, "A Report on Housing for Greater Mussayib," 14, 16.

of brick laying patterns and mud brick buildings; they captured the spatial character of brick surfaces, the structural qualities of vaulted and domed buildings, and the play of light and shade in courtyards and other semi-enclosed spaces. What is most intriguing is that even though Fathy searched for "the national and local spirit," Fathy's visual references were not confined to Iraq, but included examples from Egypt, as well as Santorini and Corfu, islands Fathy visited during his stay in Greece.[19] The locale therefore, had a fluid geography in Fathy's formal search. The travel opportunities DA offered were leading Fathy to confirm the validity of mud brick construction, domes, and courtyards across a larger bio-climatic region. Besides, cutting across ethnic, religious, or national boundaries was consistent with ekistics' view of regions as coherent entities.

The tactile quality of Fathy's visual survey was at odds with the dryness of his report. This tension is emblematic of Fathy's constant oscillation between ekistics' commitment to rationalize the process of building, and his own design sensibilities. His design proposal for Greater Mussayib reflected the same ambivalence. On the one hand, Fathy's "village layout" (no more than a sketchy diagram), proposed a plan where houses would be lined up on a modular grid; it fully abided by DA's requirements for uniformity and standardization, and reminded nothing of New Gourna's master plan. (Figure 3 & Figure 4) On the other hand, the individual dwellings, on which Fathy devoted most of his attention, focused on the formal articulation of plans and elevations, the configuration of the family room, even construction details and cooling devices inside. (Figure 5. Fathy's Proposal for Farmers Housing in Greater Mussayib) By giving primacy to the dwelling, Fathy contradicted Doxiadis's view of design as a unidirectional process "from the national conception to the detail," which put the house at the very bottom of a hierarchical process were the master plan begets the urban block, which begets the house, which begets the room.

Fathy's house designs organized each dwelling around a courtyard surrounded by household activity services, a guest room and a family room, with bedrooms upstairs. In short, Fathy reapplied the housing typology he inaugurated in New Gourna, assuming that it was

[19] Fathy, "A Report on Housing for Greater Mussayib," quotation on 1; Images from Greece are included in the section titled, "Choice of Building Materials and Methods of Construction."

just as appropriate for Greater Mussayib. And yet Fathy justified his formal choices in terms of ekistics' principles, which he had learned only recently. He presented the mud brick thick wall and badgir as elements with both economic and cultural benefits: they were efficient thermal regulators that bypassed the need for imported technologies—impacts which DA itself aimed to avoid. Similarly, Fathy spoke of the courtyard as a source of natural illumination, ventilation, as well as serenity and privacy for the kind of family life the locals wanted.[20] Effectively, Fathy brought forward the New Gourna-type mud brick courtyard house as an embodiment of ekistics' abstract requirements for "economic efficiency," "social satisfaction," "aesthetic fulfillment," and "psychological satisfaction" of the locals.

Fathy's commitment to the craftsmanship of design, detail, and tectonics, was of course, radically different from those of DA. As one might expect, Fathy came under criticism by Doxiadis for overemphasizing small-scale issues that were detrimental to mass production. In a memo, Doxiadis warned that Fathy's design "from the details up" could not lead to "solutions in a very big number." "I beg Professor Fathy," Doxiadis continued, to remember that the firm was not simply faced with the task of designing a village or two, but "types" of villages and buildings "which can be repeated many times." However, Doxiadis also conceded that the firm's usual focus on the master plan "can easily overlook the indispensable details of a master's work." Thus he concluded that the DA should "combine the two views in order to achieve a really national conception in the spirit of ekistics which alone can serve the people."[21]

Doxiadis's criticism aside, Fathy's argument that local knowledge systems had scientific wisdom was well received. Doxiadis too had an interest in empirical building methods derived from a locale, that was evident, first and foremost, in his studies of ancient Greek planning.[22] Fathy's typology of the courtyard house was also welcomed, because it

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[20] Fathy, "A Report on Housing for Greater Mussayib," 19.

[21] C.A. Doxiadis, "Plans for Village in Mussayib by Professor Fathy" (21 July 1958): 1-2, quotation on 1.

[22] Doxiadis, Raumordnung im Griechischen Städtebau (1937); Doxiadis, The Ancient Greek city and the City of the Present," *Ekistics* XVIII, 108:346-364.

projected a concrete image onto ekistics' abstract requirements for resource conservation and cultural sensitivity. The final report on Mussayib, produced by DA and published in *Ekistics*, embraced Fathy's analysis of the locale, even though the report did not refer to Fathy by name. General guidelines regarding housing design and zoning came straight out of Fathy's plans. For example: the rule that each house include a courtyard and a loggia between the two main rooms; the requirement that each guest room be adjacent to the entrance; and the suggestion that each house have a separate animal's courtyard: all these were influenced by Fathy's report.[23]

In abstracting Fathy's plans into generalized rules for Mussayib, DA's report compartmentalized Fathy's design into elements that could be utilized in mass production. Courtyards, wind-catchers, domes, loggias etc. were useful to the extent that they prevented the inhibitive impacts of imported and irrelevant spatial conceptions and technologies. This was in tune with Doxiadis's notion that however important local knowledge systems were, the ekistician had to maintain "enough distance," so as not to lose sight of the "demands of efficiency."[24] Fathy himself knew all about maintaining such a distance, for the sake of his aesthetic preferences: His New Gourna interpretation of Nubian architecture stripped the latter of its colorful decorations, and favored an abstract, often white, quintessentially modern aesthetic. Fathy even thought that some traditions had a false basis in superstition (see quote above).

In other words, this quasi-independence from local traditions suited DA as well as Fathy at this point. Locally inspired forms and methods would be utilized to the extent they would not become an obstacle to the reform they envisioned. Ultimately, the ekistics expert was to judge which aspects of tradition were worth keeping. This vanguardist position,

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[23] Doxiadis Associates, "A Regional Development Program for Greater Mussayib, Iraq, 1958," *Ekistics* 6:36 (October 1958): 149-186; the requirement of the courtyard on 169; Fathy's drawings on 180.

[24] Doxiadis, "Pakistan Diary 20," 1954. [Development Advisory Service Records; UAV 462.1195.1. See also Doxiadis Associates, "A Regional Development Program for Greater Mussayib, Iraq, 1958," *Ekistics* 6:36 (October 1958): 169, paragraph 38.

however, was advanced only with respect to economic or formal criteria; local traditions were not scrutinized in terms of social assumptions, for instance, their gender biases. Unlike the so-called traditional forms and building methods, local politics and habits of thought, and *their* inhibitive impacts, were left intact. For example, Fathy's reinterpretations of courtyard houses accepted, and even reinforced the "tradition" of women in secluded spaces, and came nowhere near addressing the politics of domestic space.[25] Similarly, his description of public fountains as venues for girl's "husband-catching expeditions" did not question any of those social assumptions.[26] Doxiadis himself repeated his Middle East expert's observations about courtyards and fountains to demonstrate his firm's sensitivity to the locale.[27] As for DA's report on Mussayib, it presented similar ideas in more abstract terms—for example, it argued that water supply had to be so located "as to promote the development of a community spirit"—in an effort perhaps, to steer clear of Fathy's gender-specific categorizations.[28]

In addition to Fathy's social analysis of Greater Mussayib, DA also embraced Fathy's housing designs. *Ekistics* published Fathy's plans for farmers housing without any modifications to their configuration; except they refrained from reprinting Fathy's detailed studies of interior layouts and cooling devices that accompanied the plans. *Ekistics* also reprinted Fathy's elevations and sections, but stripped them of detailing, as though their design craftsmanship threatened DA's claims to objectivity (see for example, window and door treatment on the elevations).[29] (Figure 6. Fathy's original Elevations and Sections for Farmers housing vs. Figure 7. DA's elevations for "House Type QR9," based on Fathy's

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[25] Asia Chowdhury, "The Persistent Metaphor: Gender in the Representations of the Cairene House by Edward W. Lane and Hassan Fathy," MIT Masters Thesis, June 1993.

[26] Fathy describes the significance courtyards and public fountains to women in *Architecture for the Poor*, 56-59, and 99-101; quotation on 100.

[27] Doxiadis, "The Rising tide and the Planner," Address of Doxiadis before the American Institute of Planners, Hotel New Yorker, New York City, October 29, 1958. Reprinted in *Ekistics* 7:39 (January 1959).

[28] Doxiadis Associates, "A Regional Development Program for Greater Mussayib, Iraq, 1958"; quotation on 168, paragraph 37e.

[29] Doxiadis Associates, "A Regional Development Program for Greater Mussayib, Iraq, 1958," *Ekistics* 5:33 (October 1958): 149-186.

proposal). In other words, the firm reoriented Fathy's schemes towards standardization. And it listed Fathy's design for farmer's housing under "House Type QR9." After these modifications, Fathy's schemes could neatly fit into DA's grand scheme.

Fathy realized that his pitch for "tradition" would have a greater appeal among his colleagues if he recalibrated his formal preferences with respect to DA's commitment to objective and quantifiable criteria. On his part, Doxiadis acknowledged the Egyptian architect's insights on the region, and put them to use, by assigning him the task of examining architectural precedents to outline general guidelines for housing in hot climates. Fathy now worked with a team—the civil engineer Deimezis, and the architects Kyriou, and Marinos, who were supposed to guide Fathy in adjusting to DA's methodology. The team's recommendations would be used in DA's projects in Iraq, as well as Pakistan, where DA had secured new commissions in the meantime. Temperature control, wind factors, and the control of the microclimate of a dwelling now became the primary criteria based on which Fathy's team would analyze "traditional empirical solutions." The team began with an exhaustive analysis of sun movements and prevailing winds at different regions of Iraq and Pakistan, at all times of the year, to determine the optimal orientation of buildings and the most effective configurations of facades. (Figure 8. Studies of wind and sun angles). Then they examined "old houses constructed according to tradition" to measure how they responded to these climatic realities. The conclusion, sloppily and sweepingly as it was made in the team's report, was that "old houses constructed according to tradition" already offer "solutions" to the problem of heat protection, solutions which are far better than those of "the international [architecture] which ... was conceived for different climatic conditions."[30] In other words: focused on local resources of climate, materials, and labor, to present "local tradition" as a resource in overcoming the pitfalls of eurocentrism.

Fathy's argument was clever. In casting "tradition" as inherently scientific—i.e., tested over generations, through "countless experiments and accidents" (see quote at the beginning of this section)—Fathy was displaying an empiricist understanding of science, an

[30] Fathy, Deimezis, Kyriou & Marinos, "Thermal Comfort," Doxiadis Associates R-GA 108 (April 15, 1958):1-2; quotation on 1.

understanding which had always informed modernist appreciations of the vernacular. At the same time, Fathy also recognized a value in ekistics' rationalist approach, to the extent that it could systematize the scientific soundness of tradition. Ekistics, he argued, could guard against the "misapplication" of traditional solutions and also improve upon them. This side of Fathy's argument was best articulated in lectures he gave on "Climate and Architecture," at the Athens Center of Ekistics, the educational branch of ATO:

> If, in any traditional way of building, one element is changed, that change may well be enough to destroy the whole validity of the building as an answer to the climatic problem... [For example] if matting screens are replaced by corrugated iron or some other solid wall, then, though the building may seem more substantial, it will be impossibly hot and stuffy.... Of course, if we are prepared to wait for many hundreds of years, until the new ideas have been assimilated and their incorporation tested by trial and error, then we shall see good and effective traditional architecture again."[31]

Contemporary builders could not wait for hundreds of years for a building method to be refined empirically. Housing shortages, Fathy said echoing Doxiadis's sense of urgency, were so great that they depended on scientific theorization to speed up the process of understanding the fragile principles of tradition. This is where ekistics' rationalist approach came in: to extract "lessons" from tradition that could be "directly applied to design."[32]

Indeed, this is what Fathy's team did. They made an exhaustive analysis of climatic data and architectural precedents, Fathy's team outlined a list of generic guidelines, such as "use thick walls and roof (to increase their thermal capacity); "throw shade on the walls and roof (so that they do not emit heat to the interior)"; "provide small apertures to the windward side and large apertures to the leeward side, opening to semi-enclosed spaces" (to draw the maximum amount of air inside through suction created by sub-pressure); "select a suitable arrangement of rooms so that the air may reach all alike" (to maximize cooling by ventilation). In their generic form, the recommendations were an exemplar of DA's preoccupations with neutrality and comprehensiveness; but they also confirmed the validity of Fathy's preferred housing typology, namely an introverted house with thick (mud brick)

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[31] Fathy, "Climate and Architecture, Course Outline, 1959-60," 5-6.

[32] Fathy, Deimezis, Kyriou & Marinos, "Thermal Comfort," Doxiadis Associates R-GA 108 (April 15, 1958):1-2, quotation on 1.

walls, that opened up to a semi-enclosed, and cooler space (courtyard).[33] Indeed, when Fathy applied the team's recommendations to an experimental design project, he once again produced a house built with stabilized earth-bricks, to create a massive structure of high thermal capacity, and with a courtyard and loggia ("tarma") on the leeward side, to create suction for air movement. (Figure 9. Studies of the Badgir; Figure 10. Fathy's "Experimental rural house")

To lend even more authority to his arguments, Fathy adopted Daniel Dunham's exposition of the courtyard as a "temperature regulator." Dunham was a scholar at the Department of Tropical Architecture at the Architectural Association, London, at the time. His article, published in *The New Scientist* in 1960, analyzed the principles of heat transfer and radiant cooling, to explain why the "central court," common in "traditional urban dwellings in hot dry regions," helps reduce temperature in living areas.[34] The courtyard, Dunham concluded, was "the fittest" solution that evolved through a system of "natural selection" in arid and semi-arid regions.[35] The summary of Dunham's article was also reprinted in the Journal *Ekistics.*[36]

Working with a team or alone, Fathy provided DA with more analyses of heat radiation processes, the thermal capacity of materials, and "human comfort" and "human efficiency" criteria.[37] In their zealous focus on quantifiable criteria, these charts and tables made no differentiation between rural and urban conditions, or between the social

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[33] Fathy, Deimezis, Kyriou, Marinos, "Thermal Comfort."

[34] Dunham, "The Courtyard House as a Temperature Regulator," *The New Scientist*, (Sept 8 1960): 663-666; quotation on 665.

[35] Dunham, "The Courtyard House," 663.

[36] Fathy referred to Dunham's ideas in many papers he submitted to DA. For example: Fathy, "Aesthetics in the COF," The City of The Future Project (September 1, 1961).

[37] Fathy, untitled 5-page "Draft" with tables on "Mental fatigue scale," "Thermal comfort sensation scales" etc. Also: Fathy, untitled 2-page memorandum regarding the "psychological aspects of life in a warm climate;" quotation on 1. [HFA]

particularities of Iraq vs. Pakistan, but they offered DA an unprecedented opportunity to grasp the quantifiable geo-climatic justification of "traditional empirical solutions."[38] The cultural sensitivity of what Fathy called "traditional architecture" seemed to increasingly boil down to its efficient response to local climate and materials.

Not entirely! In his lectures, where Fathy assumed the role of a pedagogue, he continued to remind his audience that traditional vocabularies also fulfill the other side of ekistics' goals, namely "psychological satisfaction" and "aesthetic fulfillment." Echoing the comprehensive scope of ekistics' anthropocosmos model, Fathy made a general claim that traditional vocabularies respond to the totality of the local "environment." Fathy defined this environment as being constituted by "visible" elements such as work patterns, transportation patterns, climate, vegetation, and landscape, vs. "invisible" elements such as history, belief systems, psychological needs, (i.e., what ekistics described as cultural and emotional factors). Fathy's lectures emphasized the architect's responsibility to respond to this totality of the local surroundings (and those who did not do so, his righteous argument went, "commit a crime against architecture and civilization."[39])

Between his research for DA and his lectures at ATO, Fathy gave a double meaning to the vernacular. It was a knowledge resource for providing economical and thermally comfortable shelter, and it also had psychological and emotional value. This distinction is familiar; it basically extended the logic though which Fathy (as well as Doxiadis) conceptualized nature. Nature was either analyzed as a resource (climatic temperatures, wind factors, and sun-angles) that would be utilized to control the microclimate of the dwelling, or was described as a source of psychological fulfillment.[40] Conceptualized in the same way, vernacular architecture, like the land, the climate, and the sun, was cast as a category of the

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[38] His reports listed the various possible microclimatic conditions around buildings—e.g. air temperatures at different times of the day, at different parts of Iraq. See for example, Fathy and Marinos "Applications of Ideas on Thermal Comfort" (May 2, 1958): 1-6. ; Fathy, "Heat Protection," Doxiadis Associates R-GAH 305 (April 19, 1958):1-5

[39] Fathy, "Course Outline, Climate and Architecture" (1959-60), 3.

[40] See Chapter I on resourcism vs. preservationism.

"natural," separate from the processes of history and change. (Such view of the vernacular also explains Fathy's ahistorical recombination of disparate formal vocabularies). Although Fathy might be frightened to know it, such a categorization fits nicely within the belief system of development (and in particular modernization theory), which would cast local cultural expression as separate from the linear path of progress.[41]

Fathy's efforts to forge an alignment between his concept of tradition and Doxiadis's concept of science (and nature) succeeded to the extent that Doxiadis made the contemporary relevance of tradition as one of his favorite themes. In a lecture to the American Institute of Planners in 1959, Doxiadis made repeated references to the wisdom of courtyard houses, and the overall social structure observed in local villages in Iraq. When he lectured at the Royal Institute for British Architects in 1960, where he mentioned his friend "Professor Hassan Fathy of Egypt" by name, Doxiadis asserted that there is a "link" between "tradition" on the one hand, and ekistics' efforts to free architecture from the excesses of signature design, on the other.

> The more we try to clarify our ideas and reach the most basic and essential forms, the more we find ourselves reaching back towards tradition.[42]

Tyrwhitt would resound Fathy's logic more methodically a few years later:

> An ekistic approach to the criteria for designing the human habitat starts by searching for relationships which have made habitats successful in the past and that seem to be appropriate in an urbanizing milieu. At the present day, when dwelling must be built much faster and in much larger numbers than ever before, these relationships need to be spelled out so that they can influence the rationalization of traditional methods as well as industrialized building systems. [43]

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[41] Seeing indigenous communities as part of nature and distinct from civilization is not peculiar to modernization theory; it is a central themes in many nature – culture divisions. See Cronon, ed., *Uncommon Ground*; especially Slater's and Mearchant's articles.

[42] Doxiadis, "Architecture in Evolution," *R.I.B.A Journal*, (September, October 1960): 3-22; quotation on 20.

[43] Tyrwhitt, ed. "*The Ekistic approach: Human Identity in Ecumenopolis.*" A series of Readings for the Second Year Architecture students, Harvard University (GSD, 1969), 14.

Doxiadis and Tyrwhitt accepted, in other words, Fathy's belief that tradition had a timeless value that could be systematized to help increase the contemporary relevance of architecture. Nonetheless, Doxiadis and most members of his firm would continue to understand "tradition" in much more abstract terms than Fathy. When DA proposed housing projects for West Baghdad and Islamabad, they altered Fathy's "experimental" houses, almost beyond recognition. DA pushed the courtyards of dwellings to the side of the house, or even to the "back" to save space and maximize the repetition of housing modules on the rectilinear plan. Unlike the courtyard houses Fathy conceived in New Gourna and advanced in Mussayib, DA's courtyard houses for Baghdad had mostly flat roofs and concrete became the material of choice. (see previous chapter for figures of DA's final houses in Baghdad)

In response, Fathy adjusted his approach once more when he was faced with the task of designing a residential part of downtown Baghdad. He entirely abandoned the spatial configuration of the semi-attached single or double-story house, and instead, he conceptualized the courtyard as an organizing principle for high-rise dwellings. In a series of design studies, he designed "blocks of flats" around large courtyards that he perceived as the locus of urban communities.[44] (Figure 11) These experiments were accompanied by studies of airflow, shading patterns, etc., to explore the possible climatic benefits of such semi-enclosed larger spaces. In short, the entirely new physical parameters of urban mass housing in the Iraqi capital took Fathy's concept of the courtyard to altogether new levels of abstraction. As though he was testing the limits of his own alignment with development planning, Fathy tested the maximum limits in building density and explored the maximum size of courtyards, to sustain a "humane environment" within standardized housing modules.

Fathy's Vision of Ecumenopolis: "Tradition" in Opposition to Rationalism

Fathy's attempt to create a space of negotiation between "tradition" and scientific rationality reached a turning point when he engaged with Doxiadis's most ambitious project of all, the

[44] Fathy, "A Note on the Design of Flats for Iraq," Doxiadis Associates R-GA 1032 (February 5, 1959).

"City of the Future" (COF), which was initiated by ATO in the summer of 1960. As Chapter II explained, the task of the COF project was to guide the orderly transformation of the physical environment of ecumenopolis, to prevent the dehumanizing impact of massive urbanization, and to advance the postwar dream of international cooperation. The vision of a global city that eliminated the disparities between North and South was certainly palatable to Fathy; so was the COF team's resolve to place physical design and planning at the center of global socio-economic development. But while he agreed with the project's moral urgency, Fathy questioned Doxiadis's assumption, as he put it, that the non-industrialized third world should eventually "adopt the present pattern of Euro-American economy."[45] Doxiadis's vision of ecumenopolis assumed that urban-industrialization would spread around the globe, and countries and regions would adopt the rules of a global marketplace. Fathy was uneasy about the homogenizing effects of such a socioeconomic megastructure, and began to see the flaws in Doxiadis's optimistic globalism.

During the few months he worked on the COF project, Fathy assumed the role of a spokesman for the "underdeveloped" parts of the world. He emphasized the imbalances of geographical income distribution to underline that it was "local techniques of living" and not the importation of western technology that represented "the last word in efficiency" in "poor countries." He felt he had to keep reminding the group that western technology imposed unbearable economic burdens, and often was climatically inefficient.[46] Once again, Fathy was evoking ekistics' own logic to prove the scientific validity of local knowledge systems. The group had proven receptive to Fathy's argument before. But with its new research on ecumenopolis, ekistics was venturing into grand analyses of global economic imperatives, transnational transportation networks, trans-regional settlement patterns, and the like; it was treading into new domains of meta-science that made Fathy's appeals to science appear inconsequential in comparison.

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[45] Fathy, COF "The Dwelling Within the Urban Settlement" (August 1961), 7.

[46] Fathy, "The Dwelling Within the Urban Settlement." Fathy's papers made references to "poor," "underdeveloped" countries, or countries of "Africa". See also Fathy, "Exchange of Views on the Research Project," (October 12 1960), 1.

Fathy soon shifted his argument. He no longer tried to define tradition within the confines of ekistics' science; instead, he emphasized its more intangible, transcendental qualities that could not be grasped, he implied, by even the most exhaustive scientific synthesis. Instrumental to Fathy's increasing discontent was his participation in a conference in Egypt, "The Metropolis in the Arab World," in December 1960. Sponsored by Gamal Abdel Nasser's nationalist government, the conference aimed to highlight the urban and social problems specific to the Arab World. Doxiadis and many members of DA attended, but Fathy seems to have been profoundly influenced by the conference's emphasis on the particularity and homogeneity of Arab culture.[47] This new way of thinking was increasingly more evident in his contributions to the COF. The proper building of a global interconnected city, he argued, had to reconsider "the wisdom of the pharaoh," the insights of Hindu Temple Builders, and "the metaphysical knowledge of the ancients"—all of which Fathy presented more or less in opposition to a mechanistic conception of science.[48] Drifting to the rhetoric of holism and symbolism that alienated most of his audience at the COF group, Fathy spoke of architectural design as a means to capture "the rhythm of the Universe," and "the cosmic order."[49] Fathy's assertion that architecture is an "act of creation" which had to combine "knowledge" with "intuition";[50] his warning that "architecture is not engineering;" and his caution that, "it is only too easy for bad architecture to upset the best town plan"[51]: all these statements were meant to warn ecumenopolis experts that architectural design could not be

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[47]Fathy's own speech at the conference "Planning and Building in the Arab Tradition," appealed to his audience by making an interpretive leap to argue that the intangible qualities of the courtyard house had a peculiarly "Arab" significance. Even though he still recognized that the internal courtyard had a transcultural validity since it was a common architectural element in many cultures all along the Mediterranean Seaboard, Fathy contended that "to the Arab" it has an altogether different meaning. "To the Arab," he maintained, "the courtyard is more than a space that controls temperature," and "more than an architectural device for privacy and protection. It is, like the dome, part of a microcosm that parallels the order of the Universe itself." [Fathy, "Planning and building in the Arab Tradition," 219]

[48] Fathy, "The City of the Future, Contribution to the Final Report," COF, R-ERES 24-1 (17 July 61), quotations on 2 and 10.

[49] Fathy, "Aesthetics in the COF," 9 and 2.

[50] Fathy, "Aesthetics in the COF," 8.

[51] Fathy, "Exchange of views on the research Project" (October 12, 1960), 2.

reduced to a piece in the development planner's managerial puzzle, no matter how comprehensive it tried to be.

To demonstrate how architectural form, in its detail and specificity, transcended scientific methodology, Fathy turned to his favorite example, the courtyard house. Fathy spoke of the courtyard's "peace," "holiness," and "magic"—intangible qualities that could not be reduced to causal hypotheses or systematized methods, but would only be grasped through "feeling" and "intuition."[52] Fathy described how the well defined boundaries, careful proportions, and tectonic detail of the courtyard "internalizes the outside" in a particular way that was radically different, he contended, from the play of inside and outside in modernist houses with glass walls (that Fathy could not help but dismiss as "confusing.")[53] Apart from the sweeping dismissal of modernist sensibilities, (which after all, were in line with Doxiadis's own rhetoric) Fathy's argument presented the courtyard house as an illustration of the complexity of design factors. Fathy also underscored the general importance of texture, proportion, geometry and craftsmanship to underline the impossibility of subsuming design with scientific reductionism, and to emphasize the autonomy of architectural profession itself.[54] Phenomenological experiences of space, texture and light, were much more important than ekistic categories of psychological satisfaction could grasp.[55] Unlike Doxiadis, who was eager to transport the architectural profession into the realm of managerial organization, because he found it too confining or self-indulgent, Fathy insisted on architecture itself as an instrument of social reform. He believed that architecture could be reformed from within, by rethinking its relationship to vernacular traditions.

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[52] Fathy, "Planning and building in the Arab Tradition," Monroe Berger ed., *The New Metropolis and the Arab World* (New York: Octagon Books, 1974): 210-229; quotation on 219.

[53] Fathy, "The Dwelling Within the Urban Settlement" (August 1961), 16.

[54] Fathy, "Aesthetics in the COF." This argument distinguishes Fathy's view from **Rudofsky's** who praised the vernacular to advocate the de-professionalization of architecture.

[55] Ibid. Also, David Simon, "Heidegger's notion of dwelling and one concrete interpretation as indicated by Hassan Fathy's Architecture for the Poor," *Geoscience and Man* 24 (30 April 1984)43-53.

Through his emphasis on the intricacies and complexities of house design, Fathy confronted Doxiadis with this question: Is it not possible to expand architecture's social and environmental responsibility, without dissolving its disciplinary specificity into the managerial map of the development discourse? This question was already implied in Fathy's proposals for Mussayib, and even his urban blocks for Baghdad. His experiments with variations of the courtyard house in urban and rural settings, aimed precisely to direct attention to spatial, tectonic, and sensual qualities in architecture. If he stubbornly insisted on a particular typology, it was not because he saw the courtyard house as a symbol of an essential past, but because he was searching for a more sensual approach to the grand order Doxiadis Associates was attempting to install. This was perhaps Fathy's greatest contribution to the ekistics group. And even though he did not cultivate a long-term relationship with ekistics (unlike Tyrwhitt and Fuller, for example) Fathy has to be recognized as the inspiration behind DA's courtyard houses—which, for all their standardization, they were acknowledged by even Doxiadis's critics as an "exception" to the rule that "[his] architecture is not up to the standard of his planning."[56] In this sense, Fathy's case demonstrates the impossibility of imposing a monolithic interpretation of DA's social and formal agenda.

Fathy challenged ekistics by underlining the specificity of the architectural profession. Furthermore, he emphasized the resourcefulness of local communities, much more than Doxiadis's fleeting surveys, and he may be one of the influences behind DA's increased attention to the aesthetic dimensions of the vernacular, during the next phase in his international career (Chapter IV). However, Fathy did not challenge ekistics' ethic of social reengineering, or its anthropocentric view towards the environment. For all its rhetorical power, his valorization of "traditional" knowledge systems in the name of cultural sensitivity or environmental efficiency operated within the conceptual framework of ekistics' managerial preoccupations, and the values and assumptions of international development. He may have analyzed local techniques more methodically than other DA members, but he still defined the

[56] Ezra Ehrenhrantz and Ogden Tanner, "The Remarkable Dr. Doxiadis," *Architectural Forum*, 114, 5 (May 1961): 112-116.

locale in terms of its resources, or in terms of his own eclectic adoption of formal vocabularies. His approach changed only towards the end of his collaboration with ekistics, when he rejected ekistics' faith in science, but even then, Fathy did not really confront ekistics' worldview. Instead, he simply shifted the debate elsewhere. Rather than investigate the more complex relationships ekistics could develop with local knowledge systems, Fathy slipped all too precipitously into a rhetoric of holism that altogether alienated the rest of the group.

The opportunities that Fathy and Doxiadis's debates could open up were lost in 1961, when Fathy left DA, after he was urged by Nasser himself to return to Egypt.[57] Starting a new practice in Egypt, Fathy moved away from ekistics' concerns, to redefine his life-long interest in time-tested empirical solutions in terms of a polemical valorization of cultural identity that was at the time palatable to both the Egyptian government and the society. As his practice flourished, Fathy continued to propose more variations of the courtyard house that experimented with different building materials, scales, and even, a different clientele—most notably, Egypt's urban elite[58]—but he and his followers presented his preferred typology as a marker of identity, defined in nationalist terms as "Arab" or "Egyptian," or, in religious terms as "Muslim."[59] Even then, however, Fathy drew on ekistics' commitment to scientific rationality when it would help validate his arguments. He did so in both of his famous books, *Architecture for the Poor*, and *Natural Energy and Vernacular Architecture.*[60]

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[57] Fathy met Nasser himself at the conference on the Arab Metropolis. [Interview with Nawal Hassan]

[58] See, for example, the following projects in Cairo: Fouad Riad House (1967), Mehrez Apartment (1967), Mit Rehan (1982).

[59] Fathy, "L'illustre architecte égyptien declare:," *Le Monde Islamique* (Feb. 1971):1,11; Fathy, "Constancy, Transposition and Change in the Arab City." in Carl Brown, ed., *Madina to Metropolis*, .Princeton: Darwin Press, 1973) 319-334; Jerry Jobbins, "Architect for the Arabs," Near East Business (March 1980) 7-10; and many others.

[60] Fathy, *Architecture for the Poor: an Experiment in Rural Egypt.* Chicago and London: The University of Chicago Press, 1973; Fathy, *Natural Energy and Vernacular Architecture: Principles and Examples with Reference to Hot Arid Climates* (Chicago and London: The University of Chicago Press, 1986).

CHAPTER FOUR

Managing the Planetary Home and Garden: Ecology and Ekistics

In the early 1960s, Doxiadis' enterprise was experiencing mounting success. DA had commissions all over the globe, and Doxiadis was receiving international awards, being hailed as a "remodeler of the world" or a "world designer" who changed the lives of millions.[1] The *New Yorker* featured the "Ekistics World" in a 30-page article that praised DA's "bustling" office, for directing "distant, well organized campaigns."[2] In the midst of this recognition, Doxiadis was casting his net more widely. He reappeared in UN debates in 1963, and in the same year organized his own international and multidisciplinary conference. This chapter examines Doxiadis's career from 1963 onward, when he recast ekistics' environmental mission. I examine changes in the managerial proposals for ecumenopolis, and shifts in DA's practice, to discuss how ekistics augmented its alignments with ecological thought, and embraced new themes of ecumenism.

Reformed Prophesies: A New Environmental Mission

> Humanity has reached the point of looking at the human habitat as one single problem. The frame of planning must be widened in space and time, conscious that urbanization is moving ahead in balance with economic, social, political, administrative, technological, and cultural developments.
>
> -United Nations Report, 1963[3]

In January 1963, when the United Nations Economic and Social Council (ECOSOC) convened its first Committee on Housing Building and Planning in New York to investigate

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[1] Among the international awards he received were: the Sir Patrick Amercombie Prize from the International Union of Architects (1963); the "Award of Excellence" from the Industrial Designers Society of America (1965) for being a "comprehensive man, world planner, world designer, who through his environmental involvement has enlarged the scope of our profession;" and the prestigious Aspen Award (1966), considered to be one of the largest "tributes in humanistic achievement." [From Doxiadis Associates, "Doxiadis Associates, 15th Anniversary," 1966, quotation on 24]. An illustrated article on Doxiadis in *Life* Magazine was titled "Busy Remodeler of the World." *Life*, October 7, 1966.

[2] Christopher Rand, "The Ekistic World," *The New Yorker* (May 11, 1963): 49-87, quotation on 49.

[3] "Report on the United Nations Conference on the Applications of Science and Technology for the benefit of Less Developed areas." UN Documents, E/CONF. 39, V, 180.

the role of shelter in the UN "development decade," Doxiadis was one of the most vocal members.[4] To the founder of ekistics and to many other invited specialists (including the American housing expert Charles Abrams and the Yugoslav architect Ernest Weissman), the establishment of this committee signaled that the UN finally recognized the issue of shelter as key to socio-economic development.[5] ECOSOC's emphasis on economical housing and social services, local materials, and efficient urban infrastructure was, to Doxiadis's ears, a long-overdue endorsement of ekistics' basic goals.[6] Yet Doxiadis was unsatisfied with the name of the committee, arguing that "Housing, Building and Planning" was a confusing title that failed to recognize the need to cut across the normative boundaries of building and planning to develop more coherent strategies.[7] Not surprisingly, Doxiadis had an alternative name ready to propose, "Human Settlements Committee" that would obviously echo ekistics' own terms of reference.[8]

Doxiadis wanted to assign the building expert a much bigger role than ECOSOC's agenda allowed. His speech underlined the need to impose "rational limits to building" to control "man's burgeoning settlements" and to prevent the depletion of resources "essential to human existence."[9] The comprehensive management of land, resources, and settlement

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[4] The 1960s was designated as the "UN Development Decade" by the UN General Assembly in 1961. The goal was "to attain, in each underdeveloped country, a substantial increase in the rate of growth." [Resolution 1710 (XVI) of the General Assembly of the UN, 19 Dec. 1961.] For the specific mission of the ECOSOC Committee on Housing Building, and Planning, see "Agenda" UN Documents, E/C.6/1. Jan21-Feb.1 1963.

[5] UN reports admitted that progress in housing had remained inadequate in relation to other fields of development, and argued that housing had to be acknowledged as an integral part of other areas of growth, so as to foster a balanced social and economic development. ECOSOC, Committee on Housing Building, and Planning, "Report of the Secretary General" [UN Documents, E/C.6/2. 17 December 1962].

[6] ECOSOC, Committee on Housing Building, and Planning, "Report of the Secretary General," UN Documents, E/C.6/5, E/C/6.2, 17 Dec 1962.

[7] Resolution drafted by Doxiadis, UN Documents, E/C.6/L.6.

[8] UN Documents, E/C.6/SR5, January 1963.

[9] ECOSOC, Committee on Housing Building, and Planning, "Summary Record of third meeting held Tuesday 22 January 1963." UN Documents, E/C.6/SR3.

growth was now rendered with an altogether new urgency. The issue was not simply a matter of organizing an efficient global society; rather, building expert had to act as the very guarantor of human survival. Doxiadis could not help but make another one of his excessive assertions, equating the task of building experts to that of... rocket scientists. Building experts were so significant to protecting "humanity's future," he maintained, that it was regrettable that "the great talents of the contemporary age are directed principally towards the exploitation of outer space."[10]

Doxiadis made a similar appeal a few days later in a larger forum in Geneva, the UN conference on the Applications of Science and Technology for the Benefit of Less Developed Areas.[11] He argued that urbanization and resource depletion warranted the establishment of a new UN agency comparable to WHO and UNESCO.[12] The UN Conference's final report endorsed Doxiadis's position indirectly, by calling for the "comprehensive" advancement of urbanization strategies. The report almost mentioned Doxiadis by name, noting "a Greek speaker's" suggestion of "ekistics" as a possible name for "a new science of human settlements," that would approach the human habitat as "a single problem."[13] Doxiadis might have succeeded in introducing ekistics into UN debates, but his plea for an independent international organization for human settlements would not bear fruit for another decade, with the International Habitat and Human Settlements Foundation, created by the UN General

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[10] Ibid.

[11] This conference was the largest "scientific" conference to date under the auspices of the United Nations. Other scientific conferences under UN auspices had included one on new sources of energy in 1961, two on the peaceful uses of atomic energy in 1955, and 1958, and a Scientific conference on the conservation and utilization of resources in 1948. [From "Report on the United Nations Conference on the Applications of Science and Technology for the benefit of Less Developed areas," UN Documents, E/CONF. 39, vol. VII]

[12] "Report on the United Nations Conference on the Applications of Science and Technology for the benefit of Less Developed areas." UN Documents, E/CONF. 39, vol. V, 179-80.

[13] Ibid., 180.

Assembly in January 1975. Until then, the issue of built environments was bounced between various UN branches.[14] Doxiadis thus took matters in his own hands.

The Delos Charter? Recalibrating Modernism, Yet Again

> We are citizens of a worldwide city, threatened by its own torrential expansion and at this level our concern and commitment is for man himself.
>
> -Delos Declaration, 1963[15]

Disappointed with the UN's "foot-dragging," Doxiadis organized and funded his own conference, on the global crisis of urbanization.[16] The weeklong conference, the idea for which was simmering for years in his mind, took place in July of 1963, and brought together thirty-four leading scientists, architects, engineers, and administrators from twelve countries. It took place on the ship *New Hellas* cruising the Aegean, with Delos as the final destination. Modeled after CIAM's legendary 1933 meeting on a cruise ship that traveled from Marseilles to Athens, Doxiadis's "Delos Symposion" attempted to organize a new professional society that would be more diverse, if more technocratic as well.[17] The goal was to propose a "Charter of Delos" that would simultaneously replace the Athens Charter and underline the gaps in UN bureaucracy. The event was a turning point in the history of ekistics, not only because it increased its international visibility, but also because it reshaped its agenda. Like Doxiadis's speeches at the UN a few months earlier, the multi-ethnic and inter-disciplinary Aegean cruise pushed the debate on shelter well beyond the economics of efficiency, the aesthetics of order, the management of resources, or the engineering of social reform, to inaugurate an even greater cause: saving the earth.

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[14] Doxiadis believed that the UN resisted the creation of an independent body on human settlements "not to offend other agencies"—a view that was also shared by other UN housing experts. Doxiadis *Ekistics: An Introduction*, 423.

[15] "The Declaration of Delos," Report of the first symposion July 6-13 1963.

[16] Doxiadis, *Ekistics: An Introduction*, 423. Jaqueline Tyrwhitt mentions that Doxiadis himself was the "anonymous donor" for the symposion, in her letter to Doxiadis on his 60th Birthday, April 1974.

[17] Many of the symposion participants, including the prominent CIAM member Sigfried Giedion, emphasized the parallels between the 1930 CIAM and the Delos Symposion. The *Ekistics* issue on the Delos Symposion included in its appendix the CIAM Charter of Athens with the subtitle: "Outcome of a similar effort." *Ekistics* 16:95 (October 1963): 263-266.

If the participation in this conference of Sigfried Giedion and Jacqueline Tyrwhitt underlined the link between CIAM and ekistics to grasp the interest of architects and planners, the involvement of Buckminster Fuller, the anthropologist Margaret Mead, and the economist Barbara Ward —global activists in their own right, and reportedly "the stars of the cruise"— boosted the symposion's multidisciplinary appeal. Also invited were the communications expert Marshall McLuhan, soon to become the director of the Center for the Study of the Extensions of Man at the University of Toronto (Fall 1963); the geneticist Conrad Waddington and Professor at Edinburgh University; and the sociologist Eiichi Isomura, Professor at the Tokyo Metropolitan University and also director of Japanese Bureaus on planning and social development. Architects and planners also had a strong presence; these included: Sir Robert Matthew, who had been in charge of numerous British "New Towns" and new schools in England; Mohamed Makiya, a prolific builder and architecture professor in Iraq; and the Polish housing expert Juliusz Gorynski. This interdisciplinary encounter also included several UN officials—the American housing expert Charles Abrams (also a visiting Professor at MIT at the time) and planner Jacob Crane; the British economist David Owen; and the Canadian economist Steward Bates. Other international consultants included Edward Mason, Lamont University Professor at Harvard and advisor to the Agency for International Development. Also invited were government officials, Allah K. Brohi, a Pakistani diplomat, Shafik El-Sadr, Undersecretary of Housing and Public Utilities of the United Arab Republic, and Edmund Bacon, executive director of the Philadelphia Planning Commission. If the involvement of scholars aimed to underline the intellectual complexity of urban problems, the presence of government officials reflected ekistics' urge to ally physical planning with decision-making power. Giedion himself hailed the Delos Symposion for including more administrators than the CIAM meeting.[18]

[18] Sigfried Giedion, "The Declaration of Delos, Statements and Comments" *Ekistics* (October 1963), 254. Tyrwhitt, on the other hand, felt that the group was too heavy on administrators: "The creative spirits among the group were all out-weighed and out-numbered by the investigators and administrators". Tyrwhitt, GSE Memo, "Personal impression of Delos Symposion," July 19, 1963.

Doxiadis insisted on the term "symposion" to echo, he contended, the informal character of ancient Greek symposia, where discourse and debate took place in a relaxed atmosphere of food and drink.[19] Indeed, the pleasant atmosphere of a cruise ship sailing the Mediterranean Sea, and Doxiadis's reportedly "marvelous" hospitality, proved instrumental in counteracting the frustrating incongruities of the debate. Doxiadis's terms were contentious topics of debate. While all participants agreed that they are "citizens of a worldwide city, threatened by its own torrential expansion," Doxiadis's vision of ecumenopolis was questioned from various directions. Brohi was suspicious of ekistics' projections, accusing "planner's vanity" for ignoring the uncertainty of the future.[20] Mason found ekistics' analyses of urban problems too general to actually attract the interest of "scientific minds."[21] Gorynski drew attention to political threats of a single socio-economic world order.[22] McLuhan, on the other had, embraced the premise of ecumenopolis as an interconnected global system, but he was uneasy with ekistics' attachment to physical design.[23] According to McLuhan's vision of an electronic age that collapsed spatial and temporal barriers unifying the globe, physical design would be rendered obsolete by a new kind of interconnectedness constituted by information traffic and electronic networks. McLuhan's view of "global consciousness" as "the new human scale," sounded fascinating to participants but it was far removed from Doxiadis's view of "human scale," bounded by the strictures of physical design.[24] Fuller,

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[19] Athens Technological Institute, "Words spoken at Delos," 7

[20] Brohi, "Contributory Papers," *Ekistics* (October 1963): 257-8.

[21] Edward Mason, *Ekistics* (October 1963): 228.

[22] Gorynski, "Contributory Papers," *Ekistics* (October 1963): 259.

[23] Marshal **McLuhan's** contribution to the symposion emphasized how electronic technology "expanded the brain to embrace the globe" and reduced the planet to the scale of a village. McLuhan, "Contributory Papers," *Ekistics* (October 1963), 257. Earlier in his career, McLuhan had served as the chairman of the Ford Foundation Seminar on culture and communication (1953-55). His books include, *Understanding Media: The Extensions of Man.* (New York, 1966); Marshal McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962). McLuhan contended that the Delos debates contributed to his vision of the Center for the Study of the Extensions of Man, that he would begin to direct in the Fall of 1963.

[24] McLuhan, "Contributory Papers," *Ekistics* (October 1963). For more on McLuhan's specific objections see Wigley, "Network Fever."

already a close friend of ekistics, also proposed an alternative vision of ecumenopolis, suggesting that increasing mobility was a much stronger force in tying the world together, than the kind of static settlements Doxiadis was envisioning.[25] Waddington, whose own work was concerned with the general principles that tie a biological organism into a whole, embraced ecumenopolis from yet another direction, to argue that ekistics' global planning should be conceptualized as a process of organizing all "the living material of the universe."[26] Sigfried Giedion of CIAM's old guard stayed at the margins of the overall debate, and his endorsement was limited to praising ekistics' emphasis on generalist planners.[27] Giedion after all, had different reservations. His own attempt to promote a new monumentality was in complete disagreement with Doxiadis's focus on minimal and basic structures.[28]

All these tensions among competing worldviews were nonetheless finessed, if not resolved, thanks to the symposion's charming setting and evening parties—including the celebration of Giedion's birthday.[29] In a memo to Doxiadis soon after the symposion, Jaqueline Tyrwhitt captured the social success of the event—even as she, one of the few women participants, ironically exposed her own gender biases:

> My over-riding impression was the pleasantness and friendliness of all personal contacts among the participants. Even the toughest and least cordial characters relaxed and mellowed after the first day or so. Also the wives appeared agreeable, happy and unobtrusive.[30]

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[25] "The Delians," Ekistics 16, 95 (October 1963), 224.

[26] C.H. Waddington, quoted in "The Delos Symposion," *Ekistics* 16, 95 (October 1963): 205.

[27] Proceedings of Delos 1963.

[28] **Giedion**, General Secretary of CIAM from its foundation to its dissolution, tried, along with J.L. Sert to reorient the post-war CIAM agenda towards a new monumentality, as a means to achieve more than functional fulfillment [see for example, the polemical "Nine Points on Monumentality" written in 1943 through the collaboration of Giedion with F. Leger and J.L. Sert which stressed the need of architecture to express the collective aspirations of people] Doxiadis on the other hand, defied the monumental aspects of architecture in favor of people's "basic needs". Both of them, however, called on architecture to address multiple aspirations of people, and argued that the post war changes in the economic structure of nations could form the basis to form community life. Also, as I mention below, Doxiadis's notion of balance had parallels with Giedion's notion of "equipose."

[29] "The Delos Symposion in Pictures," *Ekistics* 16, 95 (October 1963): 211-217.

[30] Tyrwhitt, "Personal impression of Delos symposion," GSE Memo, July 19, 1963.

Indeed Tyrwhitt liked to appear agreeable and unobtrusive herself, and was often shown quiet in photographs, taking notes, even though she was instrumental in organizing this symposion, and those that followed. A pillar of Doxiadis's entire enterprise, Tyrwhitt played a key role in shaping the agenda of Delos, and was key to proposing new members to the network.[31]

Barbara Ward was another important participant, key to reconciling opposing views, by recasting Doxiadis's objectives in more general terms, to underline the conference's unifying cause: the expansion of urban problems as a grave threat to humanity.[32]

> Each day we considered the plight of the modern city. Each day, for contrast, we went ashore—to Hydra's coloured waterfront, to the walled Crusader's city at Rhodes, to Priene and Delos whose ruins show the completeness of the old civic pattern, to Lindos, floating between sky and sea, to Mykonos, where we sang and danced by the white quays. And against this charming background of light and clarity and space, these were the frightening facts that we were asked to face and which, for the first time, compelled me at least to see the cities not simply in terms of inconvenience or discomfort but in the much grimmer terms of potential catastrophe.[33]

The environmental exigency indeed became the main theme of the "Delos Declaration" that was published at the end of the symposion. (Doxiadis's initial hope to produce a Charter outlining specific strategies proved impossible due to the differences in views). Carefully drafted by Barbara Ward so as to sidestep the controversial topics, the "Declaration" criticized the "chaos" in cities of all continents; the "inexcusable waste" in development practices; the excessive funding for armaments to the detriment of housing initiatives; and the inadequacy of administrative policies and educational systems to tackle these problems. The document hinted at some of Doxiadis's characteristic rhetoric, calling for "rational and dynamic

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[31] Numerous internal memos from Tyrwhitt to Doxiadis attest to this.

[32] The British economist Barbara **Ward**, (1915-1981), also known as Lady Jackson, was assistant editor of the *Economist* between 1940-50. She became a close associate of Doxiadis since the late fifties, and she also collaborated with other international housing experts (e.g., she went to Ankara with Charles Abrams in 1964). In 1968, she was appointed Schweitzer Professor of International Economic Development at Columbia University, and in 1973 she became president of the International Institute of Environmental Affairs.

[33] Ward, "Catastrophe in Our Cities," *The Sunday Telegraph*, August 11, 1963. Reprinted in *Ekistics* 16:95 (October 1963): 240-42; quotation on 240.

planning" and "a new discipline of human settlements," while it conflated nuclear threats and food shortages with urban problems. The Declaration's signing during a torchlight meeting in the ancient theatre of Delos dramatized even further the group's noble cause. (Figure 1) Fuller, too, focused on shared global threats in his concluding remarks, and presented the cross-cultural encounter at Delos as a catalyst of "efforts to prevent man from eliminating himself from his extraordinary role in the universe."[34]

The Delos symposion attracted international press coverage—in the *New York Times,* the *Washington Post,* the *Sunday Telegraph*, the *Melbourne Age*, *Süddeutsche Zeitung,* as well as the American Socialist newspaper, *Weekly People* that saw the symposion as a reaction against the "Capitalist Jungle."[35] Through systematic publicity efforts by Doxiadis Associates and the Athens Technological Institute, the event was also covered in professional societies and journals.[36] The flood of publicity emphasized uncontrolled urbanization as a global crisis that plagued both underdeveloped and developed countries alike. The earth's limited capacity was becoming more pronounced as the world was realizing that the developed countries' wastefulness would be repeated in the third world.[37] Both journalists and "Delians" (as Doxiadis called the symposion participants) who became apologists for the symposion, reiterated Doxiadis's belief that urban problems required a trans-cultural and

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[34] Fuller's closing remarks after the signing of the declaration. Reprinted in *Ekistics* (October 1963), 205.

[35] *Weekly People,* August 17; "A Cruise Party Ponders the Menace of the City," *Washington Post*, July 21, 1963; "Party on Cities asks World Drive, *The New York Times*, July 2, 1963. "Mankind menaced by Chaos of the Cities," The *London Times*, July 17, 1963. *Süddeutsche Zeitung*, August 28.*Weekly People*, "City Planners vs. Capitalist Jungle" [Excerpts of the above reprinted in *Ekistics* 16:95 (October 1963): 235-241.]

[36] The *Architect's Journal* interviewed Sir Robert Matthew on the Delos Symposion in August 1963. Barbara Ward described the Symposion in detail in the *RIBA* Journal, in September 1963. *The American Institute of Planners' Newsletter*, and the Portuguese *Binario* published the entire "Declaration of Delos." For a complete summary of the publications on Delos I of 1963, see ATO, "Delos Newsletter," September 1963.

[37] Barbara Ward made this point as she summarized the urban crisis: "To the catastrophic growth in urban population must be added in the developed countries an equally rapid growth in the number of automobiles men try to stuff into the cities with them. One can only surmise that as income grows in under-developed countries, the same pressures will develop there." Barbara Ward, "A Quick look at the crisis" Delos Symposion 1964. Document Series B, 1.

inter-disciplinary approach to control land use, regulate buildings' shape and scale, and manage access to nature.[38]

Barbara Ward was most forceful in exposing cities that "devour space" as a dire environmental threat:

> Most people are aware of the menace of nuclear war to the future of mankind, and many people are aware that possibly population could outrun food supplies; but what I think is not generally recognized is that the urban explosion could be, in its own way, as lethal as either. It can destroy communities more slowly but perhaps more surely than atomic destruction, and it can starve the spirit as malnutrition starves the body. [39]

Ward condensed the multiple themes that were resounded at Delos into a call for approaching global urban problems in "an ecological sense, the sense of the whole environment profoundly conditioning the men inside."[40] Only three years later, Ward was to write *Spaceship Earth* (1966) that projected a vision of the earth having the intimacy, loneliness, and vulnerability of a spaceship. The metaphor grasped the gist of the new consciousness that was emerging. As photographs from outer space vividly illustrated the physical finiteness of the world, what linked peoples together was no longer a drive for growth as in the old days for development, but their common dependence on the same biophysical life-supports.[41] Ward rapidly came to the forefront of international debates on the environment, and through her efforts to awaken a new planetary awareness she advanced Doxiadis's ideas as the basis for managing the earth's total environment.[42]

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[38] Doxiadis referred to the expanding group of participants as "Delians," and his dictum, "once a Delian, always a Delian," captured the bonding spirit he wanted to promote. Doxiadis, "Thoughts on the Delos Symposion" Memo to Tyrwhitt and Iatridis, July 19, 1963.

[39] Barbara Ward, "The Menace of Urban Explosion," *The Listener* (November 14, 1963): 785-787, quote on 785-6. In this article, Ward summarized the conclusions of the Delos I Symposium.

[40] Barbara Ward, "The Menace of Urban Explosion" *The Listener*, November 14, 1963, 785-787. quote on 786.

[41] Sachs, "One World," *The Development Dictionary*, 108.

[42] Ward, "Urban Growth towards the jungle of the asphalt" in *Oikonomikos Taxydromos*, 20 July 1967.

The Delos symposia became an annual event. The island destination would change every year, and so would the composition of the group. Some of the key actors of the first symposion were invited to many more—Tyrwhitt, Fuller, Ward, Mead, and Makiya, Waddington—while many others were recruited. New members included the American planner and Harvard University Professor Martin Meyerson, the preeminent Japanese architect Kenzo Tange, the American vice-president of the Ford Foundation David Bell, and the Nigerian World Health Organization official, Thomas Lambo. Different themes on the city of the future were explored—building density, networks, housing, etc— increasingly emphasizing the need to organize the globe as an interconnected system.

New Formulas for the Global

> Unlike the present cities which expand everywhere and destroy all natural values, the universal city will allow the structures to expand far out and the landscape to enter deep into it, into our home, achieving the ecological balance which is necessary for he survival of man at all levels from home with its garden to the whole earth."
>
> -C.A. Doxiadis, 1968[43]

Through the new debates on ordering the cosmos, Doxiadis, arrived at new concepts of ecumenopolis. He came to see that the planetary network of cities that he had envisioned in his 1961 proposal was only part of the global equation. The non-urban world (what Doxiadis's described simply as "natural areas" or "countryside" before) also constituted a network—of forests, deserts, gardens, rivers, and seas—that he would eventually call "**ecumenokepos**" (global garden). To organize and stabilize the city of the future, ekistics had to plan ecumenopolis as well as its back yard, ecumenokepos. Delos Four, in July 1966, helped crystallize this notion by underlining the interdependence of the "natural" and "man-made" world.[44] Waddington encouraged this direction by suggesting that global network of human settlements should be conceptualized as part of "the larger system of living

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[43] Doxiadis, "The Future of the City," Draft Prepared by Doxiadis for *Newsweek International* (March 1968): 1-4, quotation on 4.

[44] Delos IV was initially titled, "the preservation of human and natural beauty" but in the midst of the conference, the title was changed to "the preservation of quality" precisely to underline that "man is an aspect of nature and the preservation of beauty needs no division into natural and manmade." "Need for Preservation of Quality" *Ekistics*, 22, 131, (October 1965), 288.

creatures."[45] Tange introduced another twist by suggesting that entire global network could be understood as an interconnected "nervous system."[46] Doxiadis embraced these analogies to the extent that they supported notions of stability, health and balance of the globe. He also spoke of ecumenopolis and ecumenokepos as an "organism" whose life depended on hierarchically structured systems of settlements, circulation, and communication, echoing Waddington's view of an organism as a complex and overall organizational system. However, Doxiadis's strategies for integrating people and environments in a global system did not quite adopt the fluidity and indeterminacy of Waddington's notion.[47] Instead, Doxiadis insisted on the assumption that by the middle of the 21st Century the "rate of growth" of the global city would decrease to virtually zero, and from then on, the global shape of ecumenopolis would stabilize to form "one large and static urban settlement."[48] Furthermore, Doxiadis insisted on the significance of physical planning and functional/territorial organization, which distinguished his views from those of McLuhan, Fuller who saw the interconnectedness of the globe in terms of invisible networks of information.[49] (After all, Fuller thought that the very process of urbanization Doxiadis believed in would become obsolete "as cities become the launching pads for each human's blast-off into world shuttling citizenship."[50]) To Doxiadis,

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[45] Conrad H. Waddington, "Biology and the Human Environment," International Seminar on Ekistics Document Series B, 5, July 1965. Also, Conrad H. Waddington, "Biology and Human Environment," in Jaqueline and Gwen Bell, eds., *Human identity in the Urban Environment* (London: Penguin Books, 1972).

[46] Kenzo Tange, "Kenzo Tange," *Ekistics* 22 (October 1966). For more on Tange's views of global networks see Wigley "Network Fever," esp. 104-107.

[47] The influence of Waddington's notion on other architectural and interdisciplinary communities at the time, and especially his influence on Fuller, is discussed in Reinhold Martin, "Crystal Balls," *Any* 17 (1997): 35-39. For the larger significance of this version of organicism to mid-20th century scientific thought see Donna Haraway, *Chrystals, Fabrics, and Fileds: Metaphors of Organicism in Twentieth Century Developmental Biology*, 1976.

[48] Doxiadis, "Ecumenopolis," International Seminar of Ekistics B, No. 8 (December 1965), 2.

[49] Doxiadis, "COF Studies in the Functional Composition of the World City of Ecumenopolis," Doxiadis-COF 1230, (no date); Doxiadis, "From Megalopolis to Ecumenopolis," Research Discussions, Document B, No. 4, July 1967.

[50] Fuller, "Letter to Doxiadis" (June 14, 1966), 68. McLuhan had a similar reaction, and later on he would dismiss Doxiadis and his group as "brick and mortar people." For more on Fuller's and McLuhan's reactions to Doxiadis's ideas see Wigley, "Network Fever." [Mc Luhan's comment is cited in this paper, 113]

however, (and also to his close collaborator Papaioannou, who was instrumental in shaping the concept of ecumenokepos) ecumenopolis and ecumenokepos were spatial concepts, pertaining to visible, physical interconnections of the globe.[51] This was the view that guided Doxiadis's new paths to management.

From 1967 onward, Doxiadis developed a series of proposals for ecumenopolis and ecumenokepos with the ambition to achieve a "global ecological balance." His calculations and terminology transformed as he presented these ideas at the International Conference on Water for Peace, in Washington (1967), the Edison Electric Institute (1968), *Newsweek International*, and elsewhere.[52] The main ideas remained the same in these increasingly detailed proposals: The "global ecological balance" would be achieved through the functional organization of the earth's land, in such a way as to allow the harmonious coexistence and human settlements and nature. The grand territorial arrangements were going to accommodate the competing needs of production, settlement, recreation, and environmental protection.

The most elaborate version of these proposals was presented in the book published posthumously, *Ecology and Ekistics*. In this scheme, Doxiadis divided the earth's land in twelve zones, some of which were devoted to human habitation, others to "cultivation," and others to "wildlife". (Figure 2. "The twelve global zones of land") The part of the earth's land devoted to human habitation was ultimately confined to 2.5%, of which only 0.2 % was left for industry and waste—assuming, apparently, that limiting the physical space occupied by industry, would also minimize its environmental harm. 15.5 % of the land was for cultivation or for sports and recreation. The remainder 82% of the land's surface was thus retained for ecumenokepos, parts of which would be largely inaccessible to humans ("real wildlife)" others would be enjoyed ("wildlife visited"), and others would even be available for

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[51] John Papaioannou was acknowledged as a co-author in one of Doxiadis's books. C.A. Doxiadis and John G. Papaioannou, *Ecumenopolis, The Inevitable City of the Future* (New York: Norton and Company, 1974)

[52] For example: Doxiadis, "Energy and Human Settlements," Lecture delivered at the Edison Electric Institute, New York, Jan 31, 1968 ; Doxiadis, "The Future of the City." Draft prepared by Doxiadis for *Newsweek International*, (March 1968): 1-4. .

exploitation ("wildlife invaded"). This arrangement accommodated recommendations from Ward and Toynbee, who advocated the preservation of various types of "wilderness areas" in order to support "alternative lifestyles," and to maintain variety in the "forthcoming planetary society."[53] The territorial arrangement also accommodated the Delos Four requirement that some "natural habitats" should be left entirely inaccessible, to protect the advancement of biological, medical, and other scientific knowledge in the present or future.[54]

Every type of imaginable human need was given a slice of the planetary pie. The need for industrial progress; for scientific advancement; for access to nature; or for alternative lifestyles: all these were accommodated. In other words, this new more comprehensive territorial organization was based on the same kind of uncomplicated pluralism that guided the organization of the urban "Entopia" (Chapter II.). The same logic now extended to the formation of a global garden. The overall proposal involved the reshuffling of population, the redistribution of resources, the abandonment of some habitable areas, or the density increase of others, that might of course work in paradise.[55]

Doxiadis's classifications were based on rough projections for future settlement growth made by ATO. Doxiadis did not dwell on the basis for these numbers, except to say that they are tentative and they would need to be further analyzed through the use of the anthropocosmos model.[56] In his managerial ambition to accompany analysis with action, Doxiadis jumped to dividing the earth's land (with precision to decimal points!) but did not make references to real places and situations. Which forests would fall under the categories of "real wildlife"? and even, how long would the exploitable forests remain that way? To Doxiadis, these seemed like matters of fine-tuning rather than fundamental challenges to the

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[53] *Ekistics* 22, 131 (October 1966): 287.

[54] *Ekistics* 22, 131 (October 1966): 286.

[55] Doxiadis, "Water and Human Environment," International Conference on Water for Peace, Washington, DC 23 (May 1967): A1-H3.

[56] Doxiadis, *Ecology and Ekistics*, 7. The use of the Anthropocosmos model for environmental action is also explained in Tyrwhitt, "A background to Doxiadis's *Ecology and Ekistics*."

managerial plan. He acknowledged such issues only to the extent that he mentioned the significance of "local needs". The "balance" ecumenokepos and ecumenopolis was a matter of territorial negotiations. Doxiadis himself knew this was simplistic, but he thought it was a good start. Gaps in this logic, he argued, would be managed away as ekistics pursued further collaborations with the field of ecology. These collaborations were crucial because ecology "the science that deals with the relationship of all organisms to their environment" requires the input of ekistics, "the science which deals with the relationship of human beings to the environment they create" and vice versa.[57] He argued:

> As the balances necessary to maintain a satisfactory environment have now been lost because of new types of assault on our surroundings we have a major obligation to coordinate the ecological and ekistic points of view, adopting human settlements to mitigate any ecological problems they may create. We must meet and endeavor to overcome any conflict by a systematic and balanced approach.[58]

Doxiadis's proposal anticipated the criticisms of "pessimists" who might find the grand ordering of the earth unrealistic. Those who dismiss the proposals as too big to be realizable, Doxiadis warned the readers of *Ecology and Ekistics*, forget the miraculous planning achievements of the past—such as the 5000-year old irrigation systems in Egypt, the 2000-year old dams in China, and the 2500-year old water supply tunnels in Greece.[59] The globe's managerial restructuring in the name of "human survival" required a similar type of "courage."[60] Doxiadis was willing to disown rational scientific thought when it would not uphold his proposals' feasibility, and evoked the complexity of human experience:

> Any proper feasibility report can show that no farmer can have the kind of house that in fact he owns in many parts of the world and cost benefit studies can show that no medieval city could build a huge cathedral. But they both were built and we admire

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[57] Doxiadis, *Ecology and Ekistics*, i. Also, Doxiadis, "Global Ecological Balance: The human settlements that we need," 1974. Doxiadis, "The 12 zones that must cover the earth," 1973.

[58] Doxiadis, *Ecology and Ekistics*, xvi.

[59] Doxiadis, *Ecology and Ekistics*, 38-39.

[60] "We need the courage to decide now on the best use of our terrestrial space. If we do it systematically then our march into the future will lead towards a humane Ecumenopolis based on a Global Ecological Balance serving human goals for human survival..." Doxiadis, "Global Ecological Balance: The human settlements that we need" (1974), 15.

them today because humans were able to start processes and continue them step-by-step over a few generations to the stage of completion.[61]

This was how Doxiadis reconciled his grandiose proposals with his claim for realism. The definition of ekistics was even amended as "the arts and sciences of human settlements," not to suddenly transform ekistics to a hybrid discipline of art/science, but to distinguish it from scientific reductionism.[62] (As I will show below, the firm DA also was beginning to hint to an artistic side of ekistics). But whether it was a "science" or a combination of "art and science," ekistics remained convinced of the apolitical authority of its management.

Balancing Acts

> In the [future] we will have built the great, universal city and garden of man with water running in its arteries bringing life and guaranteeing its inner balance and peace.
>
> -Doxiadis, 1967[63]

What underlay the massive redistribution of peoples and resources was no longer the imperative of efficiency, but the loftier environmental ideal of achieving an ecological balance. As Chapter II showed, Doxiadis had initially referred to the concept of "balance" between built and natural areas in his initial plans for ecumenopolis in 1961, to signify the maximum acceptable limits of future development. As Doxiadis increasingly espoused popular and scientific notions from ecological thought, he projected a range of new meanings onto the term "balance." In fact, he conflated disparate notions to speak of the need to insure a "balance between nature, society, and anthropos" and a "balance between man and food and water resources."[64] This conflation did not simply reinforce the confinement of nature to a

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[61] Doxiadis, *Ecology and Ekistics*, 39.

[62] The new definition of Ekistics as "the arts and science of human settlements" appears in *Ekistics* (October 1972): 284.

[63] Doxiadis, "Water and human Environment," quotation on H3.

[64] Doxiadis, "Energy and Human Settlements," Lecture delivered at the Edison Electric Institute, New York, Jan 31, 1968. One can recognize many parallels between Doxiadis's notion of balance, and S. **Giedion's** notion of "man in equipoise"—the need for man to re-establish a balance between his private life and his community life; between his methods of thinking and his methods of feeling; between the different fields of knowledge; and between his human body and natural forces. Giedion's notion of equipoise was extensively discussed by *Ekistics* June 1968 issue. See also Giedion, "Man in

resource for human use; by calling for the achievement of this balance with "the minimum of human sacrifices,"[65] Doxiadis cast nature's protection as a matter to be negotiated against the venerated standard of human needs—the satisfaction of which was presumed to require economic development.[66] Ultimately, the mission to "safeguard" "protect" or "maintain" a "balance" of nature and human settlements was unwittingly linked with the assumptions that justified the preceding development decades. The mission to prevent resource depletion and environmental degradation while pursuing development did not present a conflict between the protection of nature and its exploitation; rather, it revealed the development expert as the necessary moderator of the two. It was the task of the development expert to skillfully juggle environmental requirements with human needs for goods and services, to orchestrate the efficient utilization and equitable distribution of resources, and to "guarantee" the "inner balance and peace" of the forthcoming universal city.[67]

A sketch of the desired balance in human settlements featured a future urban landscape that was orderly, uniform, and sprawling. The ideal future settlement eradicated the excesses of the present—namely high-densities and tall structures, for which Doxiadis had always professed disdain—reclaiming physical qualities of past settlements that had achieved a balance between nature and society. (Figure 3. "Balance in Human Settlements " from Action for Human Settlements) In Doxiadis's version of planetary planning, the ecological exigency was not tackled with sophisticated technologies for the globe—such as those suggested by **Fuller**. It was not the enclosure of cities in domes or the proliferation of geoscope projects that constituted the builders' ecological task, but rather, the selective recovery of lost physical qualities, their enlightened reorganization, and large-scale

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Equipose," in Gwen Bell and Jaqueline Tyrwhitt, eds. *Human Identity in the Urban Environment*, (London: Penguin Books, 1972)

[65] Doxiadis, "Energy and Human Settlements."

[66] Ivan Illich referred to the "human needs discourse" to describe how the allegedly global demand for goods and services justified international development . Ivan Illich, "Needs," in W. Sachs, ed. *The Development Dictionary*, (London and New Jersey: Witwatersrand UP): 88-101.

[67] Doxiadis, "Water and Human Environment," H3.

dissemination.[68] Even though Doxiadis agreed with Fuller on the urgent need to refashion architecture and planning in response to the new ecological threats, Doxiadis linked global solutions with advanced scientific management, and not with advanced technology.[69] Doxiadis's very preference for diagrammatic sketches reflected his desire to capitalize on the systematic and managerial straightforwardness of his proposal. Unlike Fuller's elaborate photomontages, Doxiadis's line sketches aimed to transport architecture away from the realm of image-making and into the realm of managerial organization.[70] Effectively, the call for balanced urban settlements was just as much an appeal for balancing architecture *itself*, for detaching it from the formal excesses of modernism—extravagantly tall buildings, narcissistic signature designs and technophilic utopias. Of course, Doxiadis's proposal *too* involved radical technological interventions—for the massive reshuffling of population, the new transportation networks, and enormous underground structures; yet the resulting global settlement had a superficial low-tech familiarity consistent with ekistics' claims to prudence and realism.

All in all, the term, balance, and its constellation of meanings—harmony, moderation and equitability, and a type of order—were in tune with the ideological formations that portrayed the protection of nature as an expert managerial task. For a champion of middle positions like ekistics, which favored the reform of rational planning, rather than a radical questioning of its morality and principles, the pursuit of "balanced" or "appropriate" development defended the validity of international development and tempered predictions of imminent doom with an optimism to manage it away.

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[68] Here I draw on Reinhold Martin's analysis of Fulller's photomontages. R. Martin, "Crystal Balls" *Any* 17 (1997)

[69] Fuller's famous image of a dome over Manhattan and his geoscope projects were also products of negotiations between architecture and ecology. See for example, Wigley, "Planetary Home Boy," *Any* 17 (1997): 16-23.

[70] Fuller professed disinterest to the look of his projects, but his photomontages demonstrated that he was quite mindful of the aesthetic effect of his representations. Wigley, "Planetary Home Boy," *Any* 17 (1997):16-23.

Not only was the maintenance of ecological balance a managerial task, it was also a moral imperative. Influential in advancing this view was Rachel **Carson's** 1962 book *Silent Spring*, which exposed the excesses of industrial agriculture and introduced the issue into the public arena. (The book was published in 15 countries within a year of its initial publication in the US and catalyzed action towards the banning of DDT).[71] At least from 1967 onward, Doxiadis quoted Carson in several occasions.[72] Hoping, like Carson, to shock people into action, Doxiadis adopted her view of nature as a complex and highly integrated system with a fragile balance—a view that evoked quasi-mystical conceptions of nature as a holistic entity with an age-old stability.[73] In the process, Doxiadis assigned environmental protection to the benevolent hands of the expert scientist, who was supposed to have the best grasp of this intricate balance.

The belief in the benign possibilities of centralized management, and the astounding confidence that it was possible, were encouraged by new conceptual construct of systems thinking—coming from systems management concepts of military and space programs—that augmented the tendency to map people and communities as coded global systems and networks. As I mentioned in Chapter II, Doxiadis had already embraced the paradigm of systems theory since 1961, to conceptualize the ecumenical city as an interdependent system whose unity depended on the harmonious interaction of its parts. With the growing interest in systems management, Doxiadis emphasized general systems theory as the basis for mapping and predicting the interaction and evolution of settlements—and Fuller hailed this as one of the most essential contributions to architectural research at large.[74] As engineers and

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[71] Rachel Carson, *Silent Spring,* 1962.

[72] Doxiadis first quoted Rachel Carson in his 1967 speech, "Water and Human Environment" and he also referred to Carson's idea of earth's "balance" in his 1968 book, *Ekistics: An Introduction to the Science of Human Settlements.*

[73] Yaakov Garb, "Rachel Carson's Silent Spring," *Dissent* (Fall 1995): 539-546.

[74] Fuller, "Why Am I Interested in Ekistics," Delos Symposion 1965, Document C No 6, July 2 1965. (Another version was reprinted in *Ekistics,* October 1965) In this article, Fuller described the alignment of advanced architectural research with general systems theory as one of Ekistics' most valuable contributions. Doxiadis, also, drew explicitly the connections between ecumenopolis and systems approach in a 1967 article, "Energy and the New Civilization; A Systems Approach to the

development experts were rediscovered as systems analysts who would monitor and orchestrate the consumption of resources and the worldwide waste output, Doxiadis ekisticians were also envisioning themselves no longer as builders but as managers of building growth. Their historical responsibility was to keep the vital interdependence of settlements and nature from destabilizing.

A new bent to Doxiadis Associates' practice

As Doxiadis's lectures and ATO's conferences emphasized the maintainance of an ecological balance, ascending to new levels of grand managerialism, the firm of DA proposed new urban development programs for Ghana, Libya, Brazil, Detroit, and elsewhere, operating in practically the same mode as before. It was not easy for DA to translate the new abstract directives into built interventions. The firm did, however, begin to contemplate the new cause through a few projects. The first project that presented such an opportunity was the creation of a new industrial town of **Aspra Spitia** (1962-5), on a marvelous site on the coast of the Corinthian Gulf, Greece, surrounded by gently sloping hills overlooking the sea. (Figure 4. Aspra Spitia) The L-shaped master plan of this privately funded industrial town made a self-conscious attempt to incorporate discerning qualities of the "traditional Greek village."[75] The plan responded to the contours of the site; front yards and walkways integrated the countless olive tress; public spaces calibrated their scale and geometry to accommodate sea breezes and scenic views; and the houses were painted white and were called that way—"aspra spitia" is modern Greek for "white houses"[76] Still, rational planning, income-based hierarchies, and standardized house types remained necessary guards against "aesthetic chaos," and

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Cities," *DA Review* 3, 29 (May 1967): 1-4. (This was an interview initially published in the Forum, a quarterly published by the General Electric.)

[75] DA, "Aspra Spitia, a New Greek City," no date.

[76] Doxiadis Associates was commissioned to design Aspra Spitia by a private organization, "Aluminium de Grèce, to house 5000 industrial workers and personnel employed at its nearby aluminum plant. The program proposed a total of 1100 dwellings including one-and-two story houses, apartments, stores, and shops, a school and other facilities. DA also designed the infrastructure (water and electricity supply, sewer and storm water networks)

"picturesque trivialities."[77] Certainly, the rows of houses organized in clusters according to size and cost could not possibly be misconstrued as the outcome of ad-hoc processes typical of vernacular settlements in the region. Yet the project had a new quasi-traditionalist bent. This may partly be explained by the fact that Aspra Spitia was the first opportunity DA had to fully implement a project in its "home country." But there is more to this. DA was casting the entire concept of "traditional architecture" in a new light. It was not simply a resource for utilizing local climate, appropriating local materials, or organizing settlement hierarchies, as Doxiadis imagined (and **Fathy** zealously demonstrated) in the late fifties; nor was it a means of achieving psychological and spiritual fulfillment as Fathy asserted towards the end of his collaboration with ekistics, in 1961; Rather, DA saw the reinterpretation of "traditional architecture" as a key to "preserving" the "quality" and "balance" of the environment.[78]

This line of experimentation was pursued further with the design of a tourist village, **Apollonion** (1971-6), on the north shore of the Porto Rafti Bay, outside Athens. (Figure 5; Figure 6. Apollonion) Funded by Doxiadis himself, Apollonion aimed to "recreate" the "harmony" between "modern needs and technology" on the one hand, and "nature and landscape" on the other.[79] Still fixated on the idea of a "unified whole," DA designers divided the plan into 6 neighborhoods, with one or two story houses interlinked with different combinations, all built with local stone. Cars were pushed to the perimeter and were concealed from view. Common spaces and narrow picturesque footpaths along the gentle slopes emulated the spatial qualities of Cyclades Island villages. Once again, the idea was to make the overall intervention more sensitive and appropriate to the landscape and underline the interdependence of the built project and nature.

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[77] DA, "Aspra Spitia, a New Greek City," no date. The town was divided into four neighborhoods, with a network of pedestrian walkways within each. Roads were at the periphery of each neighborhood. High-income house types were free-standing while lower income houses were attached.

[78] DA, "Aspra Spitia, a new Greek City."

[79] C.A. Doxiadis, "Welcome to the Apollonion," ATO/ACE, WSE 9th General Assembly, Document B No. 2 (22 September 1973): 1-6; quotation on 2.

The fact that this privately funded vacation spot had an entirely different scale, function, and social role (as well as higher formal ambitions) than the mass housing projects in Islamabad or Baghdad, did not, in Doxiadis's mind, reflect a change in ekistics' basic mission. Even if Apollonion capitalized on tourist potential rather than the amelioration of urban blight, it was just as significant a model of how to prevent the deterioration of the human habitat.[80] The new "model community" of Apollonion and to a certain extent, Aspra Spitia, were, to Doxiadis's eyes part of the same ekistics search for the best of both worlds—development and environmental protection. Of course, the international development discourse was itself undergoing changes at this time to engage less with housing schemes and more with tourist development and private projects, and ekistics was adapting to these new signals.[81] Ekistics seems to also have been adapting to signals coming from architectural circles, about the revived interest in indigenous architecture. Most notable among these signals was the widespread appeal of Bernard Rudofsky's writings, which valorized indigenous traditions of building for their sensitivity to the natural environment.[82] Just as Doxiadis was beginning to associate nature's balance with quasi-mystical notions of order and unity, DA also, was leaving its hard line rationalism and tried, however tentatively, to contemplate aesthetic considerations, as part of its environmental mission.

A New Ecumenism: From One World to One Earth

> I doubt whether human settlements would have been recognized as part of the human environment except for the Delos Symposia. If they had not been

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[80] Doxiadis saw Apollonion as an example of "how man can save the quality of life and the human scale." C.A. Doxiadis, "Welcome to the Apollonion."

[81] DA had engaged with tourist Development since the early sixties, with feasibility studies for Spain, the Caribbean, Jordan, and various parts of Greece. Eventually the firm received commissions to design tourist villages, summer residences, hotel complexes, bungalows and camping facilities.

[82] The Austrian Architect and critic Bernard **Rudofsky** (1905-88) became famous for his 1963 book, *Architecture without Architects*, which pointed to the "wisdom" of pre-modern methods of building that were attentive to the particularities of climate, materials and building traditions of specific regions. His later books increased their emphasis on vernacular architecture (Rudofsky himself coined the term) as the basis for understanding how architecture can reestablish its sensitivity to the natural environment. Bernard Rudofsky, *The Prodigious Builders: Notes Toward A Natural History Of Architecture With Special Regard To Those Species That Are Traditionally Neglected Or Downright Ignored* (New York, 1977).

included in the Stockholm Conference Agenda, the conference would not have been so effective.

-Barbara Ward, 1972[83]

The global urgency of appropriate management of the environment was officially established at the United Nations Conference on the Human Environment, in which the ekistics circle participated with full force. The first of a series of UN "theme conferences" on critical global issues, the conference convened in Stockholm in 1972, and introduced "environment" to the international agenda; it ultimately led to the creation of the United Nations Environment Program (UNEP).[84] Initially proposed by Sweden in 1968 to address the dangers of pollution in industrialized countries, the conference expanded the definition of environmental problems to include such issues as the "rapid growth of human settlements" the "degradation of soils and other resources," "desertification," and "tropical ecosystem management," to demonstrate the transnational relevance of environmental concerns.[85] The conference advanced the idea that the unity of humankind was no longer based on the post-war cosmopolitan dream of "One World"—which had pushed every nation into a race for the exploitation of resources; the unity of mankind was based on the biophysical reality of "One Earth," that carried with it a menacing fate.[86] The term "human environment" was supposed to signal the expansion of environmental concerns beyond nature protection and resource conservation, and to herald the inclusion of humanity as an integral part of the global environment.[87] The term also presaged

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[83] Barbara Ward, "Exercising Stewardship over Global Resources," *Ekistics* 34, 203 (October 1972): 235-239, quotation on 235.

[84] The "Biosphere Conference," an Intergovernmental Conference of Experts on Rational Use and Conservation of the Biosphere held in Paris in 1968, was an earlier international conference that aimed to assess the problems of the global environment, but it focused mainly the scientific aspects of environmental problems, and did not have as wide a political impact.

[85] "United Nations Conference on the Human Environment, Information Letter No 2." 31 July 1971 ; McCormick, 93.

[86] Sachs, "One World," in *The Development Dictionary.*

[87] As Ward observed, "Before Stockholm, people usually saw the environment as something totally divorced from humanity... Stockholm recorded a fundamental shift in the emphasis of our environmental thinking." Erik Eckholm, *Down to Earth* (New York: W.W. Norton 1982), xii; quoted in Mc Cormick, 97.

the anthropocentric priorities of the conference. And the universal connotations of the "human" reflected the conference's key assumption—the homogeneity of humanity's position vis-a-vis the environment.

Barbara Ward—who, along with Margaret Mead, were reported to have been "the two most influential and sought-after individuals at the conference," with the exception of the Secretary General[88]—underlined the conference's driving themes: the inescapable reality of a global crisis and a commitment to scientific rationality as the basis for corrective action:

> We can cheat on morals. We can cheat on politics. We can deceive ourselves with dreams and myths. But there can be no monkeying about with DNA, or photosynthesis or eutrophication or nuclear fusion or the impact on all living things of excessive radiation—from the sun or the hydrogen bomb. And what our incredible scientific breakthroughs of the last century have taught us is that the ultimate energy of the universe both sustains and destroys life and that the mechanisms and balances by which it becomes life enhancing are fragile and precious beyond our belief. To act without rapacity, to use our knowledge with wisdom, to respect interdependence, to operate without hubris and greed, are not simply moral imperatives. They are an accurate scientific description of the means of survival.[89]

Barbara Ward was the co-author of the "World Environment Report," prepared prior to the conference to provide the Stockholm delegates with a basis for their deliberations. The other author of the report was Rene Dubos, the microbiologist and experimental pathologist who was soon to become a neophyte "Delian."[90] Later published with the title *Only One Earth: The Care and Maintenance of a Small Planet,* the report was reviewed by an interdisciplinary and international committee of 152 consultants including the "Delians" Doxiadis, Margaret Mead, Martin Meyerson, and Kenzo Tange, among others. The report sent alarmist signals and made a call for action, too general to be meaningful. The call for forming a "collective international responsibility" for understanding the links between humanity and nature; for

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[88] "All About Stockholm" World Environment Newsletter, August 1972, 38.

[89] From Barbara Ward's speech in Stockholm, June 6 1972; quoted in "All About Stockholm" *World Environment Newsletter* (August 1972), 40.

[90] **Dubos** (1901-83) was a French-born American biologist. His books, *Man Adopting* (1965), and *So Human An Animal* (1968), for which he won the Pulitzer Prize, but also warned that humanity and nature may be damaged in adjusting to an extremely polluted environment.

"loyalty to earth;" and for recognizing planetary interdependence: all these high-minded pronouncements failed to suggest a direction, although they were welcomed as a good first step.[91]

The Secretary General of the Conference Maurice Strong —who had earlier served as the director of the Canadian International Development Agency[92]—outlined the objectives of the conference quite clearly when he instructed Dubos and Ward to provide in their report "the conceptual basis for synthesizing concerns for economic development with concerns for environmental quality which are so often mistakenly assumed to be in conflict."[93] (Incidentally, it was Strong who would later coin the term "ecodevelopment.")[94] Robert McNamara, president of the World Bank, who also reinvented himself as an environmental expert, sounded the same theme when he spoke about the "twin objectives of advancing the development of the less-privileged nations while preserving the environment."[95]

The idea of recalibrating development for environmental protection was presented as a realistic alternative to the passionate rejections of industrialization and economic growth—rejections that had been expressed by various branches of a substantial and popular environmental movement in western industrialized countries since the mid-60s. (At the crest of this movement, Earth Day celebrations attracted 20 million participants in the US alone).[96]

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[91] Barbara Ward and Rene Dubos, *Only One Earth* (Harmondsworth: Penguin, 1972); See also Mc Cormick 95-97.

[92] Maurice F. Strong (1929-) was a Canadian businessman and self-made millionaire. He was director general of the Canadian International Development Agency (earlier Canadian External Aid Office) between 1966-71. He became first executive director of UNEP 1973-75.

[93] Letter from Maurice Strong to R. Dubos, 1971. [Doxiadis Archive]

[94] Adams attributes the term ecodevelopment to Maurice Strong. Adams, *Green Development*, 51.

[95] Robert S. **Mc Namara**'s speech at the UN Conference on the Human Environment, quoted in "All About Stockholm" World Environment Newsletter, August 1972, 39. Mc Namara was a member of the advisory council for the International Institute of Environmental Affairs (IIEA), established in 1971 under the sponsorship of the Aspen Institute for Humanistic Studies, to help prepare for Stockholm, and to oversee the publication of the special report of the UN Conference.

[96] Public attention to Earth's vulnerability was increasing exponentially, and so did media coverage on environmental issues, in the US and many European countries. See for example: *Newsweek*, "The

Criticism of the dominant economic system and pleas for a passage to a post-materialist value system were brought outside the Stockholm conference hall by Non-Governmental Organizations and citizens' groups. McNamara, among other conference delegates, was quick to dismiss the critics of economic development as nostalgic, romantic, and parochial, because their commitment to post-materialist values was premised on the comforts industrialized societies were already providing, and failed to address the forces of world economy and the problems of the global periphery.[97]

By emphasizing the compatibility of development and environmental quality, the Stockholm conference aimed to reassure developing nations that environmental safeguards and restrictions would not impair trade, aid, technology transfer, or their rate of industrial growth.[98] Maurice Strong organized a series of meetings prior to the conference that stressed that development and environment could be combined to optimize ecological and economic systems.[99] In a conscious attempt to expand the definition of "environment," the preparatory

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Ravaged Environment," January 26, 1970. Debates in scientific circles also attracted public interest, taking the debate to diverse directions. I already mentioned Carson's Silent Spring (1962). Paul Ehrlich's *The Population Bomb* six years later also became one of the best-selling environmental books of all time; its Neo-Malthusian rhetoric, emphasized "population explosion" as the major threat for humanity. Paul Ehrlich, *The Population Bomb* (New York: Ballantine Books, 1968). One of the most passionate appeals for no-growth would be made later by the British Economist E.F. Schumacher, who criticized the wastefulness of industrialized societies. E.F. Schumacher, *Small is Beautiful* (London, 1974). Schumacher also rejected the link between population and world hunger and pointed the finger, instead, to the production and consumption of the rich, to call for a change of their economic system. Schumacher, *Population and World Hunger* (London, 1973).

[97] Robert S. Mc Namara, quoted in "All About Stockholm" World Environment Newsletter, August 1972, 39. It was this line of argument that would associate the environmental movement of the west with a "middle class radicalism," See Adams, *Green Development.*

[98] A. Biswas & M. Biswas, "Environment and Sustainable Development in the Third World: A Review of the Past Decade," *Third World Quarterly* 4, (1982): 479-91, quotation on 483. Also McCormick, *Reclaiming Paradise,* 98-100.

[99] Strong emphasized the compatibility of development and environment in his talks with third world governments; Furthermore, the preparatory meetings of a "Panel of Experts on Development and Environment" (Founex, Switzerland, June 1971) and the SCOPE (Scientific Committee on Problems of the Environment) working party on environmental problems in Less Developed Countries (Canberra, Australia, August 1971) aimed to assure third world governments that environmental protection would not go against their interests. Adams, *Green Development*, 37; McCormick, *Reclaiming Paradise*, 90-97.

meetings and the conference itself emphasized malnutrition, disease, and illiteracy as top priorities for environmental action in the third world.[100] The Stockholm conference came at a time when it had become clear that growth-oriented policies did not bring the expected progress during UN's First development decade; the second Development Decade of the 70s was reforming its agenda to call for social development to complement economic growth. Environment became a part of this social agenda for the world's poor.

The irony is this: The Stockholm conference portrayed the environmental ills of industrialized countries as "problems of high technology" associating them with technological causes (pollution from acid rain, pesticide abuse); in "developing societies," on the other hand, environmental problems were attributed to a socio-economic cause (poverty). It was this rationalization that confirmed the urgency of development and promoted its geographical expansion.[101] Barbara Ward later summed up the conference's message to third world countries in this way: "We have made mistakes. Do not learn only of our skills, learn also from our follies."[102] The subtext—"you should continue holding us up as your model"—confirmed the validity of the economic paradigm of the industrialized North. The engineering of global change—social, technological, and economic—appeared all too compatible with the new commitment to ecological stability.

Through its lofty ethic of conciliatory realism, which was supposed to balance third world social needs and first world environmental fears, the Stockholm Conference transplanted the organizing logic of development into environmental debates. The call for "universally recognized fundamental principles," "integrated development planning," and "rational planning" revived the belief in planning as a neutral, universal, and perfectible

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[100] Adams, *Green Development*, 114.

[101] This trend of equating social with environmental problems in the third world would eventually lead to the explicit identification of poverty as an agent of environmental destruction, in the 1986 **Brundtland** Report. Based on this logic, the report downplayed the fact that the global periphery was getting its share of chemical wastelands and poisonous industrial by-products.

[102] Ward, "Exercising Stewardship over Global Resources," *Ekistics* 34, 203 (October 1972): 235-239, quotation on 235.

process.[103] Given the new powerful motive of securing human survival, collective action was naturalized as the only remedy—while the unequal economic and geopolitical realities bound to affect the distribution patterns of food, water and energy remained unquestioned. Human links with nature were conceptualized in terms of sanitized (and market-based) categories of resource availability, recreational values, or health standards. Shortages and inequality were supposed to be resolved through the constant refinement of land distribution, zoning laws, and emission controls. The final guidelines insisted on the authority of bureaucratized international or governmental institutions, and in the process, any alternatives that rejected capitalist priorities or favored economic decentralization fell out of sight.

From Stockholm to Delos: Local Varieties in the Global Order

> Our problem is universal, but the solutions are universal in the long run and to a certain extent only, in practice they are local; they have to grow out of the soil and be watered by the local springs.
>
> -Doxiadis, 1967[104]

Stockholm's emphasis on rational action involving international policy-making was certainly palatable to the ekistics circle. The World Society of Ekistics (WSE) that sprung from the Delos Symposia (its name being inspired by Fuller) participated in the conference as an International Non-Governmental Organization having a consultative status with the UN.[105] The World Society of Ekistics underlined the significance of human settlements to the management of the total environment, and played a key role in pushing for another UN "theme conference" that would focus exclusively on human settlements, and which was planned for 1976. Doxiadis himself did not attend the Stockholm conference due to his failing health, but he was on the panel of expert consultants that reviewed *Only One Earth.* His 1968

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[103] Adams, 38-39; Mc Cormick 104; United Nations, *Yearbook of the United Nations 1972* (New York: Office of Public Information, United Nations, 1972), 319; "United Nations Conference on the Human Environment, Information Letter No 2." 31 July 1971.

[104] Doxiadis, "Water and the Human Environment," 1967, G.3

[105] The **World Society of Ekistics**, was conceived at the 1965 Delos symposion. The Society was inaugurated in 1967, and its members included Margaret Mead (who was the official representative of WSE at the UN Conference), B. Fuller, Jean Gottman, Eiichi Isorura, Sir. Robert Matthew, J. Gorynski, B. Ward, and Panayis Psomopoulos who is currently head of the society).

book, *Ekistics: An Introduction to the Science of Human Settlements* was one of the 38 recommended readings for the conference, which included such books as Paul Ehrlich's *How to be a Survivor* (1971), Rene Dubos's *Reason Awake* (1970), and Rachel Carson's *Silent Spring* (1962).[106] Doxiadis's comments on the draft of *Only One Earth* criticized the distinction between "developed" and "developing" countries for making sweeping categorizations of societies based only on economic criteria. Even though Doxiadis too assumed cultures to be on the same path of progress except at different stages, he opposed the binary distinctions typically made by development professionals, because these compromised the understanding of global problems as a "whole."[107] Doxiadis's comments on the report also criticized efforts to set limits on population, and proposed resource management as a preferable priority. (His schemes for ecumenopolis always opted for accommodating population increase rather than limiting it.) In doing so, Doxiadis took exception to the "doomsday predictions" about the "population problem," which influenced not only the Stockholm conference, but two other influential reports on the environment that came out in 1972—namely, the Club of Rome's *Limits on Growth* and the *Ecologist's* "Blueprint for Survival."[108] Doxiadis's critique foreshadowed the reactions of third world countries and

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[106] "Information Letter No. 2, United Nations Conference on the Human Environment, 31 July 1971

[107] Doxiadis argued that any distinction should make it clear that it refers to only economic and technological capacities, and not social and cultural criteria. (See also Doxiadis, *Ecology and Ekistics*, 50-51). Dubos' and Ward's final version of the report took Doxiadis's comments into account to the extent that it clarified that the term "developing countries" did not reflect a cultural judgment. Ironically, the clarification compounded the report's evolutionary view of development: "When we speak of developing countries, the phrase has nothing to do with levels of culture or history or contribution to mankind's heritage of civilization. The phrase in the main means simply that a society has not yet crossed the threshold to the modern, high-technology society with the advantages and evils this passage entails." *Only One Earth*, 146.

[108] These polemical reports emphasized environmental degradation as a combined effect of population growth and overexploitation of resources. *The Limits to Growth* was produced by the "Club or Rome," a group of scientists, technocrats and politicians that came together since 1970 to study the interrelationships of the socioeconomic and natural components of "the global system" using computer modeling. The report prophesied imminent global catastrophe unless current trends were reversed. Donella Meadows, et. al., *The Limits to Growth* (New York, Basic Books, 1972.) The "Blueprint for Survival" issue of the *Ecologist*, was another polemical report that rung doomsday bells the same year as the Stockholm Conference. The report argued that indefinite growth could not be supported by finite resources, and called for radical measures that will lead to a stable society. "Blueprint for Survival," *The Ecologist 2,1* (1972): 1-43.

activist organizations, which associated population control policies with a new form of imperialism.

Despite his reservations, Doxiadis saw the Stockholm conference as a milestone in the history of ekistics, because it affirmed the triangle human settlements-development-and-environment. Ward echoed this view when she referred to the Stockholm conference as an important step in making the "Delian dream" a reality.[109] Vindicated by the UN's decision to tackle the problems of human settlements in their own right, Doxiadis prepared a series of new books that would be used as support material for the UN Conference on Human Settlements, which would take place in Vancouver in 1976.

In July 1972, soon after Stockholm, Doxiadis hosted the Tenth Delos Symposion that included some of the Stockholm participants—Ward, Mead, Dubos, and Fuller among others. Delos Ten produced a new declaration that reiterated ekistics' commitment to the management of the environment.[110] In response to the protests that surrounded the Stockholm events, Delos Ten gave its own spin to the UN Conference by highlighting the significance of social and cultural particularity. A newcomer to Delos Ten was Rene **Dubos**, who argued that Stockholm's most significant lesson was that "the concepts of ecology brought there by the rich nations were unsuited for the world problems of environment."[111] Dubos' recommendation to his fellow "Delians" was framed as follows:

> The paradox inherent in the dual nature of man—namely the biological uniformity of mankind and the social diversity of human life—was at the heart of the questions discussed at the United Nations Conference on the Human Environment. A global approach is essential for dealing with the ecological and economic problems of the spaceship earth, which affect all of us, but each human settlement has problems of its own which require local solutions.[112]

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[109] Ward, "Exercising Stewardship," *Ekistics* (1972), 235.

[110] "Declaration of Delos Ten" in *Ekistics* 34, 203 (October 1972): 230-233. The Declaration resounded many Stockholm themes.

[111] Dubos, quoted in "Exercising stewardship over global resources," *Ekistics* 34, 203 (October 1972), 235.

[112] Dubos, "Man and Nature," *Ekistics* 34 203 (October 1972), 236-7.

Once human unity and diversity were conceived through these categories, it seemed reasonable that, if "social diversity " was pulling us apart, "biological uniformity" was bringing us together, because, after all, we were all in the same "spaceship," sharing the same life supports, and heading to the same destination (presumably a natural drive for progress and development?). To achieve an ecological equilibrium that accounted for human diversity, Dubos concluded, it was essential to "create local ecologies which are compatible with each other, constituting sub-systems within the global ecosystem."[113]

Doxiadis had always urged that the grand proposals for ecumenopolis and ecumenokepos be calibrated according to cultural particularity, to prevent homogenizing impositions. Dubos's recommendations reinforced ekistics' long-standing position, because they confirmed the interdependence of the local and the global—the micro and the macro, the house and the city, the megalopolis and ecumenopolis—not simply as a design theory but as an ecological truth. In line with this belief, the overall scheme for the globe's functional organization had to account for varying political systems, ownership patterns, and the like. This is why Doxiadis qualified his final proposal for ecumenopolis and ecumenokepos, by arguing that "in every continent, nation and region, different percentages of land will be appropriate for the various zones and land uses, depending on geography, existing development, condition and value of natural environment, potential for growth, productivity and so on."[114]

The rational assessment of local conditions and techniques also promised to limit dependence on capital-intensive technological fixes. Much like local construction methods (Chapter II), local techniques in resource management were to be analyzed in terms of their scientific validity and economic efficiency. In discussing methods for water conservation in

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[113] Dubos, quoted in "Exercising stewardship over global resources," 236. Incidentally, the dictum "think globally, act locally" is attributed to Rene Dubos.

[114] *Ecology and Ekistics*, 27.

1967, Doxiadis criticized large-scale plans and policies that bulldozed over diverse local and more appropriate approaches:

> Considering what is being done in the whole world, we can state that much more talent and financial resources are geared to such projects as dams and desalination plants than to the small tanks, wells and irrigation systems. Much more is spent for actual construction than for organization and management of an effort for conservation and more efficient use of water.[115]

Doxiadis's pitch for localized approaches to environmental management was governed by the assumption that the efficacy and appropriateness of each solution could ultimately be grasped by the sober objectivity of ekistics' scientific analysis. The heterogeneity of the human subject increased the data required to map basic "human needs" and "environmental requirements," rather than challenge these categories altogether. Local climate, material availability, education levels and the overall "organization of the population" were variables that would calibrate the quantification of the "average needs" for the "average person" in a city of a given density.[116] Diversity was itself conceptualized in terms of the sanitized categories of the anthropocosmos model—"population scale," "economic desirability," technological feasibility," "cultural feasibility" and the like—that were supposed to neatly circumscribe "the total ecological system." Ekistics believed that inequality, exclusion, and exploitation in their various forms, could somehow be planned away, as long as there was enough flexibility built into the managerial system. As Delos Ten concluded, the challenging requirements of safety, variation, cultural style, access to nature, individual age, and health would be met through "continuous assessment, error correcting, responsive feedback, and evaluation."[117]

For all his commitment to a peaceful and egalitarian future, Doxiadis emphasized the urgency for a comprehensive, "coordinated system of a universal city," rather than question its teleological logic. By presupposing the commensurability of the local to the global, ekistics

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[115] Doxiadis, "Water and human Environment," p. G.1-G.2. Doxiadis's conclusion was that ekistics should establish a "balance" between micro-scale methods and larger policies.

[116] Doxiadis, "Water and Human Environment."

[117] "Declaration of Delos Ten" in *Ekistics* 34, 203 (October 1972): 230-233.

assumed that voices of diversity can co-exist neatly with the overall of the managerial scheme, to achieve the earth's "inner balance and peace."[118] Doxiadis and the likes of Mead, Fuller, and Ward perceived ethnic, racial and gender struggles through the prism of a cosmopolitan idealism that rendered politics obsolete. By emphasizing the big picture, the new environmental cause, as it was formulated by ekistics, concealed the economic and political priorities it was promoting.[119] The limits of human exploitation might very well have become increasingly stricter in Doxiadis's progressively elaborate land redistribution schemes, but they were still based on the dream of a human society testing nature to its limits. In the meantime, competitive industrialism and the ideology of production, which were at the root of the environmental degradation that both Stockholm and Delos lamented, remained intact. Also intact was the primacy of the expert as the key figure in the synchronization of local and global solutions.

Only One Home

> All these three areas [the natural, the agricultural, and the urban areas of the earth] taken together will form the universal city—its home its backyard and its natural garden.
>
> -Doxiadis, 1967[120]

> Ecology, economics, ecolibrium, and ekistics all come from the same Greek root word for 'home.' Implicit in the derivation is the notion of integrating man's nest-building activities—his settlements—with the natural environment.
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> -"Editorial," *Ekistics*, July 1972[121]

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[118] The ultimate goal of ekistics' proposals is vividly described in this quote: "In the fourth act of our long history [in the future] we will have built the great, universal city and garden of man with water running in its arteries bringing life and guaranteeing its inner balance and peace." Doxiadis, Water in the human environment H3.

[119] Early in 1972, when the US Secretary of State's Advisory committee on the UN Conference solicited Doxiadis input for developing the US positions on Stockholm-related topics, Doxiadis proposed: "I ... strongly recommend that when we look after the natural environment as we certainly should, we start with a clear statement laying the emphasis on the whole and only then elaborating on the parts." The examination of "parts" had to always follow an understanding of the "whole."

[120] Since his 1967 proposal for the division of earth's areas, Doxiadis had described ecumenopolis as a "home" with a "backyard" (cultivation areas on earth) and a "garden" (natural areas).Doxiadis, "Water for Human Environment," p. F4.

[121] "Ekistics 200" *Ekistics* 34, 200 (July 1972):2-3, quotation on 2.

Conceptualized as a holistic entity, the planet was shrinking. It was Ward and Dubos who called for "the care and maintenance of a small planet." In Stockholm, the post-war image of a unified "world market" and "one world" gave way to an image of the globe as a single home. Even more powerful than the metaphor of the earth as a spaceship, the warm and familiar image of the earth as humanity's home underscored the shared environmental fate. Dubos repeated this idea in the Delos Conference.

> As we enter the global phase of social evolution, it becomes obvious that each one of us has two countries—his own and the planet earth. We cannot feel at home on earth if we do not continue to love and cultivate our own garden. And conversely, we can hardly feel comfortable in our garden if we do not care for the planet earth as our collective home.[122]

The ideas of smallness, oneness, danger and resilience were all wrapped into the linguistic sign of the home. Its therapeutic innocence promised to transcend the traumas of the past to promote mutual self-interest; and its unquestionable preciousness made "loyalty" to the planet a moral obligation. The home could avert imminent threats as long as the universal family remained united. The chairman of the US Delegation to Stockholm, Russel E. Train, called the economist and the ecologist to jointly tackle the problems of the "house of man."[123] In the meantime, *Ekistics* reminded its readers that like ecology and economics, ekistics comes from the same Greek root word for 'home.'"[124] If ecology (the knowledge of the home) and economics (the management of the home) had to re-conceptualize their tasks to manage the global household, so should ekistics. [125] Ekistics' centrality to environmental debates was rooted in its etymology. QED!

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[122] Rene Dubos, "Man and Nature," Speech at Delos Ten, 1972. Reprinted in *Ekistics* 34, 203, October 1972.

[123] Russel E. Train, Speech in Stockholm, June 6 1972. Quoted in quoted in "All About Stockholm" *World Environment Newsletter*, August 1972, 40.

[124] "Ekistics 200" *Ekistics* 34, 200 (July 1972): 2-3, quotation on 2.

[125] The term, ecology, coined by the German zoologist Ernst Haechel in 1873, had its etymological sources in the Greek Oikos (house) and logos (knowledge). "Economics" comes from oikos and nomos (law)

If, for Dubos and Train, the displacement of the home into the globe evoked the preciousness and finiteness of the earth, the symbolism was even greater for Doxiadis. What better metaphor to capture ekistics' aspiration to construct a post-political global society that eradicated military, political, and social conflict in the name of a better future! Doxiadis's neologism, "ecumenopolis," already presaged this interpretive leap, by conflating the home (oikos) with the globe (oicumene); and, "ecumenokepos" (global garden) transported 'home and garden' to the global dimension.

As a spatial metaphor, the globe as home reinforced the validity of ekistics—the science (or "the art and science") of planning and designing the home.[126] As it blurred the boundaries between ekistics, ecology, and economics, the home metaphor allowed the conflation of physical design/planning with household management. In one of the last proclamations in his career, Doxiadis described the management of natural resources by referring to the "design [of] goals for nature."[127] The metamorphosis of the architect/planner into environmental manager—for which Doxiadis had fought for three decades—was finally taking hold.

In other words, the concept of a shared planetary "home," like the idea of earth's balance, served a double purpose: to underline the moral imperative to protect the environment, and to rejuvenate the need for global management. The irony is that, as Wigley points out, the metaphor of the planetary "home" exposes, rather than conceals, the shortcomings of efforts to reconcile socio-cultural discontinuities into a contrived unity. Far from transcending issues of discrimination, conflict and differential power, domestic space has its own intense politics—of control, privilege and exclusion—already well illustrated in the historiography of modern architecture.[128] Even if Stockholm delegates aspired to an image

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[126] This interpretation draws on Mark Wigley's argument that the perception of the globe as a home had a particular significance to architecture, as it led to the conceptualization of the globe as a colossal domestic space, and introduced new alignments between ecology and architecture. Wigley, "Recyclying Recycling," in Amerigo Marras, ed., *Eco-Tech: Architecture of the In-Between* (New York: Princeton Architectural Press, 1999), 39-49.

[127] Doxiadis, "Action for Human Settlements," 123.

[128] Wigley, "Recycling Recycling."

of a happy planetary family, the severe protests of the Chinese delegation inside the hall; the protests of non-governmental organizations outside; the conspicuous absence of the USSR and eastern European countries; and overall, the bitter debates about colonialism, Vietnam, whaling and nuclear weapons testing: all these protests were reminders of the struggles within the home.[129] They exposed the pitfalls of the technocratic rationale of development that was nonetheless being transplanted into the new environmental cause.

As the UN reinforced the moralism of management (and the 1973-74 oil crisis confirmed resource fears), ekistics became more entangled with the UN's global cause. The 1976 UN Conference on Settlements, later renamed as Habitat, was in many ways the long-awaited vindication of ekistics. Even though the conference did not take place until a year after his death, Doxiadis had a strong presence with the four "red books" he prepared as background material for the conference.[130] Seventy members from the World Society of Ekistics participated at the conference, emphasizing the pioneering contributions of ekistics in both the domains of human settlements and environment.[131] Fuller, the president of the World Society of Ekistics, presented Doxiadis's red books at the plenary session of the Habitat conference with an emotional speech, after which the Secretary General referred to Doxiadis

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[129] Non-governmental organizations exposed, among other things, the "ecocidal" activities of the US is Asia; China capitalized on "the plunder, aggression, and war by the colonialists, imperialists, and neocolonialists"; USSR and eastern European countries boycotted the event to protest the fact that the German democratic republic was not invited. For the positions of non-governmental groups that opposed government policies on environment see Mary Jean Haley, ed., *Open Options: A Guide to Stockholm's Alternative Environmental Conferences* (Stockholm: 29 May 1972),3. China's reactions were reported in *Stockholm Conference Eco*, 14, June 1972, 1. For more details on the reaction of the Chinese delegation see McCormick, 99-100.

[130] These four books were: Doxiadis, *Anthropopolis: City for Human Development* (New York: W.W. Norton, 1975); Doxiadis and J.G. Papaioannou, *Ecumenopolis: The Inevitable City of the Future Development* (New York: W.W. Norton, 1976); Doxiadis, *Building Entopia (*New York: W.W. Norton, 1976); and Doxiadis, *Action For Human Settlements* (New York: W.W. Norton, 1976).

[131] Gwen Bell and J. Tyrwhitt prepared a package of material outlining the connection between ekistics and the UN conference in Vancouver. Margaret Mead, "Habitat: Building a Global Constituency" *Habitat International*, Vol. 3, No ¾, pp. 283-286. Mead's article, which reflected on the impact of Habitat, emphasized the pioneering role Doxiadis played to demand a UN body in its own right to deal with the crisis of human settlements.

as "the father of human settlements," and suggested that the conference be dedicated to him.[132]

"Human Unsettlements"

Starting with the Delos conferences, the last decade of Doxiadis's practice was marked by the globalization of ekistics' discourse, as it attracted the attention of even more global visionaries from Ward to Dubos, and architectural thinkers from Tange to the Fuller, all of whom contemplated their affinities with Doxiadis' thought and used *Ekistics* as a major forum for advancing their ideas. Throughout the sixties into the early seventies schools of architecture were teaching ekistics; libraries were circulating not only the journal but even DA Newsletters and Reports; highly regarded publishers were printing Doxiadis's books; and more importantly to Doxiadis, the UN recognized ekistics, and appropriated his own terminology ("human settlements")—fulfilling at least some of his wild dreams. (Figure 7) In the meantime, ekistics was ascending to new levels of abstraction and managerial generalization. Doxiadis tried to hold onto ekistics' specificity by maintaining the categories of physical design and planning—insisting on land percentages, settlement patterns, and density ratios to explain his grand proposals—only to make his ideas sound increasingly out of date. DA's projects in Greece tried to contemplate a new aesthetic, also, perhaps, to reconceptualize ekistics' specificity; but these experiments did not go far enough.

The 1976 conference on Human Settlements that was the peak of ekistics' international success also signaled its end. Doxiadis had already passed away the year before,

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[132] "Transcript of Bucky Fuller at Habitat." [Doxiadis Archive] Also, Psomopoulos interview, June 2000.

[133] Fuller argued that humanity was moving away from "tied down" agricultural, mining or sea port communities, to a world society. Fuller took this argument further to argue that the conception of human settlements as nationalistically bound, and immobility was obsolete. This integrated world society was reflected in the term human unsettlements. Fuller, "Accommodating Human Unsettlement" Fuller's Report to the Habitat Conference, 1976; Reprinted in *Town Planning Review* 49 (January 1978): 51-60.

[134] Dubos' skepticism was reflected in his overall comments at Delos X, in 1972. "Exercising stewardship over global resources," *Ekistics* 34 203 (October 1972).

and the Delos conferences came to a close. The World Society of Ekistics maintained the interdisciplinary network, and the journal *Ekistics* still exists today, with members of the old guard on its advisory board (Panayis Psomopoulos, Gwen Bell, Richard Meier). Its circulation is limited (many libraries, including MIT's, discontinued their subscription) and the ecumenopolis-like maps that stubbornly appear in its pages look like relics of a gone era. Yet as environment-development discourses and institutions proliferate, to shape international policies, and also to permeate the domain of architecture once again in new forms, the now obscure journal *Ekistics* is a reminder that, such paths are well traveled.

CONCLUSION

The Status of Environmentalism in the Historiography of Modern Architecture

Ekistics may have largely escaped the critical scrutiny of current architectural scholarship, but the concepts it contemplated keep appearing in new reconfigurations. A "city of the future" that is "ecologically clean" was a driving theme at the 1992 UN Conference on Environment and Development in Rio; interestingly, it was named "ecopolis."[1] The second United Nations conference on "human settlements" (the sequel to the 1976 Habitat conference) took place only a few years ago, in 1996, to contemplate once again the twin imperatives of environment and development from the perspectives of architecture and planning. "Sustainable community development" is a favorite buzzword in architectural circles, seen as a new means of reasserting the profession's larger relevance. More generally, "sustainability" is just about the new big imperative of architectural pedagogy.[2]

To examine Doxiadis's enterprise is to consider the "question" of environment-development from history's critical angle. To reflect on the presumptions of ekistics' management and the politics of its optimism, is to contemplate the entanglement of environmentalism with modernization and development discourses when the belief structure of globalization was taking hold; not to look for pseudo-historical cycles, but to increase the vigilance of theoretical reflection on architectural discourse and broader cultural transformations.

Ekistics was a link between architectural modernism and international development. In its effort to reform the profession, it transported architecture to a domain

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[1] United Nations Conference on Environment and Development, International Academy of Architecture Symposium.

[2] For a critical reflection on the increasing role of sustainability in architectural pedagogy see, Jarzombek, "Molecules, Money and Design: The Question of Sustainability's Role in Architectural Academe," *Thresholds* 18 (MIT, 1999): 32-38.

of development managerialism—while at the same time, it situated its managerial ethic within a nexus of concurrent architectural themes that were also trying to surpass the deficiencies of early modernism from different directions. Architectural experiments of the time—that resounded themes of contextualism, regionalism, and anti-architecture—were characterized by an "anxiety," as Goldhagen and Legault called it, and often, also, an ambivalence, in that they negotiate among competing ideals.[3] The modern was being doubted while modernization was spreading (in the name of new causes of equality, democratization, and anti-communism). Architects were becoming weary of earlier rationalism, while they contemplated newly discovered scientific facts. They became mindful of the identities of specific places, while they were drawn to concepts of planetary oneness. They questioned the elitism of the profession, as they held onto the ambition to initiate widespread social reform.

Ekistics negotiated these themes from the perspective of development and modernization theory, which created multiple blind spots. Its challenge to the profession; its rejection of the signature-designer ethos; its emphasis on social reform and human welfare; its aspiration to transnational equality: all these were governed by an apolitical ethos and managerial biases that turned design into statistical analyses, resource management, and centralized maintenance of balances. Yet the diverse input of the ekistics circle (from Fathy's emphasis on the autonomy of the profession, to Fuller's disregard for the profession, and from Pikionis's emphasis on site-specificity to Tyrwhitt's notion of an interconnected environment) complicated ekistics position vis-à-vis the development discourse all over again. However determined Doxiadis was to align architecture with development, this alignment was ambivalent. Doxiadis Associates approximated United Nations policies, but did not fall into their logic. The Athens Technological Organization sought scientific authority in its research, but remained wary of rationalist reductionism. Doxiadis refrained from questioning euro-american socio-economic ideals, but he criticized the eurocentrism of mainstream modernism.

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[3] Sarah Williams Goldhagen and Réjean Legault, eds., *Anxious Modernisms* (Cambridge: The MIT Press, 2000.)

It was through this combination of developmentalist optimism with socio-architectural concerns that ekistics formed its conception of the environment. Initially, environment was a resource for ekistics' global tasks to serve the masses, to respond to local cultures, to temper the impact of western technologies, and to respond to the totality of human needs (e.g., projects for Iraq and Pakistan). During these early stages of ekistics' operation, the environment was already an object to be analyzed, differentiated, but ultimately managed and protected on a global scale, in the sense that its management and protection would help reform the global society (and the architectural profession). Through the project of ecumenopolis, ekistics' conception of the environment as a global, complex, and ultimately manageable entity was theorized in a new way, as ekistics began to adopt new notions of global interconnectedness coming from ecological thought, mediated, sometimes, by other global visionaries in the group, of the likes of Fuller, McLuhan, Ward, and Dubos. In the process of reconceptualizing its mission, ekistics reframed the cause of architecture (or, rather, the cause of the more comprehensive, and egalitarian "human settlements"). The architect as an expert-guardian of the environment was important not only to create a better society, but also to insure its survival. Having constructed this even more urgent mission, ekistics reformed (rather than abandoned) its goal to promote international development, and augmented its managerial outlook towards the environment.

Ekistics' ambition to shape, order and protect a total and global environment was characterized by many paradoxes. Even if ekistics aspired to promote social equality, its interventions often nurtured existing hierarchies. Similarly, its aspiration to promote transnational equality overlooked the geopolitical imbalances among its beneficiaries. And even if ekistics emphasized the importance of local particularity, this was often lost in the execution, overshadowed by its fixation on grand ordering. (In fact, the notion of local particularity became too general to be meaningful by the time Doxiadis prepared the proposals for ecumenokepos.) These contradictions notwithstanding, ekistics' planetary ambitions centered on an attempt to combine the best of two worlds: The promotion of socio-economic development and the guarding of the environment. What does this have to do with the broader history of postwar modernism? A great deal; because the postwar

architectural discourse was characterized by similar kinds of ambivalent negotiations in search of the best of different worlds. To exclude environment-development politics from the history of postwar architectural concerns is a double oversight: it ignores the impact of global environmental consciousness on the rethinking of modernism; and it misses a big part of the story on how this rethinking was influenced by modern experiences in the West's geopolitical margins.

In this dissertation, I locate the beginnings of environmentalist discourses not in the counterculture of the 60s in the West, but in the earlier modernization and development discourses of the 50s and 60s that were directed at the third world. In the process, I propose that the categories of "third world" development and "western" environmentalism are intricately intertwined and deserve rigorous historical reflection. As I have argued, to scrutinize environment-development politics in ekistics' projects for Baghdad, Islamabad, Homs and Hama, for example, is to go beyond the question of how the modernist ethic was transported to the West's margins, and to recognize, instead, that these urban contexts became laboratories for the reconceptualization of modernism and environmentalism altogether. The "margins" offered a uniquely favorable context for contemplating the scientific and technocratic claims of modernism; for questioning the postwar developmentalist ethic; and for shaping a new environmental awareness. This is why I propose that environment-development politics is a great new opportunity through which to rethink, again and again, east-west categories, and to create a new context of theorization in the historiography of modern architecture.

The history of ekistics is significant not only because it complicates the historiography of modern architecture, but also because it enlarges the temporal dimension within which today's popular topics of environmentalism, sustainability, and globalization can be analyzed. Ekistics expressed a heightened environmental awareness while it also pondered the ties between environmentalism and capitalist development, not necessarily to promote capitalism, but to recognize that environmental strategies are intricately tied with the transnational flows of money. By now, the ties between environment and the

market economy are increasingly emphasized, by international environmental policies and large business corporations that advocate sustainable development with various degrees of sophistication.[4] (One only needs to reflect on the various types of "marriages" between the ethos of development and the global cause for environmental protection—in Rio conferences, Kyoto treaties, and public or private eco-development projects.) In this context, the history of ekistics can have a new relevance. First, because ekistics' search for smarter development and growth is a refreshing critique against biocentric polemics that frame their cause in terms of a rigid notion of "nature" (with supposedly pristine qualities contaminated by human action) and subordinate the right of political social determination to the right of environmental protection.[5] To the extent that ekistics contemplated moral and quasi-spiritual arguments, it did so, not really to advance anti-science or anti-rationalist creeds, but to confront the larger, messy complexities that shape people's understanding of nature and the environment. In this sense, ekistics, with all is nuances, ambiguities, and contradictions, is ultimately, a reminder that social issues should not be subordinated to a vision of a planetary ecological crisis.

Furthermore: Ekistics also stands in opposition to corporate versions of sustainable development that rationalize the world's global resources in terms of economistic criteria. Despite the pitfalls of its technocratic postures of neutrality, ekistics' sharp focus on physical design actively contemplated the tensions between a global developmentalism and local cultures, in ways that resist the currently dominant view of globalization as a global monoculture of communication and information networks. Of course, the question whether the late 20th century's environmental crisis (epitomized by ozone depletion and global warming) can in fact be sufficiently addressed by "sustainable development," or, whether the problem of environmental degradation demands a radical restructuring of the fundamental ethos of industrial societies, remains an open question.

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[4] David Harvey, "What is Green and Makes the Environment Go Round?" in Fredric Jameson and Masao Miyoshi, eds., *The Cultures of Globalization* (Durham and London: Duke UP, 1998), 327-355.

[5] Ibid. For a critical analysis of such extreme views of nature see also Leo Marx's critique of deep ecology, in "Environmental Degradation and the Ambiguous Social Role of Science and Technology," *Journal of the History of Biology*, 25, 3 (Fall 1992): 449-468.

Precisely for this reason, historical perspectives such as the one this dissertation hopes to provide, are crucial to enlarging the perspective on current trends in sustainability.

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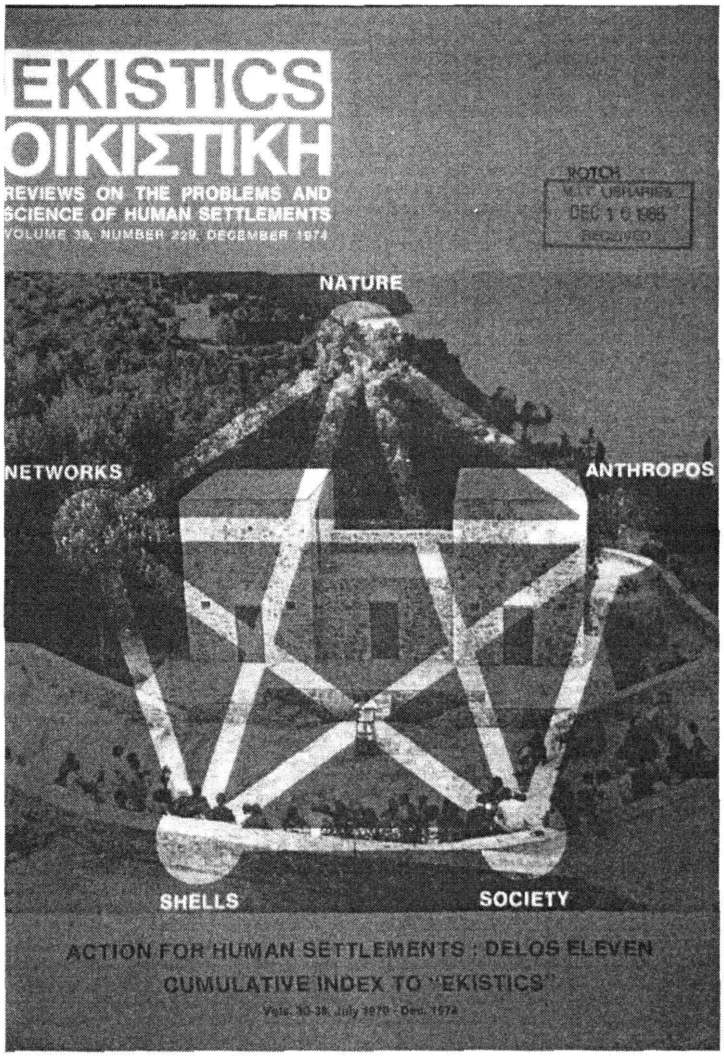


Figure I.1. *Ekistics* journal cover showing the "five ekistic elements." *Ekistics* 38, 229, December 1974.

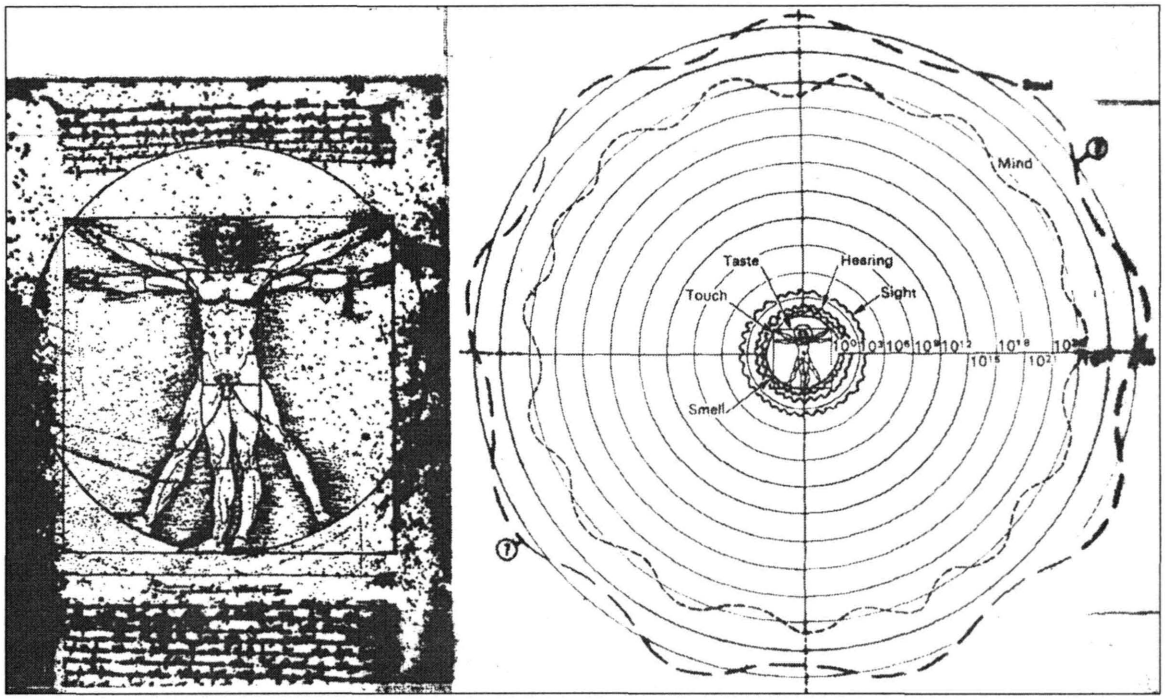


Figure I-2. Diagram of the "Total System of human bubbles, as defined by Total Man." Doxiadis, *Ekistics: An Introduction to the Science of Human Settlements* (New York: Oxford University Press, 1968): 300, 302.

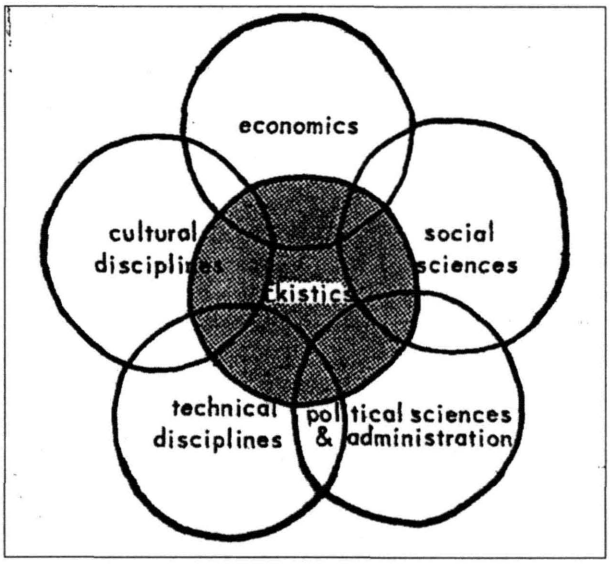


Figure I.3. "Ekistics and the sciences contributing to it." Doxiadis, *Ekistics: An Introduction to the Science of Human Settlements* (New York: Oxford University Press, 1968).

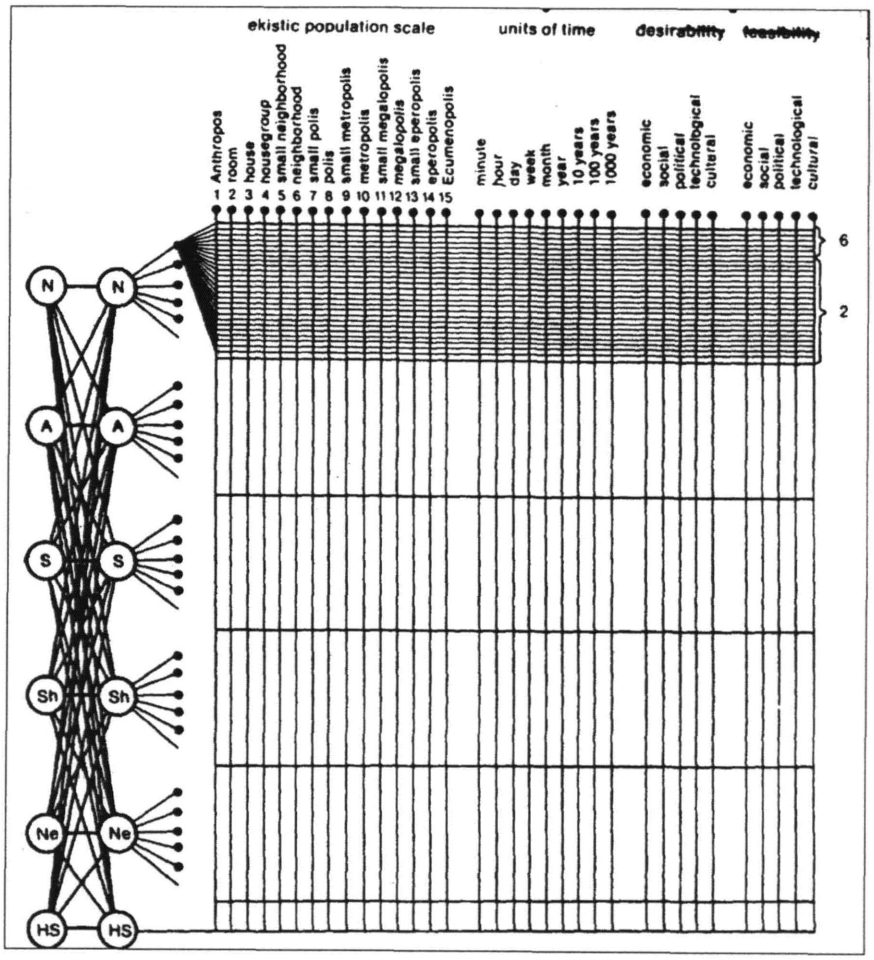


Figure I.4. The Antropocosmos Model. Doxiadis, *Ecology and Ekistics* (Boulder, Colorado: Westview Press, 1977): 7.

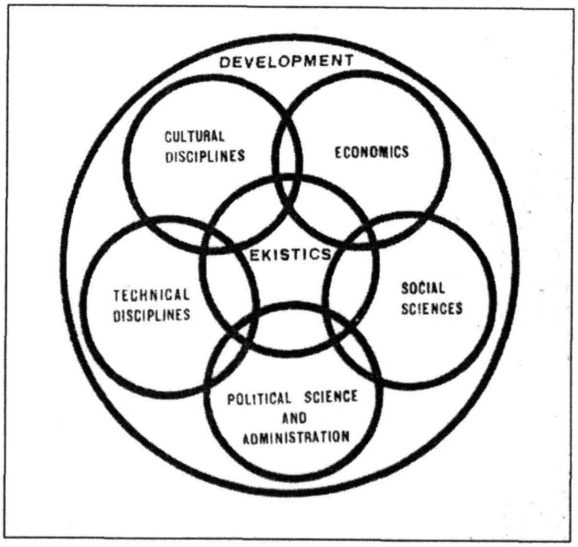


Figure I.5. "Development." Doxiadis Associates, *Doxiadis Associates: Consultants on Development and Ekistics* (Athens, 1965): 5.

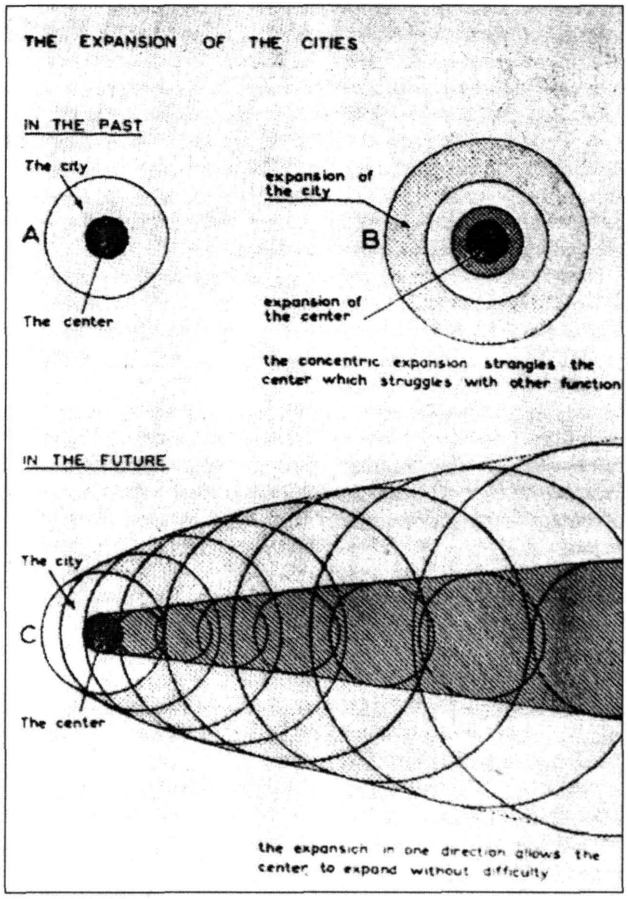


Figure II.1. The static city centers of the past and present, compared with the Dynapolis. Doxiadis, "Dynapolis, The City of the Future," Lecture at the Oslo Arkitektforening, Oslo, March 3rd, 1960, Document R-GA 185 (Athens: Doxiadis Associates), 37.

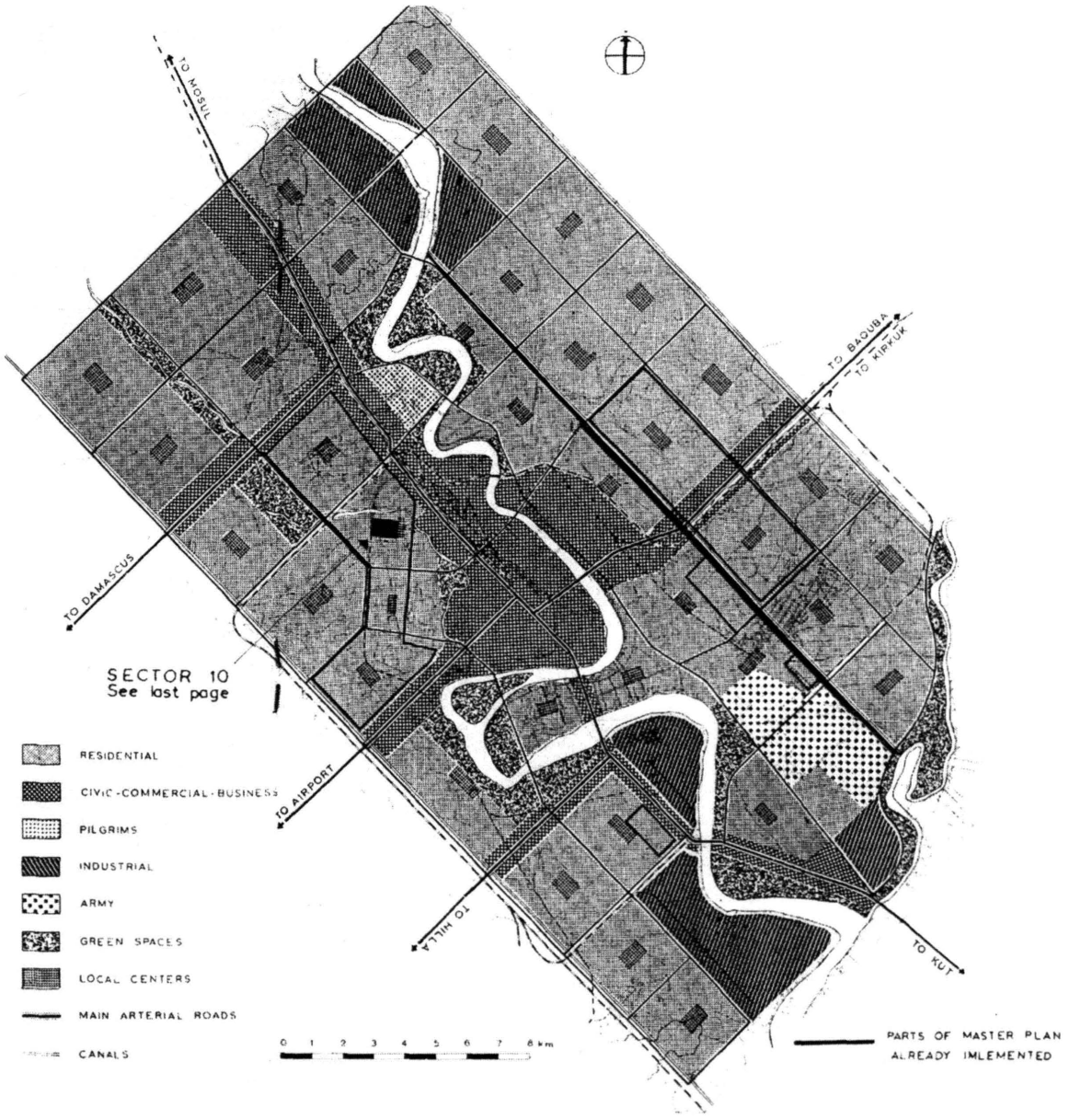


Figure II.2. Baghdad Master Plan, showing functional distribution. Doxiadis Associates, "The Master Plan of Baghdad," *DA Monthly Bulletin* 9, (January 1960), 4-5.

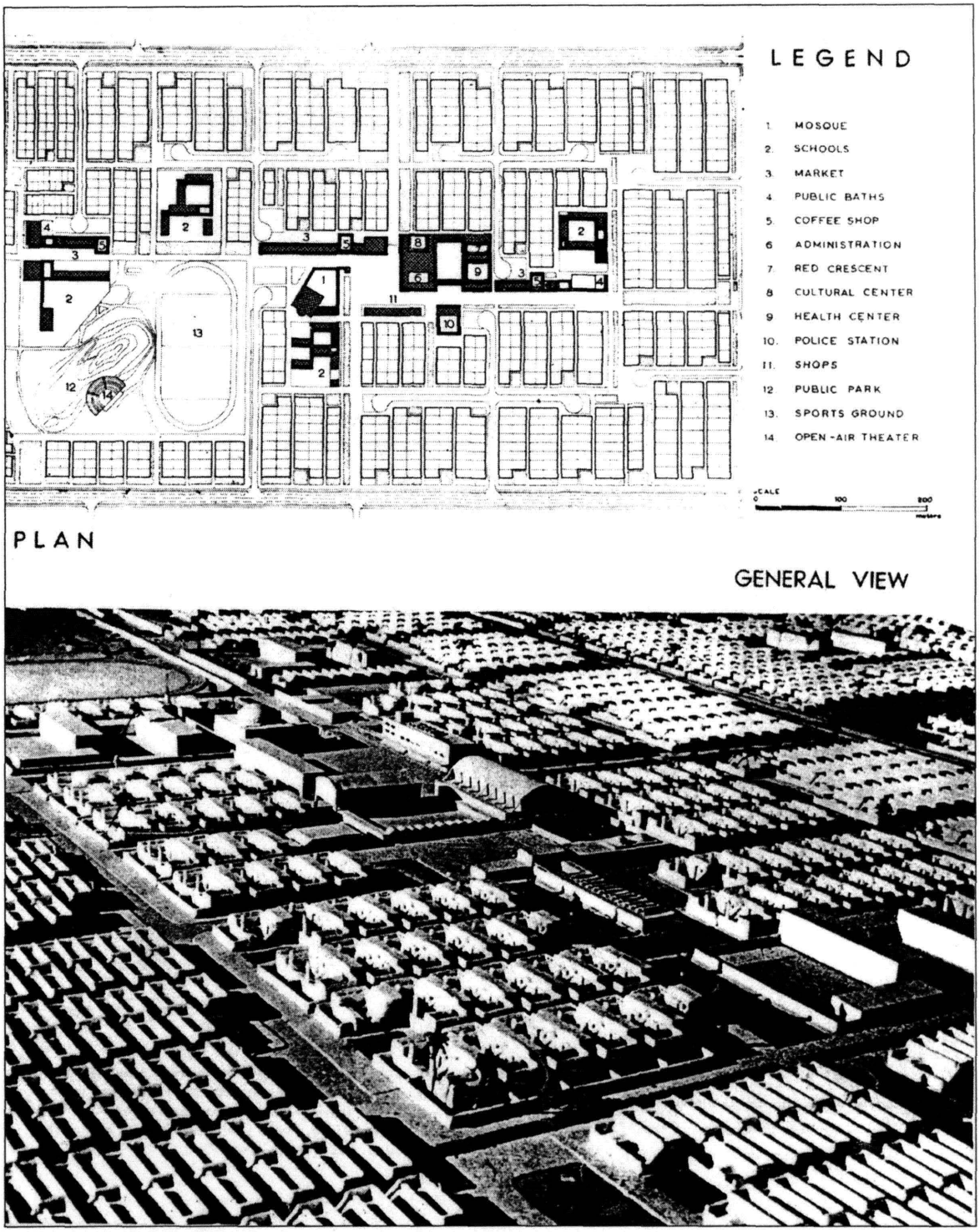


Figure II.3. Sector 10, Western Baghdad Development (for this sector's location on the Master Plan see figure on previous page.) This was one of DA's first experimental housing projects in Iraq. It comprised 1150 houses and all the facilities and requisite public buildings. With respect to the master plan of the city, it constituted a "self-contained" residential "community class IV." It was formed by a synthesis of 3 communities class III, which were in turn formed by communities class II and Class I. Top center: Notice the Market with the parabolic vault. Doxiadis Associates, "The Master Plan of Baghdad," *DA Monthly Bulletin* 9, (January 1960), 8.

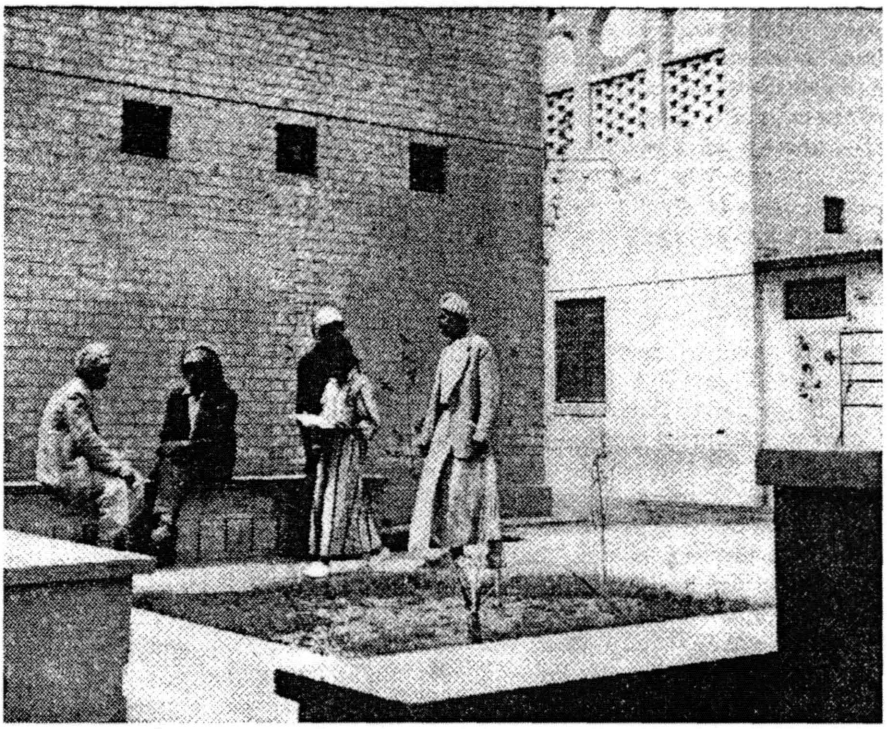


Figure II.4. "Gossip Square" in Western Baghdad. Such a square was provided for each group of ten to fifteen houses. *The New York Times*, Wednesday May 14, 1958.

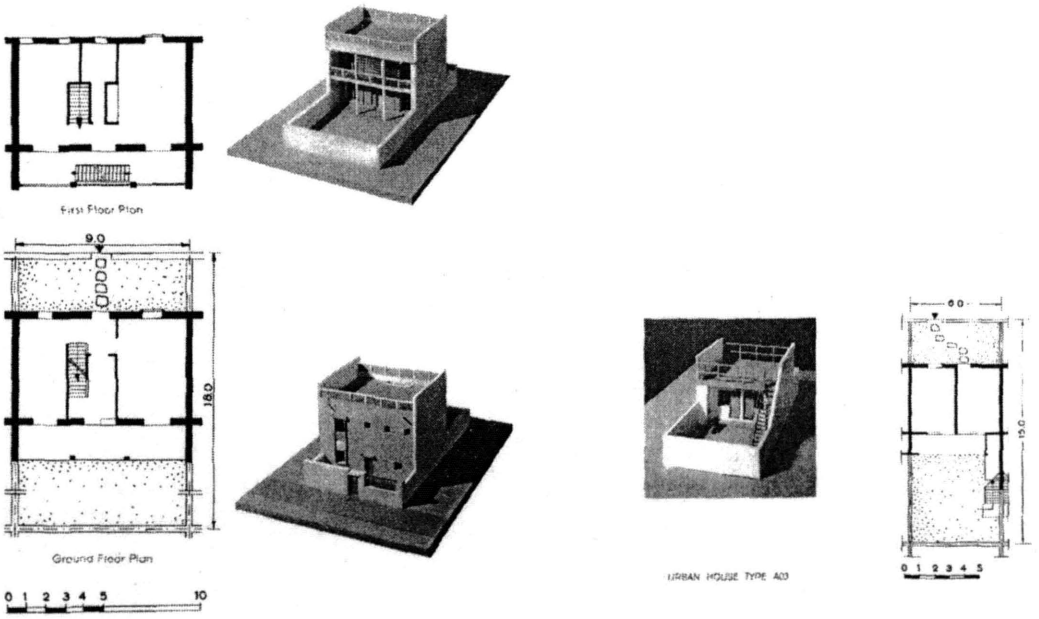


Figure II.5. Urban House Types for different income groups, with enclosed space on roofs and yards. DA, *The Housing Program of Iraq*, 1959.

Figure II.6. Low-cost houses in Western Baghdad; part of the experimental scheme in Sector 13. A total of 120 houses were built by eight contractors, and each one employed their own building technique. *DA Review* 7:76 (April 1971): 5.

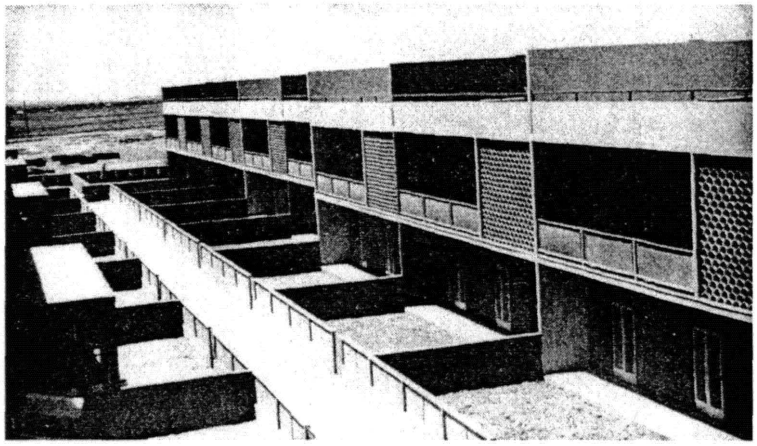


Figure II.7. Higher Income Houses in Western Baghdad. Doxiadis Associates, "Housing and Community Development in Iraq," *Ekistics* 6:36 (October 1958): 109.

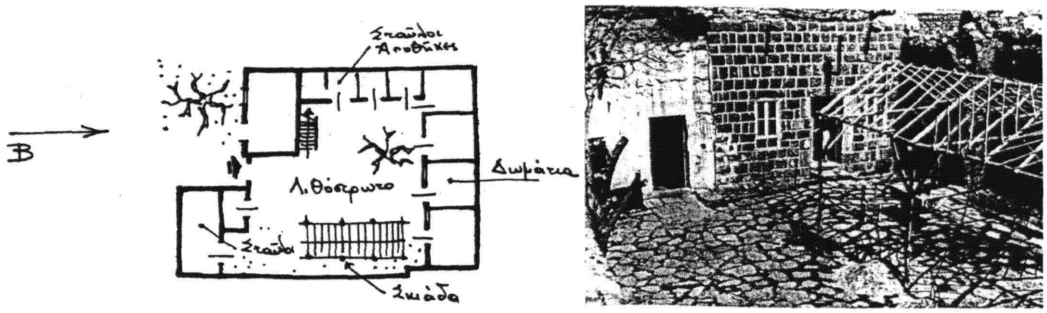


Figure II.8. Doxiadis's sketch plan and photos of a village house. Under Diary section: "On the road from Damascus to the south, towards Hauran. Doxiadis, Syria Diaries Volume 1, 93 and 94

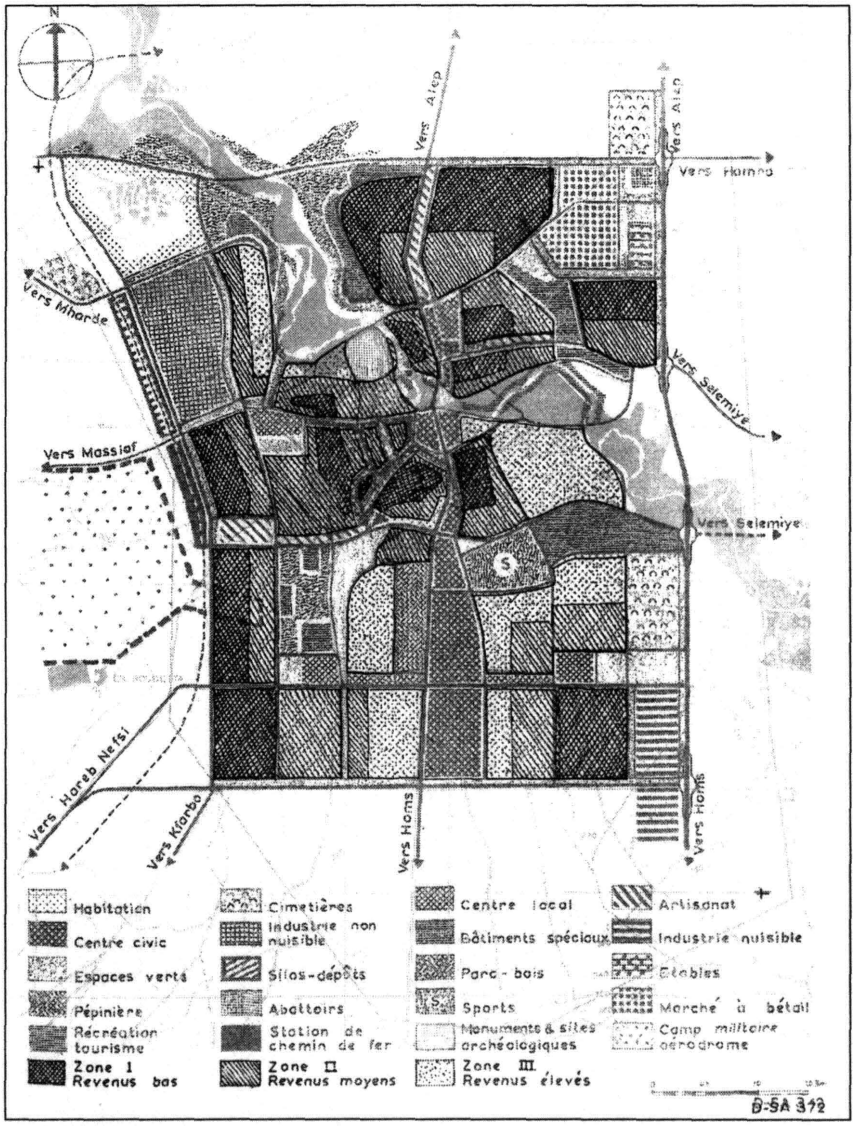


Figure II.9. Plan for Hama, showing the distribution of income groups. Lower income groups are at the outskirts of the planned city. Upper income houses are near the civic center and green areas. Doxiadis Associates, Rapport Final sur le Plan d' Emenagement et Programme de Developpement de la Ville de Hama," Document Dox-SA 7, 24 April 1961, 285.]

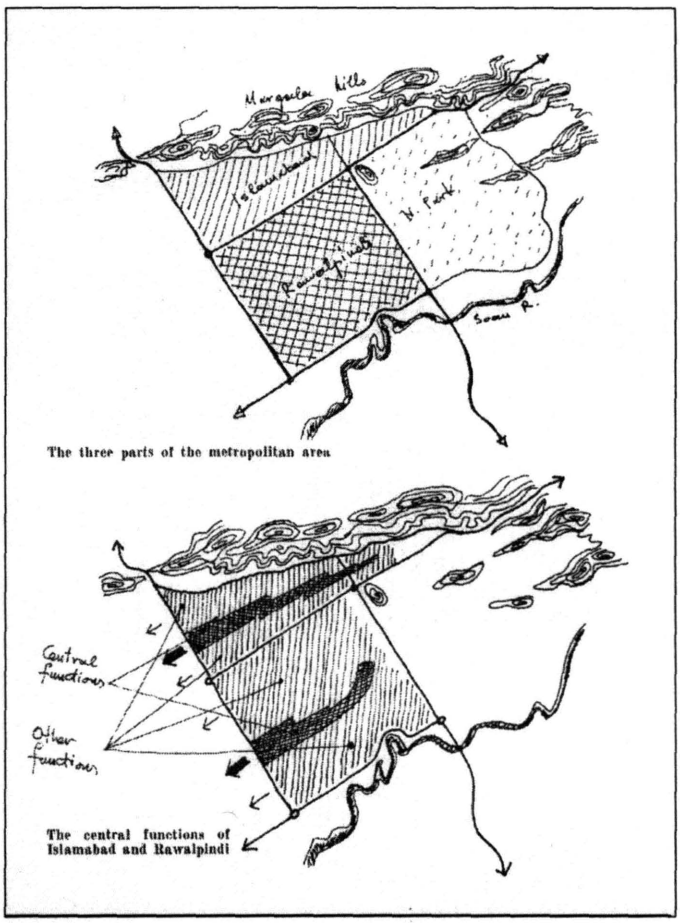


Figure II.10. Diagram showing the double Dynapolis. "Islamabad, The New Capital of Pakistan," *DA Bulletin* 64, March 1964.

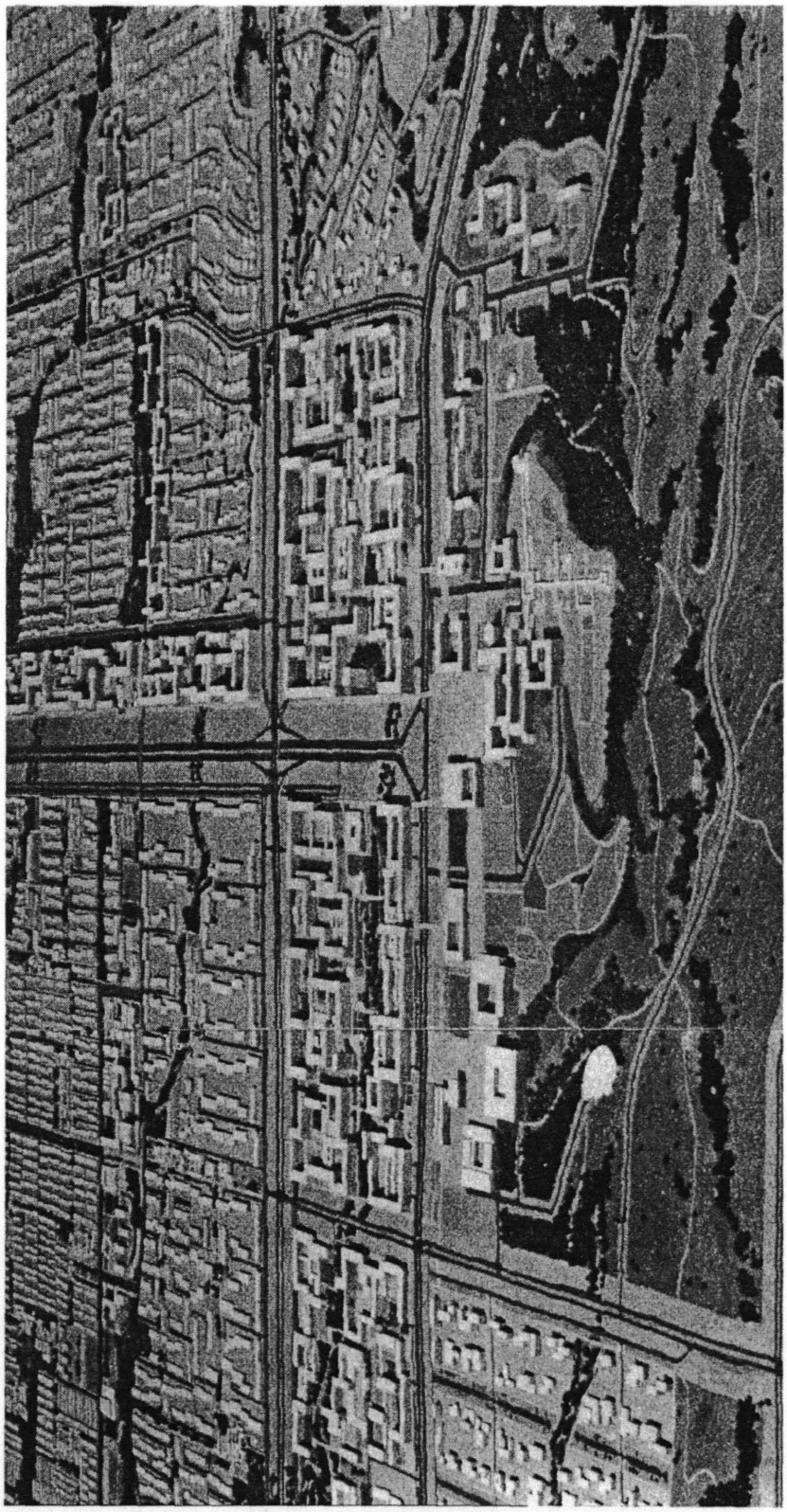


Figure II.11. Islamabad, model. Bird's eye view from NE; the capitol with the main administrative center, public buildings and residential communities. Doxiadis Associates, "Islamabad, The New Capital of Pakistan," *DA Bulletin* 64 (March 1964): 6.

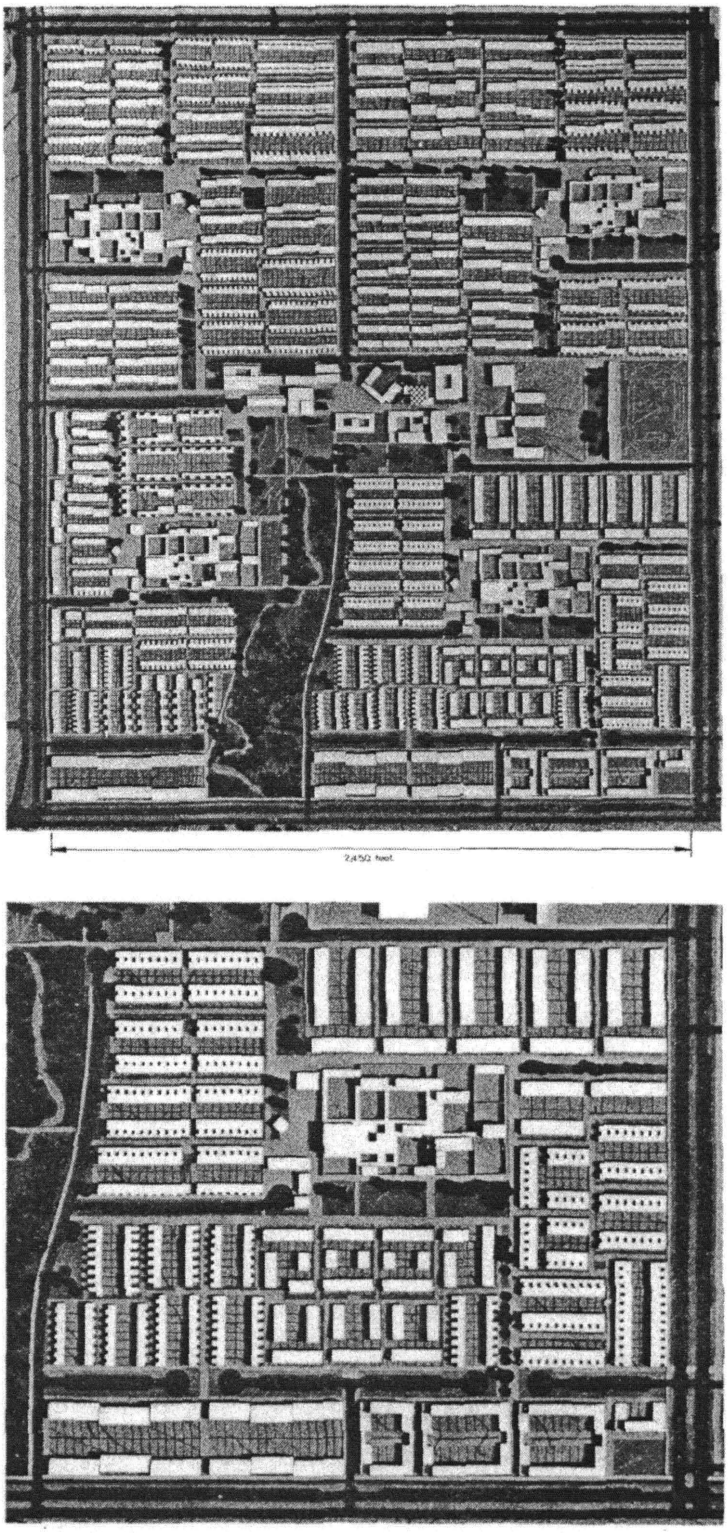


Figure II.12. Sector Plans, Islamabad; (Top) Community Class IV for 12,000 people; (Bottom) Community Class III for 3,000 people. DA, Islamabad, The New Capital of Pakistan, *DA Bulletin* 64 (March 1964): 10.

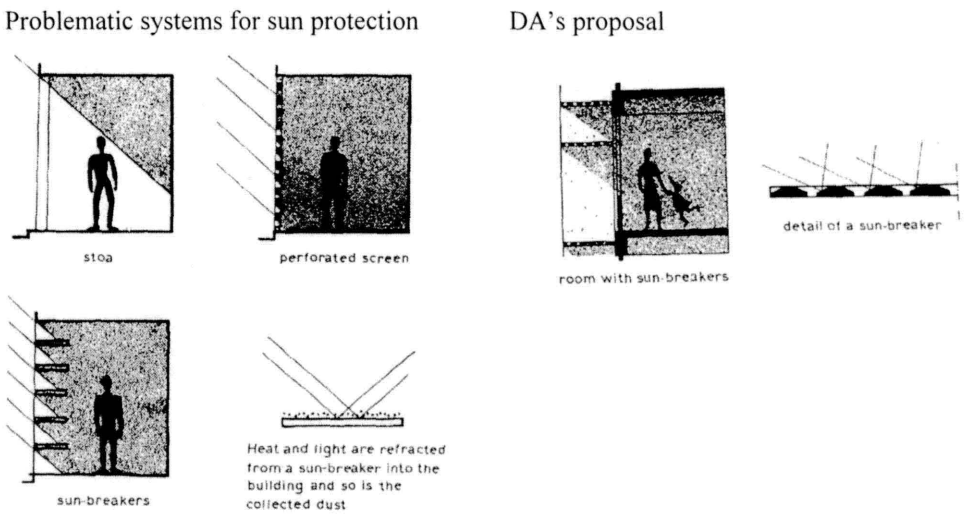


Figure II.13. Room with sun-breakers in Islamabad that eliminate the problems caused by other types of sun-breakers (left): The proposed solution provides sun protection without blocking inhabitant's views, and without overpowering spatial qualities. Doxiadis, *Architecture in Transition*, 159.

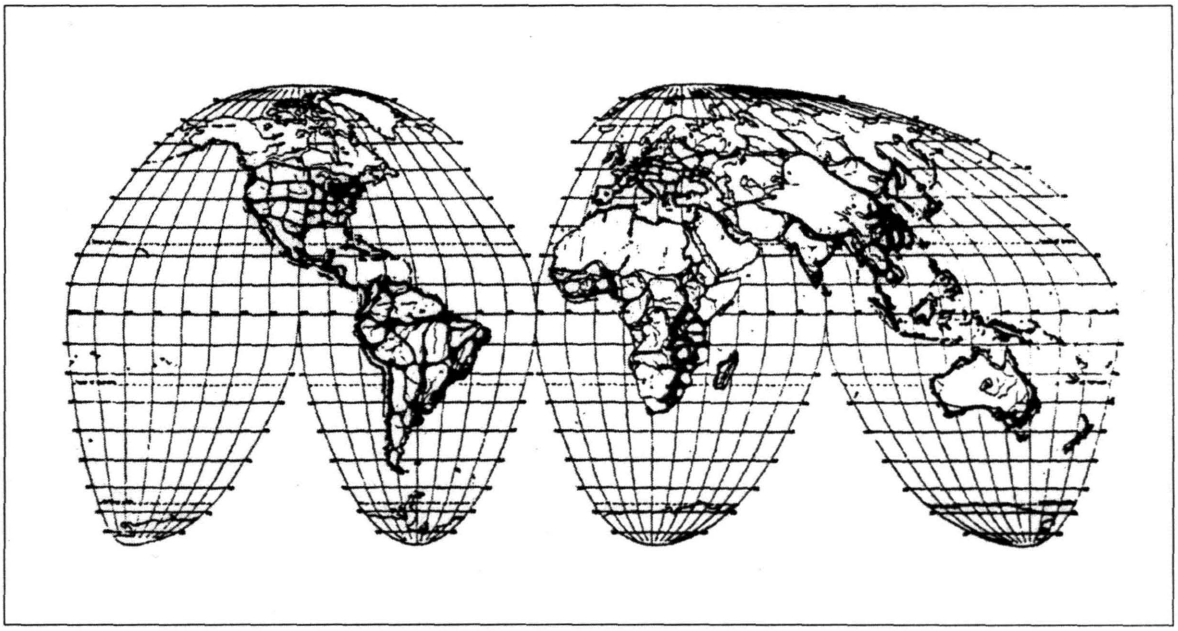


Figure II.14. Ecumenopolis; Its projected probable structure with 20 billion inhabitants, for 2100 AD. Doxiadis and Papaioannou, *Ecumenopolis, The Inevitable City of the Future*, 362-363.

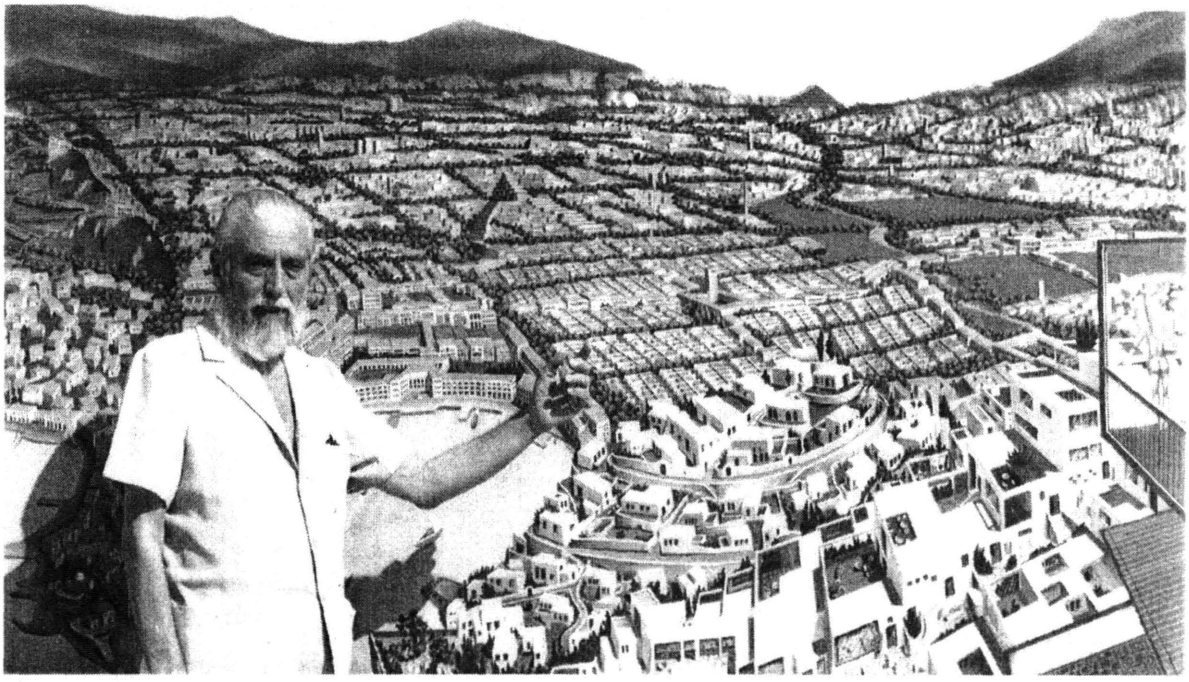


Figure II.15. Entopia, with Doxiadis pointing to it. DA greeting cards, 1974.

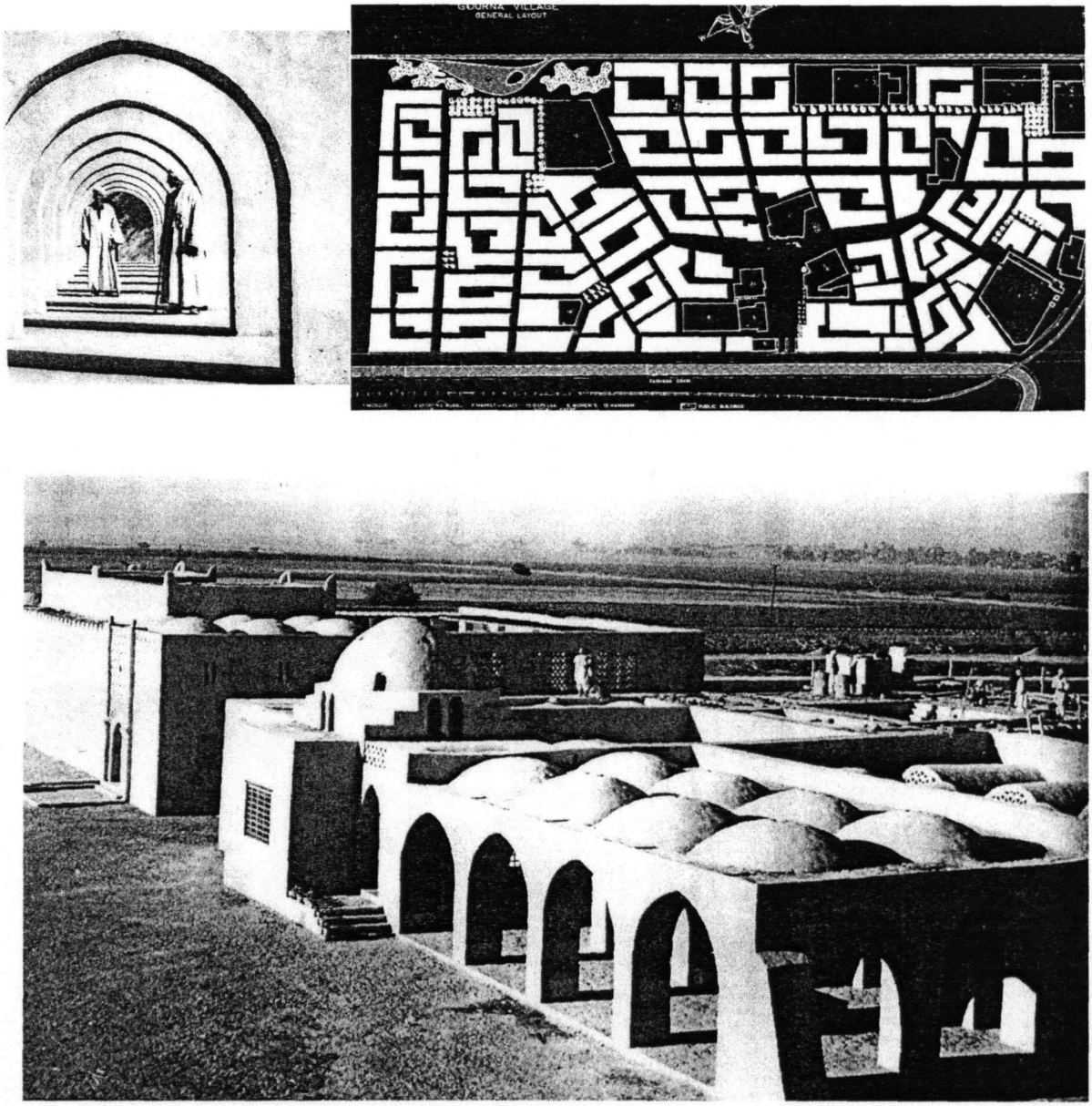


Figure III.1: New Gourna, master plan and photos of built parts. Fathy, *Architecture for the Poor* (Chicago: The University of Chicago Press, 1973.

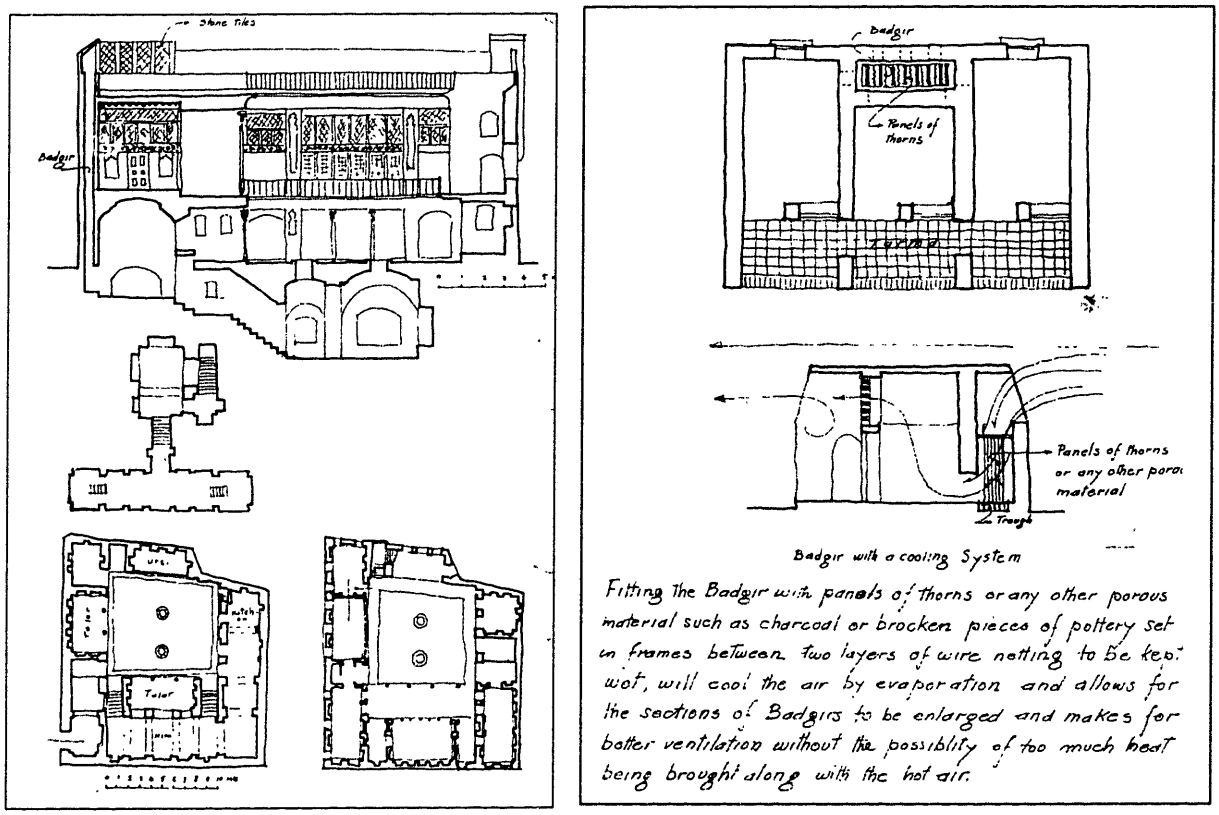
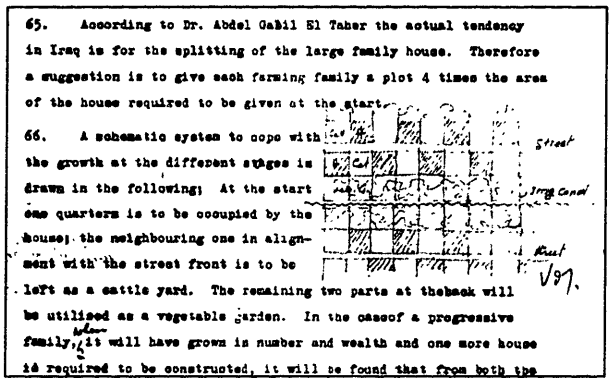


Figure III.2 Fathy's studies of the Badgir, and his proposed improvement. Fathy explained that the traditional badgir (left) had a small outlet that limited airflow, creating an unhealthy indoor environment. He suggested the enlargement of the badgir and designed devises to cool the increased quantities of hot air.) Source: Hassan Fathy, "A Report on Housing for Greater Mussayib," Doxiadis Associates Documents R-QA (October 10, 1957). [Hassan Fathy Archive]



65. According to Dr. Abdel Gabil El Taher the actual tendency in Iraq is for the splitting of the large family house. Therefore a suggestion is to give each farming family a plot 4 times the area of the house required to be given at the start.

66. A schematic system to cope with the growth at the different stages is drawn in the following: At the start one quarterm is to be occupied by the house; the neighbouring one in alignment with the street front is to be left as a cattle yard. The remaining two parts at the back will be utilised as a vegetable garden. In the case of a progressive family, it will have grown in number and wealth and one more house is required to be constructed, it will be found that from both the

Figure III 3. Section from Fathy's report, with sketch of a village layout. Fathy's plan included a vegetable garden and cattle yard on every plot, so as to accommodate DA's requirement to allow

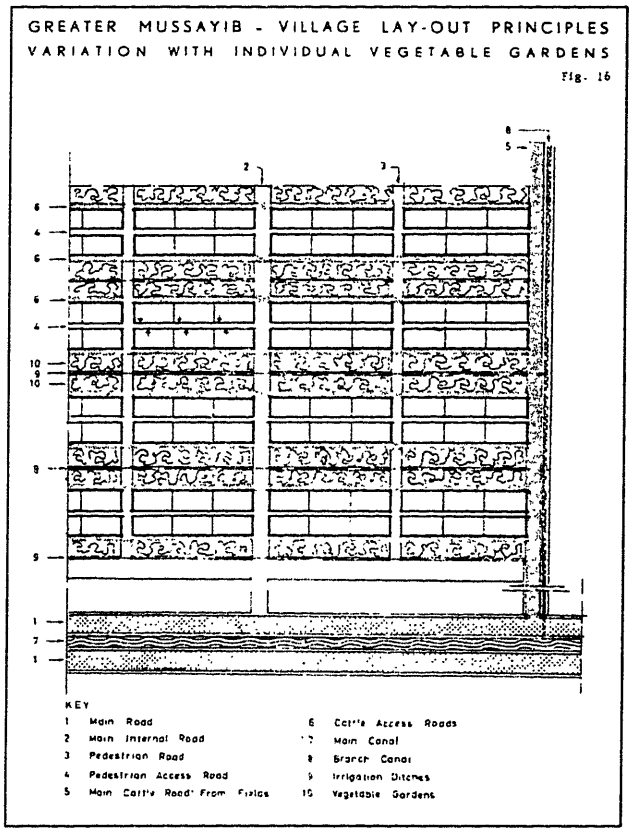


Figure III.4. DA's plan for a typical village based on Fathy's sketch. Doxiadis Associates, "A Regional Development Program for Greater Mussayib, Iraq, 1958," *Ekistics* 5:33 (October 1958): 149-186

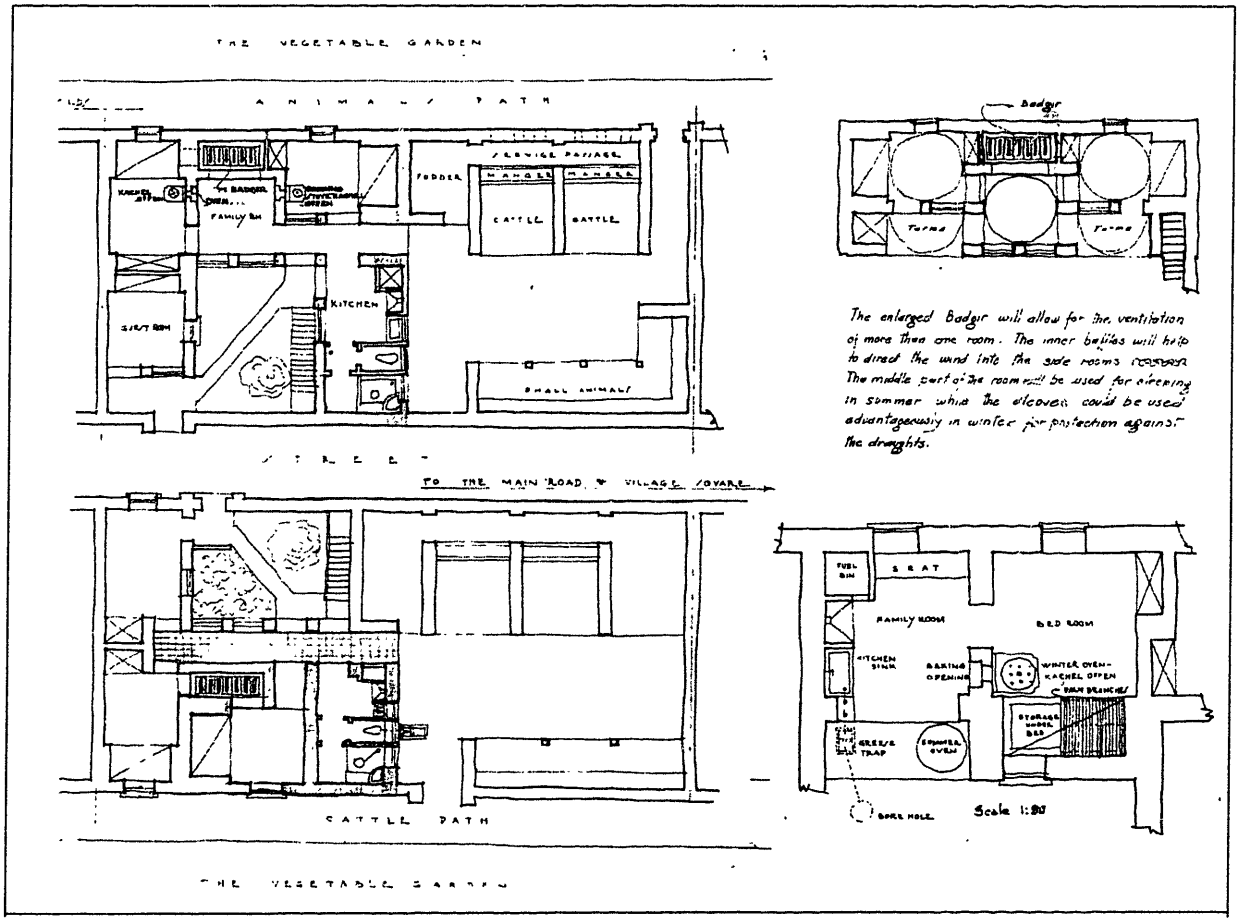


Figure III.5. Fathy's original plan for Farmer's housing, including interior arrangements and studies on the badgir. [HFA]

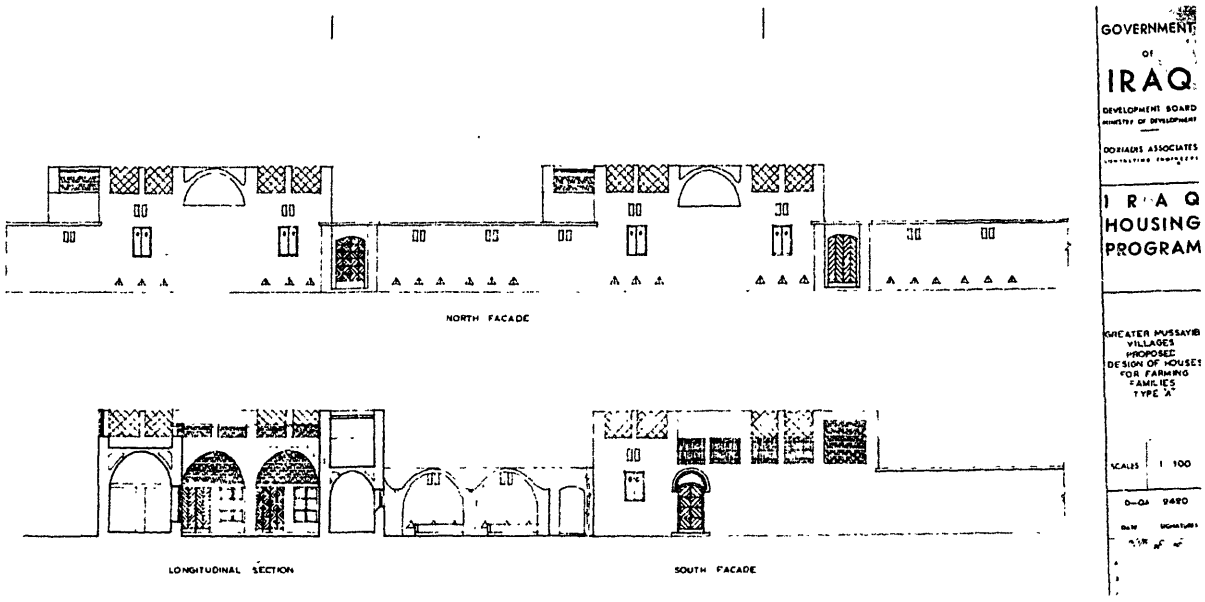


Figure III.6. Fathy's original Elevations and Sections for Farmers housing. [HFA]

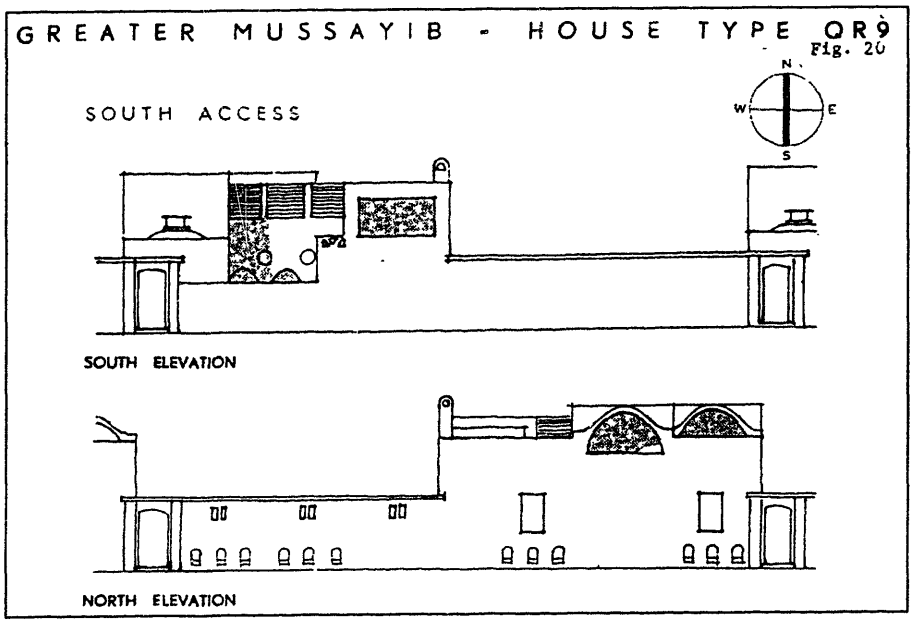
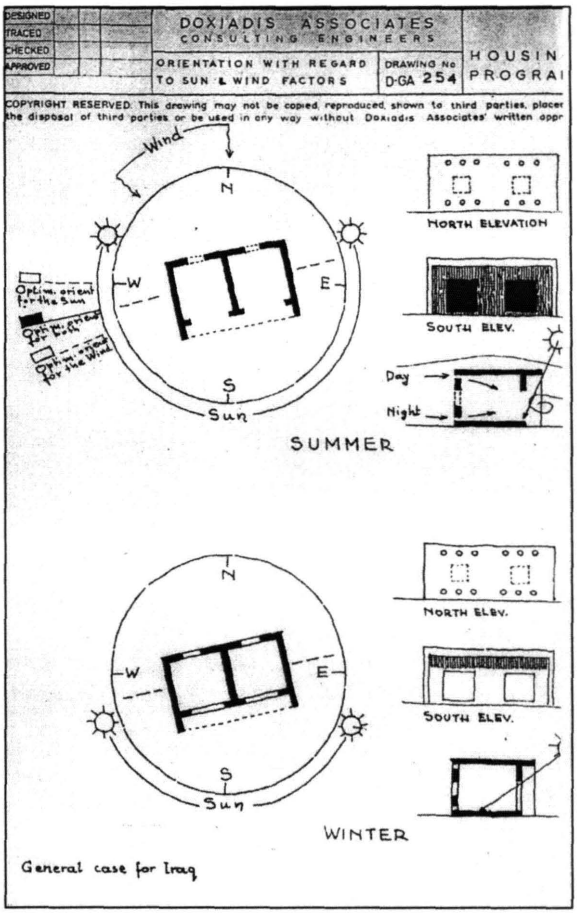


Figure III.7. DA's elevations for "House Type QR9" based on Fathy's scheme for Farmers housing. Doxiadis Associates, "A Regional Development Program for Greater Mussayib, Iraq, 1958," *Ekistics* 5:33 (October 1958): 149-186.

Figure III.8. Studies of building orientation with regard to sun and wind angles [HFA]



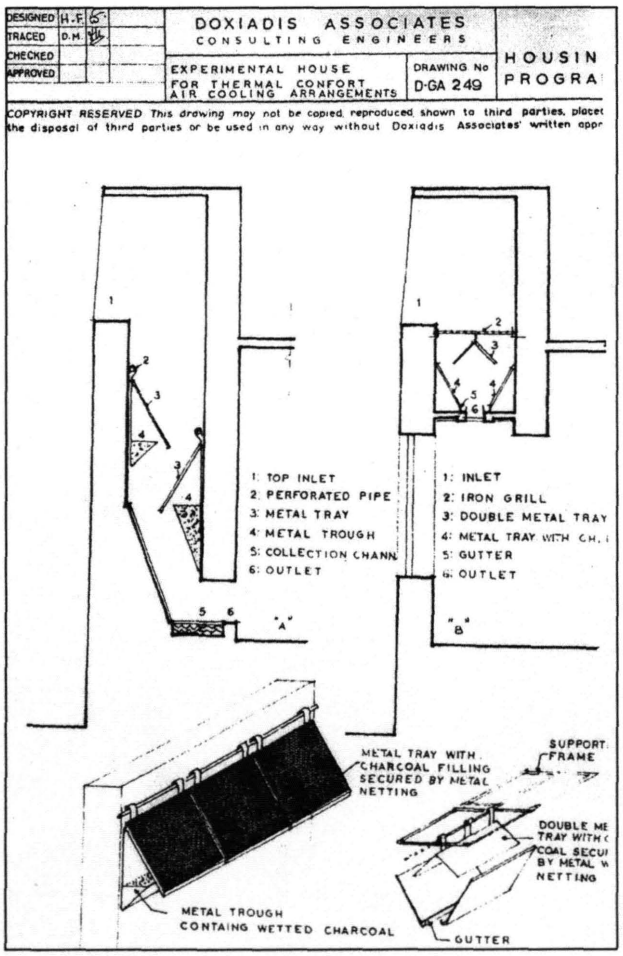


Figure III.9. Fathy's studies on improving the badgir. *(Notice Fathy's initials at the top left)* [Fathy and Marinos, "Applications of ideas on Thermal Comfort," Doxiadis Associates R-GA 110 (May 2, 1958)]

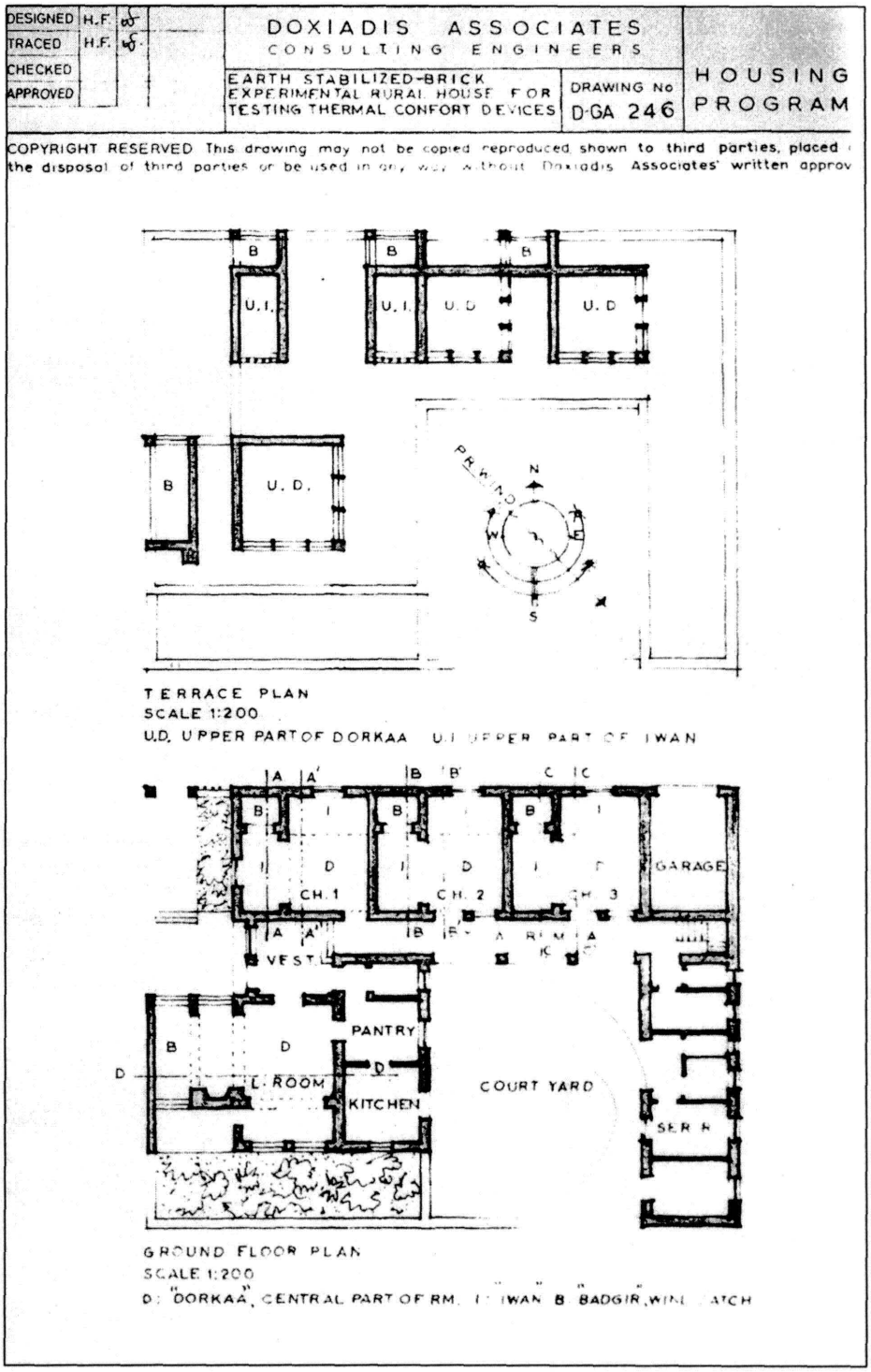


Figure III.10. Fathy's experimental rural house (notice Fathy's signature) For the purposes of this experiment, each room had a wind catcher fitted with different designs of air cooling arrangement so as to determine the most effective one. [Fathy, Deimezis, Kyriou, Marinos, "Thermal Comfort," Doxiadis Associates R-GA 108 (April 15, 1958); Drawing number (D-GA 246).]

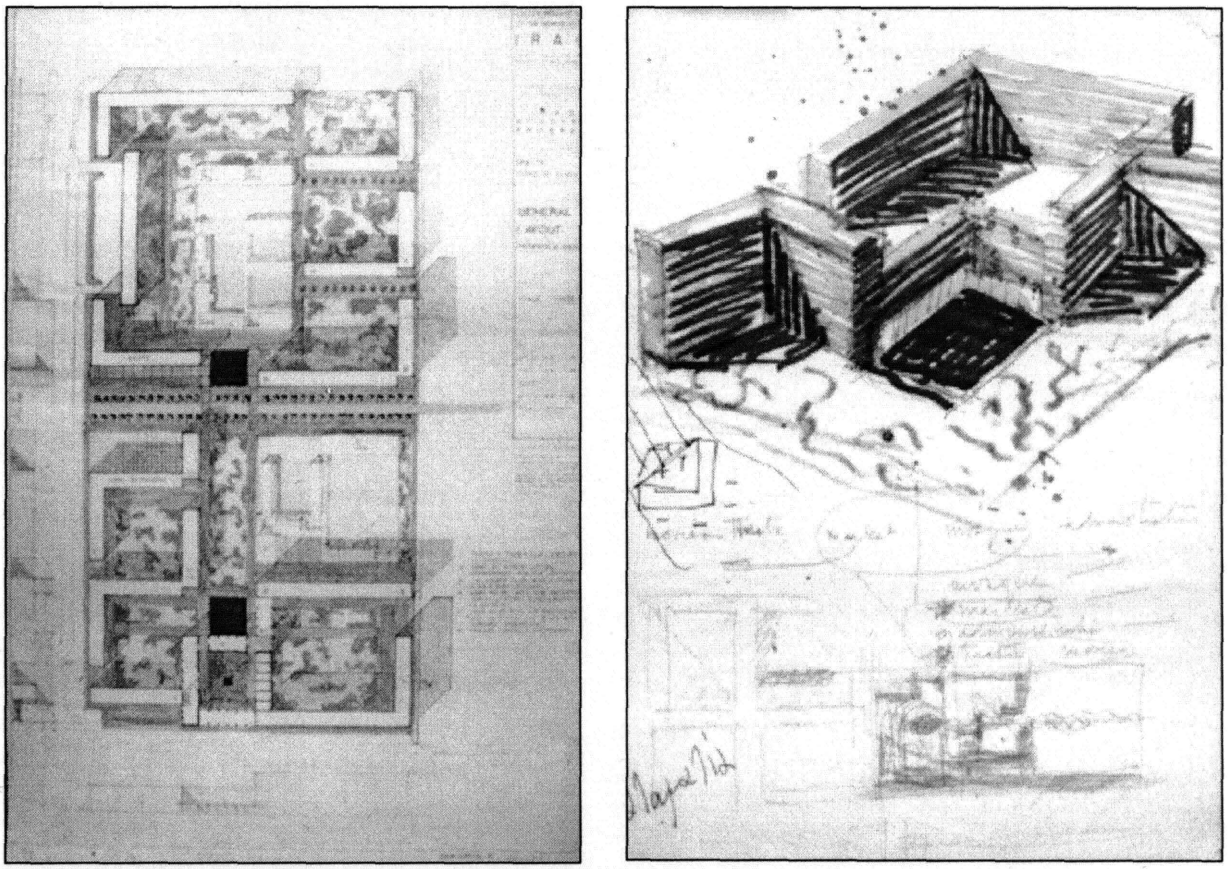


Figure III.11 Fathy's studies under the title, "The transposition of the courtyard to high-rise." [HFA]

Figure IV.1. Giedion signing of the Delos Declaration at a torchlight meeting [Doxiadis Archive]

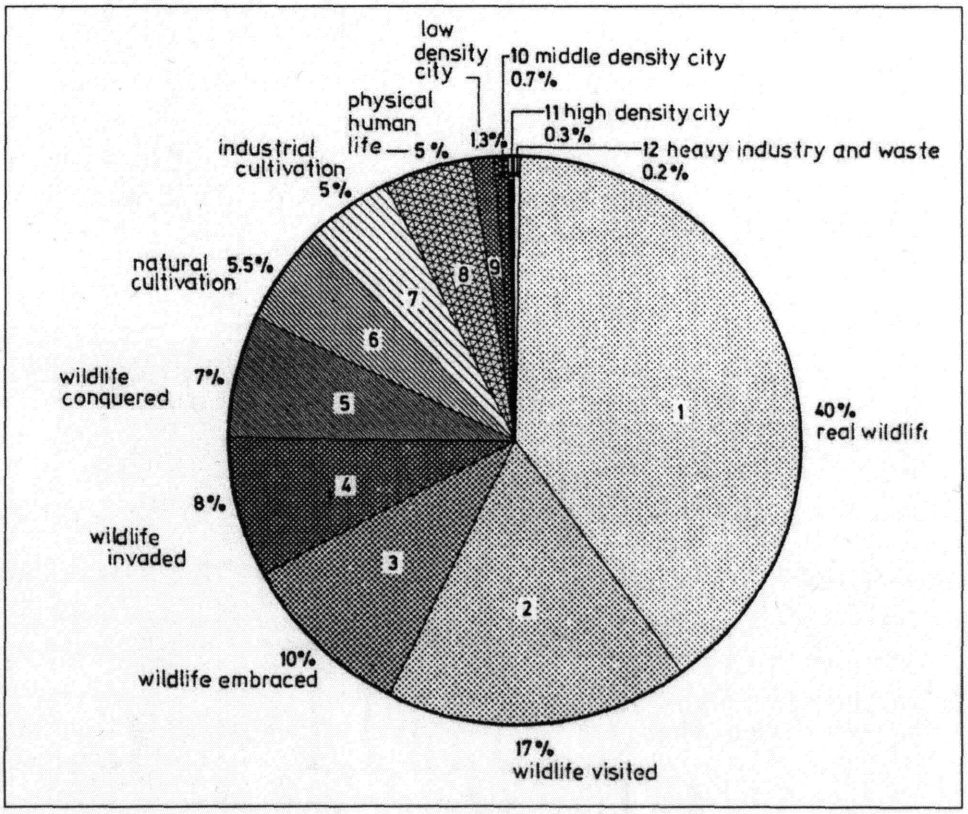
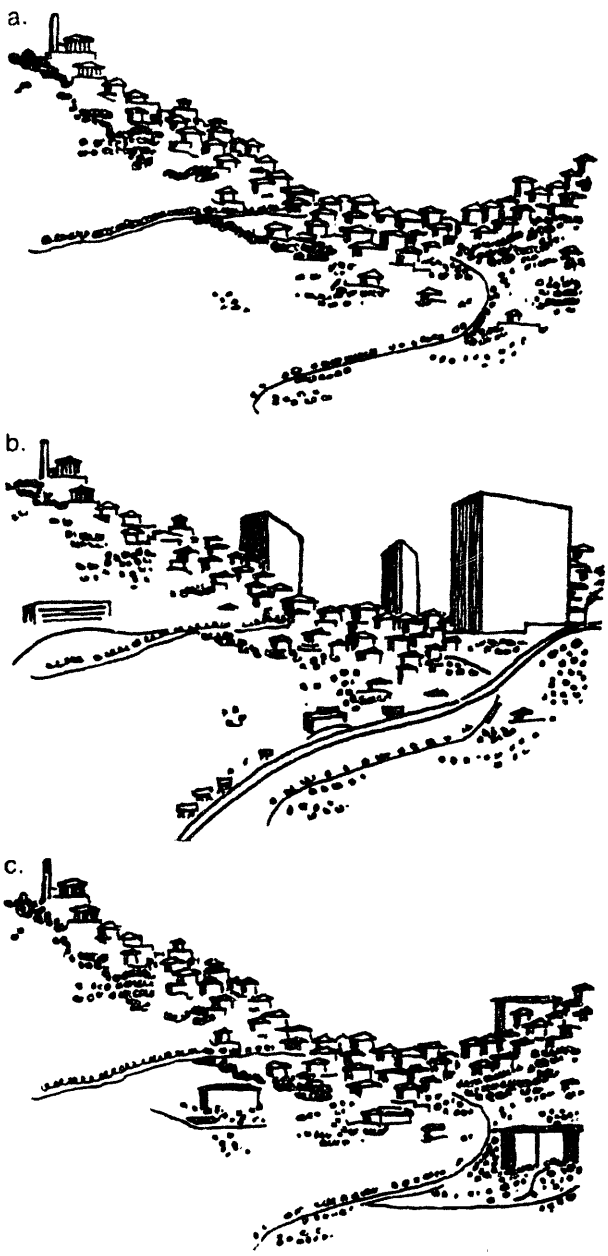


Figure IV.2. The twelve global zones of land showing the percentage of surface area appropriate for each land use. Doxiadis, *Ecology and Ekistics,* 20.



a. In the past, Anthropos created a balance with Nature and Society in his cities.

b. Anthropos is now spoiling what he managed to create in the past by allowing some owners to rise above the city.

c. In the future, there is an imperative need for social balance which is also the basis for a balance between Nature, Society, and Anthropos.

Figure IV.3. "Balance in Human Settlements." Doxiadis, *Action for Human Settlements* (New York: W.W. Norton, 1976), 129]

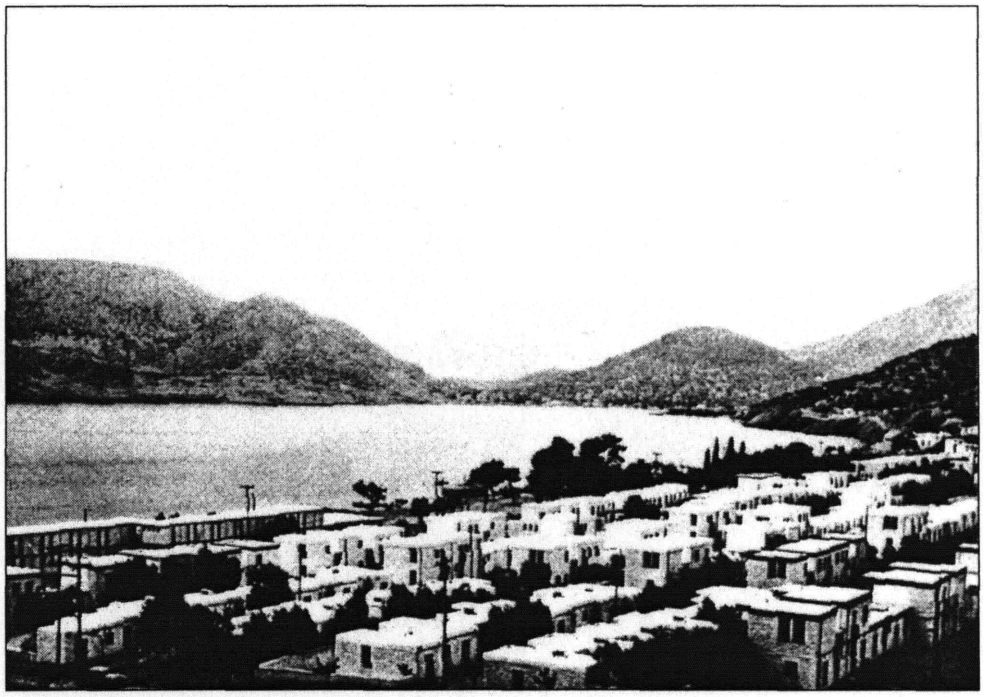


Figure IV.4. Aspra Spitia. *DA Review*, April 1971, 13.

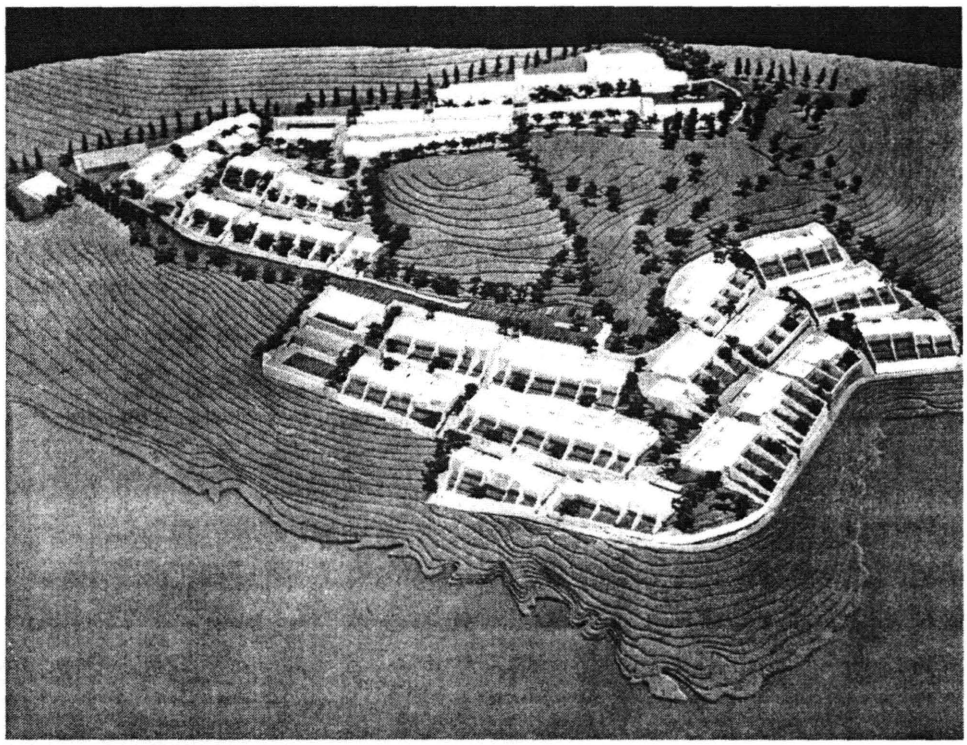


Figure IV.5. Model of Apollonion, Porto Rafti, Greece.[*DA Review*, Dec. 1970, 3]

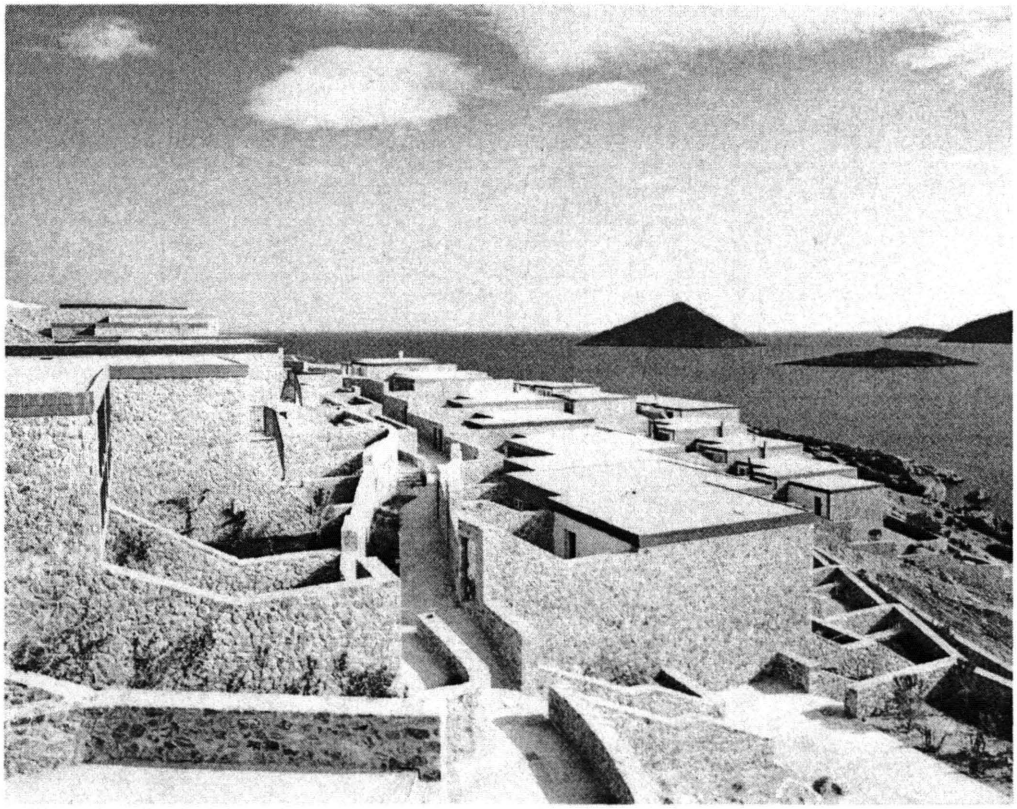


Figure IV.6. Apollonion, Porto Rafti, Greece. [DA promotional card]

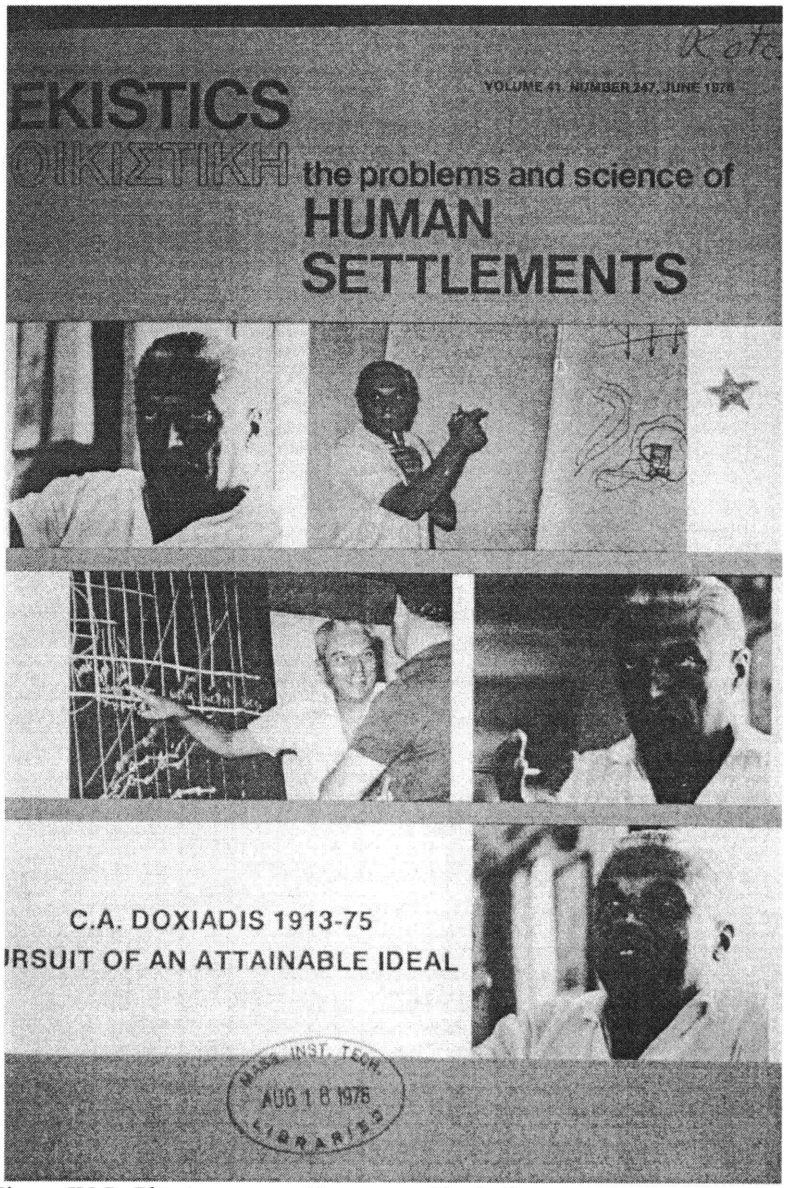


Figure IV.7. *Ekistics* cover—Homage to Doxiadis.
Ekistics 41:247, June 1975.