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**Eco-logics:
A New Paradigm for the Design of
Urban Environments**

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**Eco-logics:
A New Paradigm for the Design of Urban Environments**

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Abstract

The metaphorical understanding of urban environments as organisms has long been discussed with respect to employing patterns that assimilate biological models, but recent attention to the operational and metabolic performance of cities is driving a more comprehensive interdisciplinary understanding of their myriad interconnected and multi-scalar relationships when simultaneously considering social, cultural, infrastructural, environmental, climatological and economic concerns.

In the 1970's Ian McHarg's expanded analytic approach considered diverse criteria at multiple scales to derive intelligence for what should be from what already exists. It proposed that things (designs) - whether landscape, infrastructural, urban or regional, should be informed by other things and *belong* to them, but did not (at least explicitly) go as far as promoting the *being* of designs themselves.

Built Ecologies is a discipline that acknowledges both *belonging* and *being*. The perspective that the synthetic (designed and built) can and should operate as a multi-dimensional, diverse, integrated system is key, but so is the acknowledgement that no system is isolated. It will both take from and contribute to the larger systems within which it is nested.

In the early 1990's *Landscape Urbanism* [Corner, Waldheim] shifted urban thinking toward the engagement of the ground as an organizational strategy. But it is *Ecological Urbanism* [Mostafavi] through which an emerging understanding and ethic for an ecological approach focuses on engaging multi-dimensional reciprocities between the many intricately integrated components, aspects and outcomes of urban conditions designed as operational systems: built ecologies operating within natural ones.

This paper tracks the evolution of urban design and planning with respect to *eco-logics* and proposes the need for more integrated multi-disciplinary academic and professional models to address the wholly interconnected task of multi-scalar design.

Keywords:

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Introduction

I am an architect and an educator and approach this topic as an outlier examining what is happening in the integration of several fields as we acknowledge the inadequacy of isolated disciplines – architecture, landscape architecture, urban design and urban planning – and recognize the potential and inevitable connectivity of things. In place of the underlying binary thought frames (human/nature, urban/landscape, and building/landscape) that project false autonomies and entrap us, I am interested in emerging thought models that open possibilities and spur an expanded field of operation that is interdisciplinary and anticipate that an integrated, multi-scalar and transdisciplinary field of design and/or collaborative practice(s) will emerge.

From Actor Network Theory [Bruno Latour]¹, which points out the role and significance of things in individual and social constructs, to Systems Ecology which expounds the intricate interrelationships both WITHIN ecosystems and BETWEEN them; emerging understandings are pointing to the interconnectedness of everything, a concept not missed by those who espouse Gaia theory², making the case that the earth itself is a single complex organism.

The Problem

Complicity, though increasingly acknowledged as an important concept in understanding the world, is difficult to address in disciplines, professions and practices bound within economic systems that reward short-term return on investment and the easily measurable. Urban and infrastructural investments are long-term and capital intensive. Measuring their return on investment falls outside normative models. Notwithstanding those obstacles their impacts are broad reaching and multigenerational. The way we imagine, design, realize and use our environments, whether urban, landscape or architectural matters, not only as they relate to each other, but to society and the environment.

The problem can be traced to one of position; how culture regards the relationship between humankind and the environment: as part of, or separate from. Much of the twentieth century western approach reveals the latter; a compartmentalized construct of the world that separates the acts of humankind from nature, cities from land, and health from the environment. We now know they are connected, and 21st century movements in environmental, landscape and urban design disciplines are increasingly acknowledging ecological constructs that include the human enterprise.

Landscape Urbanism [Charles Waldheim], *Recombinant Urbanism* [David Grahame Shane], *Integral Urbanism* [Nan Ellin], *Combinatory*

¹ A French sociologist and anthropologist known for his work in the field of Science and Technology Studies. He is one of the originators of Actor–network theory, an approach to social theory that considers objects to be part of (actors in) social networks.

² The proposition/principle that living organisms interact with inorganic surroundings and elements to create a single complex self-regulating super-organism – the earth.

Urbanism [Thom Mayne] and *Ecological Urbanism* [Moshen Mostafavi] all advocate greater attention to the complex multi-scalar relationship between forms, systems, society and the environment. In each case they project complicity. However manifest, urban conditions are the result of myriad design acts with more or less regard for their situation. The 20th century advent of industrialization, the automobile and cheap energy has had dramatic effect on the form of cities, buildings and landscapes. It has also produced a collective amnesia. Lacking the tools to analyze complex systems (environmental and urban) and absent any urgent necessity to cooperate with nature, cities and their planners, designers and developers failed to do so. The consequences are upon us in terms of climate change, health and quality of life. But the combination of a new urgency, analysis and design tools for the production of urban environments are enabling a deeper understanding of the relationship of their parts to each other, society and nature. Cities are increasingly understood as complex structures with real consequences.

Cities as Organisms

The likening of cities to organisms is not new. Socrates referred to the city as a ‘healthy body’ that is beholden only to necessary appetites. A generation later Plato referred to the cities as ‘a corporeal body’, implying the collective as a single unit. Aristotle subsequently introduced the notion of complicity when posing the city as, ‘a political community with intention’ that must ‘aim at achieving the highest good’.¹ He was acknowledging an efficacy (of a city) that transcends its physical construct. With a focus on the political, Aristotle was projecting complicity between the city and society though he was not directly concerned with questions of resources or the environment, as a full-systems thinker might.

In the 14th century city-state of Siena the walls of the *Palazzo Pubblico* tell the Allegories of Good and Bad Government², as relating to both the city and the country. The effects of good government include peaceful scenes of people in the streets, commerce, leisure, music, dancing and well-maintained architecture surrounded by a lush, bucolic, well-managed and productive agricultural and leisure landscape – full of enterprising people. [Fig. 1,2] The effects of bad government display shield and sword yielding citizens, corpses in the street and buildings in disrepair, surrounded by a bleak landscape of ruins, lacking agriculture or people. [Fig. 3,4] City form, economics, security, urban vitality and politics are all entwined.

In a medieval depiction of Jerusalem [Fig. 5] a verdant system of agricultural fields and resources buffers a walled city articulated by three ring roads, one just outside the wall, one just inside and one between an outer and

¹ The Transformation of Plato’s Republic, Kenneth Dorter, Lexington Books, Oxford 2006, p.64, 65

² Frescos by Ambrogio Lorenzetti, commissioned by the city council referred to as The Council of Nine.

an inner urban core. Large productive agricultural fields outside the walls are complemented by smaller gardens within the blocks of the city. The superimposition of the circular pattern of the wall, roadways and paths give way to topographical land features. It presents the image of a healthy city. Producers and consumers are connected to their environment and mutually dependent upon it. The logic of this small historic settlement is clear. But cities grow large, beyond their ability to maintain a single center or universal easy access to ‘*natural*’ surrounds. Lacking any overarching design enterprise the growth of medieval cities has often been likened to a kind of organic growth, but that does not make them healthy (bodies) cities. Though lacking comprehensive sets of goals, large urban planning interventions and the discipline itself, with motivations ranging from the theological to the political and economic has taken many forms.

In the City Beautiful movement of the 1890’s, an integration of Beaux-Arts and Neoclassical styles, tree-lined boulevards and monumental spaces were superimposed on cities to create grandeur and a sense of civic order, dignity and harmony. But it was largely a visual project that ordered the city through a civic and infrastructural overlay that projected one image while disguising, if not contributing to another less grand reality. It was influential in the layout of the Chicago Exposition [1893] and plans for Detroit, Cleveland and San Francisco but is most notably worked out in the McMillan plan to fulfill Pierre Charles L’Enfant’s design for the civic domain of Washington D.C., while ignoring the deplorable urban conditions of its inhabitants.

But attention to the operational performance of cities soon began to drive a more comprehensive interdisciplinary understanding of their myriad interconnected and multi-scalar relationships when simultaneously considering social, cultural, infrastructural, environmental, climatological and economic concerns. In the peak of the industrial expansion, while the McMillan plan was moving forward in full force, Ebenezer Howard was busy creating a utopic vision of Garden Cities that incorporated the best of town and country [Fig. 6,7]. Each had a prescribed urban growth boundary and placement in relationship to surrounding land resources (‘open country ever near at hand’) and was linked by canals and inter-municipal railways to create a ‘Group of Slumless, Smokeless Cities’ [1902].

It was Fredrick Law Olmsted Jr., the early 20th century leader of the American city planning movement who emphasized the need for design that leveraged the interrelationship of parts toward a more comprehensive and benevolent outcome, especially when cities expand beyond a certain scale. Olmsted acknowledged cities as systems that demand design, and organized the first national conference on City Planning in 1909, emphasizing the need for a profession that would serve municipalities in determining the higher good for all its citizens by comprehensively addressing congestion and blight through the introduction of affordable housing, mass transit, zoning, parks and parkways. The conference marked the end of the City Beautiful Movement, which for its ‘civic vanity’ was too focused on beauty, making aesthetics an objective in itself. Beholden to the wealthy leisure class and business interests,

the City Beautiful movement had neglected pressing issues that impact city residents (congestion, filth, disease, poverty and crime) and spurred the birth of a more comprehensive approach designed by professionals, managed by municipalities.

Speculative thinking on the integration of urban form, architecture and landscape flourished in the 20th century. In 1932 Frank Lloyd Wright first projected his own utopic vision for *The Disappearing City*¹, a decentralized counterproposal to the unhealthy, dense conditions of the modern metropolis. In what he called *Broadacre City* each family would have up to one acre in the amalgamation of the urban and the rural without any city center. Its basic tenet: ‘ORGANIC ARCHITECTURE: All forms integral, natural to site, materials, process of construction and purpose’, asserted the interrelationship of all things as ‘integral’ and went as far as implicating ‘process’.

In contrast to Wright’s preoccupation with suppressing cities, the Japanese post war Metabolist movement projected architectural megastructures and cities as a manifestation of the exchange of materials and energy (metabolism in the biological sense). Design and technology were understood to be participants in, and an expression of ‘society as a vital process – a continuous development from atom to nebula’.² The Metabolists engaged what they understood to be an emergent condition (a continual process of becoming) by ‘trying to encourage active metabolic development of our society’.³ [Fig 8-10] They recognized scalar interdependencies and promoted ‘metabolic development’ as symbolic of and denoting ‘vital processes’, but stopped short of acknowledging structures and cities as part of a natural process.

*Archigram*⁴, in a 1960’s series of futurist provocations bred organic forms with technology as antagonist to overly composed, complete and autonomous architectural projects. In their pop culture inspired proposals, the distinction between architecture and cities is indistinguishable. Based on a shorter lifespan of buildings, interchangeable parts and continual reconstruction they promoted a proactive engagement with, and building upon existing conditions with a high tech machine aesthetic. Rather than reifying autonomous architecture and the city as a formal expression and carrier of meaning, they imagined integrated infrastructural projects that carried technology, services, transportation, advertising, architecture and people – emphasizing a dynamic integration that was designed to infuse vitality. [Fig 11,12] Like the metabolist projects, there was little that visually resembled the organic, but the integrated systemic nature of the proposed buildings, cities and society inferred an operational integration, making them first cousins.

¹ Wright, Frank Lloyd, 1932, refined as *When Democracy Builds* in 1945, and *The Living City* in 1958

² *Japanese Metabolists’, Proposals for a New Urbanism*, Presented at the World Design Conference, 1960

³ *Ibid*

⁴ A 1960’s avante-garde group of futurists proposing new realities through hypothetical high-tech architectural / urban / infrastructural projects.

Significant debate on the definition of *organism* ranges from classical scientific definitions to more open and popular ones, including the suggestion that a single clear definition may not be necessary. The American Heritage Science Dictionary defines organism as: ‘an individual form of life that is capable of growing, metabolizing nutrients, and usually reproducing’.¹ Alternative definitions remove the autonomy of the ‘*individual*’ in favor of ‘*interdependency*’, effectively recognizing super-organisms that are composed of many elements (organisms) or parts. Merriam-Webster offers two distinct possibilities: ‘1) a complex structure of interdependent and subordinate elements whose relations and properties are largely determined by their function in the whole,’ (non-living) and ‘2) an individual constituted to carry on the activities of life by means of organs separate in function but mutually dependent’,² (living). The differences are significant, from a tripartite litmus test that focuses on living autonomies, to a more relational description of a dynamic intricacy (complicity) between parts (living or non-living) and processes. Some definitions can fairly be assigned to cities as socio-urban constructs in all of their infrastructural, institutional, social, material, energy and economic complexity.

The etymology of the term organism is from the Greek word for organization. It presupposes the existence of multiple parts, components, and/or organs. Extending the metaphor, cities may be understood as super organisms, consisting of many organisms operating together as a single larger enterprise, though caution must be taken. Biologists refer to super organisms as complex hierarchical assemblages of systems such as ant colonies that operate in a purposeful way – toward a single end. In human systems (societies, cultures and cities) individual autonomies, multiple intersecting, interrelated and disconnected systems are present. By the more rigorous biological standard, corporations might be more like super organisms than cities. Regardless, the point is that cities have myriad interdependent parts. Although they may not be working to a single common purpose, they are no less interrelated.

Cities as Complex Systems

The definitions of organism and ecology are remarkably close. They contain similar embedded logics such as the interrelationships and mutual dependencies between parts, a characteristic that is applicable both to living things and large inorganic systems such as cities. Systems Ecology posits a holistic view of the interactions and transitions within and between biological and ecological systems, understanding them as complex systems having emergent properties. As a discipline it is particularly interested in the relationships of these systems to the human enterprise. Can designed

¹ *The American Heritage Science Dictionary* © 2010 by Houghton Mifflin Harcourt Publishing Company

² *Merriam-Webster Dictionary* © 2004 Merriam-Webster Inc.

landscapes and cities be considered part of a larger ecosystem? Fredrick Law Olmsted's Central Park is an engineering construct – every tree was planted and every hill manipulated. It is managed and maintained; yet within it multiple ecosystems thrive. It can be said that it is a second nature unto itself – whether the maintenance programs are included as part of that nature or not. At the same time Central Park is an integral component of a greater natural and urban system – one that participates in the carbon cycle, the metropolitan water system, transportation infrastructure, social and leisure space.

Cities are social and engineering constructs. They can no more be reduced to a plan than to a skyline. Metropolises consist of layers upon layers of systems operating at different speeds and tell the story of their making linked to materials, energy and policies [Fig. 13] and can be considered (or likened to) organisms, ecosystems, a part of nature, or a second nature. But if this is so, how can they be out of balance? This question is addressed in various ways by those invested in developing new paradigms that recognize larger more extensive interconnectivities between the human enterprise and natural systems.

It is not only 20th century industrial cities that were out of balance [*Koyaanisqatsi*]¹. For a century urban planning practices resulting from compartmentalized thinking and cheap energy functionally zoned cities, squashed local diversities and exacerbated social injustices and unhealthy conditions. Carbon dependence fueled a blind deference to the automobile. Long-term investments in barrier highways (instead of mass transit systems) fragmented cities while contributing to a preponderance of unrestrained low-density residential growth lacking critical infrastructure. Unsustainable suburban sprawl consumed vast land tracts around cities, increased transit times and contributed to class and race segregation, water and air pollution – all the standard critiques. The failure to understand and acknowledge the complicity of things (cities and the environment) and design intelligently has had consequences. But as ill conceived and unhealthy as some cities may be, they are operational. Cities are complex systems of circulation, commerce, inhabitation, recreation, livelihood and government. They exchange energy and material goods and have, like all organisms, a metabolism. But how shall we understand and engage them effectively?

New Paradigms

In the 1960's Kevin Lynch provided new ways of analyzing the dynamics of the city, from the pedestrian to the automobile. He acknowledged urban systems as a series of dynamic operational networks in a constant state of change. [Fig. 14] Lynch developed a series of typologies that could be ascribed to cities: 'galaxies', 'polycentric nets', 'lacework nets' and

¹ Hopi for "Unbalanced Life": A 1982 film by Godfrey Reggio with music by Philip Glass that used slow motion and time lapse footage without narrative to expose the dysfunctional and harmful relationship between cities and landscapes across the United States.

‘alternating nets’. Acknowledging Christopher Alexander’s *Pattern Language* Lynch believed in the important role of urban actors whose cumulative effect through many small changes would result in large-scale outcomes. He conjectured three ways of framing cities: *City of Faith*, *Machine City*, and *City as an Organism*. The first two are controlled by a singular force, whether a lord or priest seeking balanced equilibrium, or corporate executives optimizing capital flow and exchange. He argued however, that in reality cities are polycentric and dispersed. In the *City as an Organism* Lynch notes the importance of feedback mechanisms that inform change in the interest of maintaining the delicate balance required of complex ecosystems. But in the end he dismisses this as impractical for the massive control it would require.

David Grahame Shane [*Recombinant Urbanism*] describes cities as a ‘patchwork of heterogeneous fragments’ – a ‘chaotic situation of competing systems...with a logic of its own’. ‘The result’, he says, ‘is a tangle of actors and systems in a spaghetti system of flows and private motives, interacting with each other through complex feedback mechanisms’.¹ He calls for urban modeling (extension of Lynch) as a method of understanding and engaging the ever-changing structures of the city and points to the role of catalytic urban actors that affect transformation. Within the patchwork, Shane identifies heterotopic zones² that exist between stable well-defined areas as the fertile test beds for urban regeneration. He accounts for the importance of feedback mechanisms that inform change, and especially those catalytic architectural scale acts that are most successful in heterotopic zones. Shane portrays the city as a layered structure of ever changing networks and argues against the master planning approach.

Beyond ecology as a study of natural systems, ‘*Built Ecologies*’ has emerged as a phrase that begs definition. It is a discipline that acknowledges both *belonging* and *being*. The perspective that the synthetic (designed and built) can and should operate as a multi-dimensional, diverse, integrated system is key, but so is the acknowledgement that no system is isolated. It will both take from and contribute to the systems within which it is nested. Built ecologies suggests both an operational model and the inseparability of the natural and the built. The shift away from the categorical split between humans and nature suggests a greater complicity – from an environmentally and socially conscious understanding, in which human systems are informed by and sensitive to natural systems, to an acknowledgement of an active and benevolent interdependence. The phrase infers the potential for the synthetic to operate as an ecology (system) nested within a natural (eco)system(s). Even well-fitted infrastructural projects that carefully knit together the natural / social-scape can be taken to the next level in search of realizing a higher potential for designed projects, whether landscape, infrastructural, architectural, urban (or all four) - to become interdependent and synergistic with natural systems. *Built ecologies* implies a mutual interdependency within

¹ Shane, David Grahame. *Recombinant Urbanism: Conceptual Modeling in Architecture, Urban Design, and City Theory*. Chichester: Wiley-Academy, 2005. p305

² Marginal urban zones lacking single clear identity that are in transition.

a system – where the synthetic participates together with the natural. It acknowledges that all things are processes and change – inferring a continual emergence of new conditions - a kind of cooperative dynamism, metabolism and growth.

In the 1970's Ian McHarg's expanded analytic approach considered diverse criteria at multiple scales to derive intelligence for what should be from what already exists. He proposed that things (designs), whether landscape, infrastructural, urban or regional, should be informed by other things (natural and social systems) and *belong* to them, but did not (at least explicitly) go as far as promoting the *being* (operation) of designs themselves. Lewis Mumford lauded McHarg's book, *Design with Nature* as, 'a notable addition to the handful of important texts that begin, at least in Western Tradition, with Hippocrates' famous medical work on Air, Waters, and Places: the first public recognition that man's life, in sickness and in health, is bound up with the forces of nature, and that nature, so far from being opposed and conquered, must rather be treated as an ally and a friend, whose ways must be understood and whose counsel must be respected.'¹ Hippocrates may have been the first to publically recognize complicity between the individual and nature, but McHarg focused on large regional and municipal scale design acts (cities, developments, highways) in relation to the environment – proposing that nature should be treated as an ally and friend that informs good design. Mumford went on to say that, 'In establishing the necessity for conscious intention, for ethical evaluation, for orderly organization, for deliberate esthetic expression in handling every part of the environment, McHarg's emphasis is not on either design or nature by itself but upon the preposition with, which implies human cooperation and biological partnership.'²

McHarg advocated the importance of environmental analysis and how it could and should inform large-scale design interventions. '[The engineer's] competence is not the design of highways,' McHarg explained, 'merely of the structures that compose them—but only after they have been designed by persons more knowing of man and the land.'³ Operating in an era with minimal access to satellite imagery and computerization the notion was visionary – the task daunting. Without established methods to quantify and display information about the natural environment, without computation, or Global Information Systems he created their precursor – mapping overlays. Using a series of transparencies to create a robust inventory of human and eco systems, McHarg developed a process for the analysis and visualization of complex systems that would inform decision making and design in search of '*creative fittings*'. Social and environmental criteria were given real credence in decision-making

¹ McHarg, Ian L., and American Museum of Natural History. *Design with Nature*. 1st ed. Garden City, N.Y.: Published for the American Museum of Natural History (by) the Natural History Press, 1969. p.vi.

² Ibid

³ McHarg, Ian L., and American Museum of Natural History. *Design with Nature*. 1st ed. Garden City, N.Y.: Published for the American Museum of Natural History (by) the Natural History Press, 1969. p.31

that would better integrate human interventions with their environmental settings.

Landscape and Ecological Urbanism

In the early 1990's *Landscape Urbanism* shifted thinking toward the engagement of the ground (over architecture) as an organizational strategy. Beyond McHarg's sensitive and creative fitting into the environment, Charles Waldheim led in framing the discourse and practice of landscape urbanism as an opportunity to activate new possibilities. Reclaiming postindustrial spaces (not unlike Shane's heterotopic zones), Waldheim projects landscape design as a catalytic device for urban operations and activities in the transformation of the city. Similarly James Corner calls for 'operational logic over compositional design'. Landscape urbanism asserts the potential for the integrated design of the horizontal plane to (re)engage architecture, infrastructure and society by operationally situating the parts in relation to the whole. 'In conceptualizing a more organic, fluid urbanism, Corner claims that, 'ecology itself becomes an extremely useful lens through which to analyze and project alternative urban futures.'¹

We have yet to understand cultural, social, political, and economic environments as embedded in and symmetrical with the 'natural' world. The promise of landscape urbanism is the development of a space-time ecology that treats all forces and agents working in the urban field and considers them as continuous networks of inter-relationships.²

James Corner

More recently it is *Ecological Urbanism* through which an emerging understanding and ethic for an ecological approach is developing – one that focuses on engaging multi-dimensional reciprocities between the many intricately related components, aspects and outcomes of urban conditions designed as operational systems. This state of thinking in relation to the urban condition – not as a closed system but as a connected and interdependent one, acknowledges the complex systemic nature of cities that are in flux – a constant state of change.

Ecological Urbanism is not a softer, kinder urbanism that aims at doing less harm. It is an acknowledgement of the complicity between the artifact of the city and its environment, operations, infrastructure, energy, economics, social construct and human systems. It is, 'a form of ecological design practice that does not simply take account of the fragility of the ecosystem and limits on resources but considers such conditions the essential basis for a new form of

¹ Waldheim, Charles. *The Landscape Urbanism Reader*. New York: Princeton Architectural Press, 2006. p29

² Ibid., p30

creative imagining.’¹ In *Combinatory Urbanism* [Mayne] the complex behavior of collective form is analyzed and used as a design informant/generator. Nan Ellin, [*Integral Urbanism*] focuses on the fluidity between and integration of functions, processes, people and professionals, and seeks to erode the stifling dyads of urban-suburban, public-private, center-periphery and horizontal-vertical.

Whether and how these emerging viewpoints are the same or distinct is not as critical as the general finding that cities share certain tenets: they are complex systems that behave in certain ways. They are not closed systems. There is a complicity between cities, the environment, society and design. The creative responses must also be ecological [Guattari]². Designers and policy makers must acknowledge their state of constant transformation, dynamism and operationalism, recognize interdependencies, and promote cooperation in the way, and by the way we design.

Significant differences on the degree of control designers can and should assume remains, but there is increasing agreement on the acknowledgement of a larger belonging. It is generally understood that the autonomy of landscape, architecture, urban design and/or planning is false and that the relationship of town and city is relational not oppositional. Using eco-logics there is great potential to reform cities and the practice of designing [within] them – whether through the analytical approach of McHarg, the recombinant methods of Shane, the activation of the horizontal plane as connective tissue having its own significant legitimacy, or through the operational modeling of complex behaviors as form/space generators. We can no longer afford to isolate the problem or design team and need more integrated multi-disciplinary academic and professional models designed to address the wholly interconnected task of multi-scalar design. The expertise of the biologist, environmentalist, ecologist, engineer, landscape architect, urban planner and architect are not obsolete, but how we engage in a more collaborative mutually informed approach will tell much about the future of cities and society.

My interest is in engaging an expanded more integrated field that relies on the collaboration of experts to imagine and realize more integrated, responsive and generative systems that perform as ecologies within ecologies. The potential is not merely for the planner, urbanist or landscape designer, but also for the architect to understand how to engage site – how to consider urban constructs – how to understand the horizontal plane (as well as vertical space) as an opportunity to creatively catalyze more integrated, operational urban possibilities. ‘In the quest for survival, success and fulfillment, the ecological view offers invaluable insight. It shows the way for the man who would be the enzyme of the biosphere – its steward, enhancing the creative fit of man-environment, realizing man’s design with nature.’³ The shifting paradigm from

¹ Mostafavi, Moshen with Gareth Doherty, ed. *Ecological Urbanism*. Harvard University Graduate School of Design: Baden Switzerland, Lars Müller Publishers, 2010. Introduction, p26

² Guattari, Felix. Ian Pindar and Paul Sutton, trans. *Three Ecologies*. New Brunswick, NJ. 2000

³ McHarg, Ian L., and American Museum of Natural History. *Design with Nature*. 1st ed.

a mechanical compartmentalized one, to an organic, integrated understanding of complicity acknowledges the *belonging* of human systems to natural ones and the potential *being* of synthetic designs as living operational constructs that are in an ever-changing state of *becoming*.

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Figure 1. *Effects of Good Government on the City*



Figure 2. *Effects of Good Government on the Country*



Figure 3. *Effects of Bad Government on the City*



Figure 4. *Effects of Bad Government on the Country*



Figure 5. *Medieval Depiction of Jerusalem*

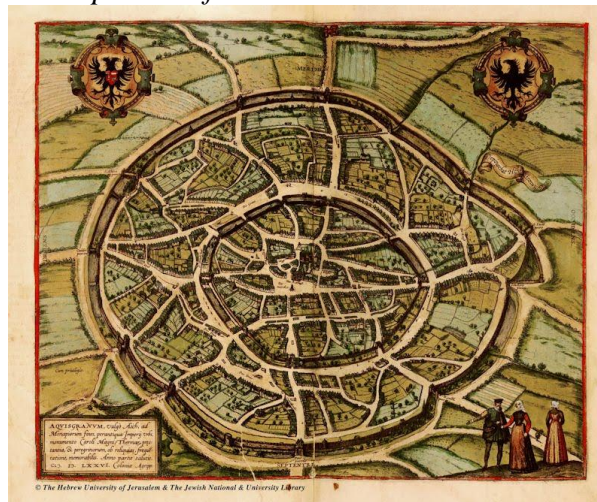


Figure 6. *Garden Cities - Howard*

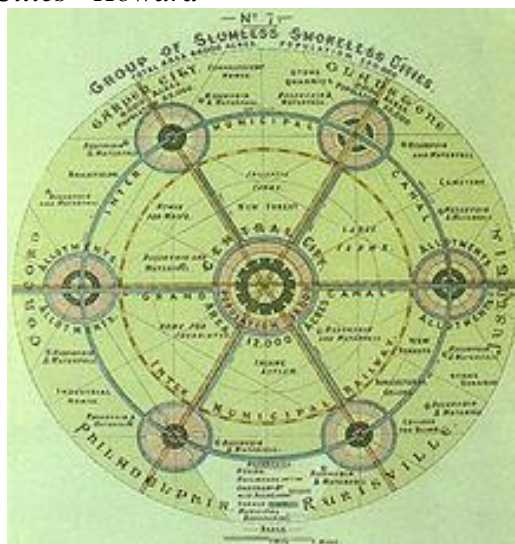


Figure 7. Three Magnets Diagram - Howard

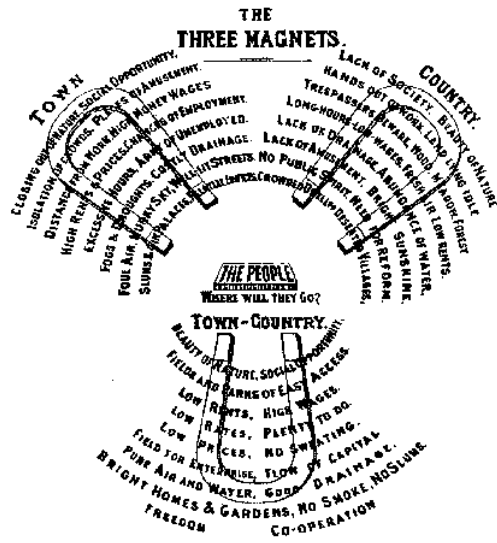


Figure 8. Urban Proposal - Metabolist



Figure 9. Japanese Metabolist Cities



Figure 10. *Tokyo Bay Proposal - Metabolists*

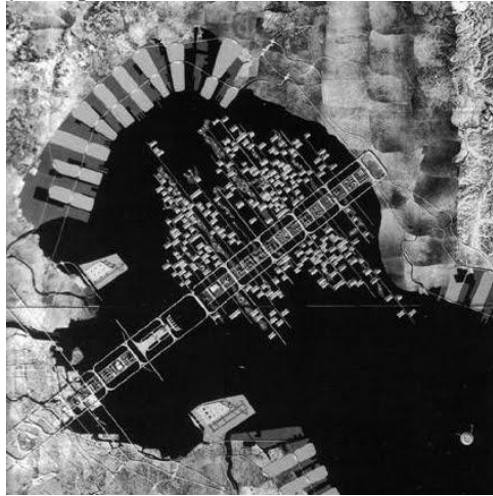


Figure 11. *Plug in City - Archigram*

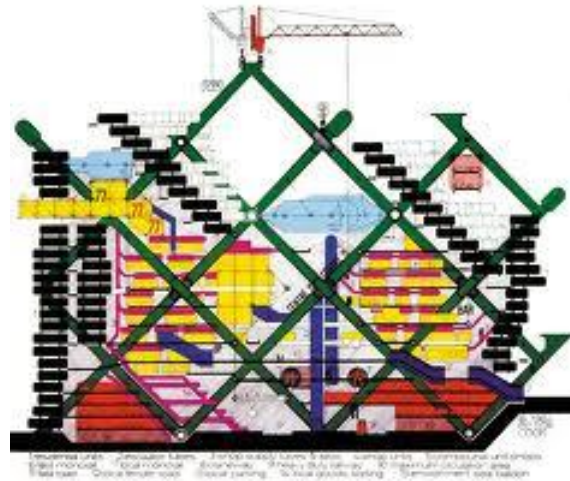


Figure 12. *Walking City - Archigram*

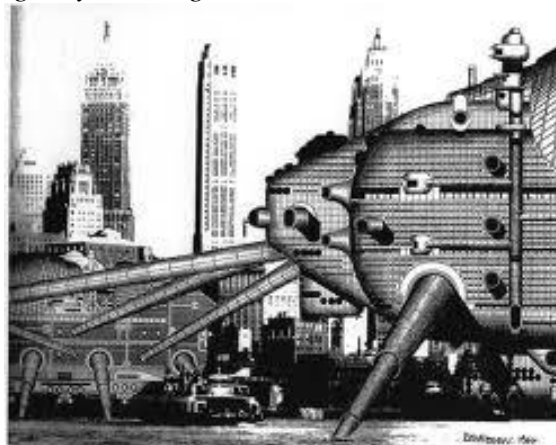


Figure 13. *City as a Complex Organism*



Figure 14. *City as Network*

