The Landscape Urbanism Reader

Charles Waldheim, editor
Landscape Urbanism describes a disciplinary realignment currently underway in which landscape replaces architecture as the basic building block of contemporary urbanism. For many, across a range of disciplines, landscape has become both the lens through which the contemporary city is represented and the medium through which it is constructed.
Terra Fluxus

James Corner
FIG. 1. The High Line, New York, 2004; view of hard and organic surfaces bleeding into one.
In the opening years of the twenty-first century, that seemingly old-fashioned term landscape has curiously come back into vogue (fig. 1). The reappearance of landscape in the larger cultural imagination is due, in part, to the remarkable rise of environmentalism and a global ecological awareness, to the growth of tourism and the associated needs of regions to retain a sense of unique identity, and to the impacts upon rural areas by massive urban growth. But landscape also affords a range of imaginative and metaphorical associations, especially for many contemporary architects and urbanists. Certainly, architecture schools have embraced landscape in recent years, even though not long ago architects could not (or would not) even draw a tree, let alone demonstrate interest in site and landscape. Today, however, it is not merely an interest in vegetation, earthworks, and site-planning that we see espoused in various schools of design and planning, but also a deep concern with landscape's conceptual scope; with its capacity to theorize sites, territories, ecosystems, networks, and infrastructures, and to organize large urban fields. In particular, thematics of organization, dynamic interaction, ecology, and technique point to a looser, emergent urbanism, more akin to the real complexity of cities and offering an alternative to the rigid mechanisms of centralist planning.

Leading schools of landscape architecture have traditionally understood the scope of landscape as a model for urbanism, embracing large-scale organizational techniques alongside those of design, cultural expression, and ecological formation. Recently, a few landscape architects have shed their professionally defined limits to expand their skills across complex urbanistic, programmatic, and infrastructural areas. So it seems that certain elements within each of the design professions—architecture, landscape architecture, urban design, and planning—are moving toward a shared form of practice, for which the term landscape holds central significance, as described through the formulation landscape urbanism. What is the precise nature of this hybrid practice, and how are each of the terms landscape and urbanism altered?

This new disciplinary collusion was anticipated in the Landscape Urbanism symposium and exhibition in 1997, originally conceived and organized by Charles Waldheim, and has been further articulated through a range of publications. It is a proposition of disciplinary conflation and unity, albeit a unity that contains, or holds together, difference—difference in terms of the ideological, programmatic, and cultural content of each of those loaded and contested words, "landscape," "urbanism" (fig. 2).
Clearly, much of the intellectual intent of this manifestolike proposition, and the essays collected under that formulation here, is the total dissolution of the two terms into one word, one phenomenon, one practice. And yet at the same time each term remains distinct, suggesting their necessary, perhaps inevitable, separateness. Same, yet different; mutually exchangeable, yet never quite fully dissolved, like a new hybrid ever dependent upon both the x and y chromosome, never quite able to shake off the different expressions of its parents.

Such a dialectical synthesis is significant, for it differs from earlier attempts to speak of urban sites as landscapes, or from attempts to situate landscape in the city. The more traditional ways in which we speak about landscape and cities have been conditioned through the nineteenth-century lens of difference and opposition. In this view, cities are seen to be busy with the technology of high-density building, transportation infrastructure, and revenue-producing development, the undesirable effects of which include congestion, pollution, and various forms of social stress; whereas landscape, in the form of parks, greenways, street trees, esplanades, and gardens, is generally seen to provide both salve and respite from the deleterious effects of urbanization. A most canonical instance of this, of course, is Olmsted’s Central Park, intended as relief from the relentless urban fabric of Manhattan—even though the catalytic effect that Central Park exerted on surrounding real estate development links it more closely with a landscape urbanist model. In this instance, landscape drives the process of city formation.

Danish émigré and Chicago landscape architect Jens Jensen articulated this sentiment when he said, “Cities built for a wholesome life...not for profit or speculation, with the living green as an important part of their complex will be the first interest of the future town-planner.”2 “Complex” is an important term here, and I shall return to it; suffice it to say that for Jensen, as for Olmsted—and even for Le Corbusier in his Plan Voisin—this “green complex” comes in the form of parks and green open spaces, accompanied by the belief that such environments will bring civility, health, social equity, and economic development to the city.

More than aesthetic and representational spaces, however, the more significant of these traditional urban landscapes possess the capacity to function as important ecological vessels and pathways: the hydrological and stormwater system underlying the necklacelike structure of Boston’s Back Bay Fens, for example, or the greenway corridors that infiltrate Stuttgart and bring mountain air through the city as both coolant and cleanser. These kinds of infrastructural landscapes will surely continue to be important to the overall health and well-being of urban populations. These precedents also embody some of the more significant potentials of landscape urbanism: the ability to shift scales, to locate urban fabrics in their regional and biotic contexts, and to design relationships between dynamic environmental processes and urban form.
The challenge in looking to these precedents for insight into our contemporary conditions is their invocation of a cultural image of "Nature," an image to which landscape is so firmly attached. Nature, in the above-mentioned examples, is mostly represented by a softly undulating pastoral scene, generally considered virtuous, benevolent, and soothing, a moral as well as practical antidote to the corrosive environmental and social qualities of the modern city. This landscape is the city's "other," its essential complement drawn from a nature outside of and excluding building, technology, and infrastructure.

A more complex and contradictory example is the Los Angeles River, which runs from the Santa Susana Mountains through downtown L.A. The "river" is actually a concrete channel built by the U.S. Corps of Engineers in response to the serious flood threat posed by the springtime snow-melts combined with surface runoff from surrounding developments. The channel is designed to optimize the efficiency and speed at which the water is discharged. Its advocates view "nature" here as a violent and threatening force—and rightly so. On the other hand, landscape architects, environmentalists, and various community groups want to convert the channel into a green corridor, replete with riparian habitat, woodlands, birdsong, and fishermen. For these groups, "nature" has been defaced by the engineer's zeal for control. It is, I believe, a well-intentioned but misguided mission, and it underscores the persistent opposition in people's minds.

This contest goes both ways. The debate is not only concerned with bringing landscape into cities but also with the expansion of cities into surrounding landscape—the source of the pastoral ideal, characterized by vast agrarian fields, wooded hillsides, and natural preserves. In 1955, the mega-mall urbanist Victor Gruen coined the term "cityscape," which he posited in contradistinction...
to “landscape.” Gruen’s “cityscape” refers to the built environment of buildings, paved surfaces, and infrastructures. These are further subdivided into “technoscapes,” “transportation-scapes,” “suburb-scapes,” and even “subcityscapes”—the peripheral strips and debris that Gruen calls the “scourge of the metropolis.” On the other hand, “landscape,” for Gruen, refers to the “environment in which nature is predominant.” He does say that landscape is not the “natural environment” per se, as in untouched wilderness, but to those regions where human occupation has shaped the land and its natural processes in an intimate and reciprocal way. He cites agrarian and rural situations as examples, invoking an image of topographic and ecological harmony, bathed in green vegetation and clear blue sky. For Gruen, cityscape and landscape were once clearly separated, but today the city has broken its walls to subsume and homogenize its surrounding landscape in an economic and “technological blitzkrieg”—the various “scapes” now in conflict and with boundless definition.

This image of one thing overtaking another (with competing values attached to each, as in either landscape permeating the city or the city sprawling across its hinterland) is reminiscent of debates surrounding the design of Parc de la Villette, in which many landscape architects initially decried the lack of “landscape” in the park’s design, seeing only the buildings or “follies.” More recently, landscape architects have revised this sentiment, suggesting that upon further inspection, the still maturing landscape has come to prevail over the buildings. This sentiment is very telling, for—as with Jensen, Olmsted, Le Corbusier, Gruen, and their contemporaries, or indeed for the various groups contesting the Los Angeles River today—it keeps the categories of building/city versus green landscape as separate entities: the follies at la Villette are somehow not recognized as being
part of the landscape, just as the concrete river channel is not recognized as a landscape element, even though its landscape function is solely hydrological.

Moreover, we know full well that each of these categories—landscape and urbanism—belongs to a certain profession, or institutionalized discipline. Architects construct buildings and, with engineers and planners, they design cities; landscape architects build landscapes, in the form of earthwork, planting, and open-space design. Implicit in the sentiments of many landscape architects is indignation that the Parc de la Villette was designed not by a landscape architect but by an architect. Similarly, when a landscape architect wins a competition today that architects think belongs in their domain, there can be heard some rather cynical grumbling in that court too. So this antinomic, categorical separation between landscape and urbanism persists today not only because of a perceived difference in material, technical, and imaginative/moralistic dimensions of these two media, but also because of a hyper-professionalized classification, a construction further complicated through competing power relations.

For example, it has been argued by others that landscape tends to be repressed by architects and planners, or appropriated only to the extent that it frames and enhances the primacy of urban form. Landscape is employed here as a bourgeois aesthetic, or naturalized veil. Moreover, it is increasingly the case that vast developer-engineering corporations are constructing today’s world with such pace, efficiency, and profit that all of the traditional design disciplines (and not only landscape) are marginalized as mere decorative practices, literally disenfranchised from the work of spatial formation.

Conversely, of course, many ecologically aligned landscape architects see cities as grossly negligent with regard to nature. While the accomplishments of environmental restoration and regulation are both urgent and impressive, the exclusion of urban form and process from any ecological analysis remains extremely problematic. Moreover, so-called “sustainable” proposals, wherein urbanism becomes dependent upon certain bioregional metabolisms, while assuming the place-form of some semi-ruralized environment, are surely naive and counter-productive. Do the advocates of such plans really believe that natural systems alone can cope more effectively with the quite formidable problems of waste and pollution than do modern technological plants? And do they really believe that putting people in touch with this fictional image called “nature” will predispose everybody to a more reverent relationship with the earth and with one another (as if relocating millions from cities to the countryside will actually somehow improve biodiversity and water and air quality)? [FIG. 3]?

At the beginning of the twentieth century, only sixteen cities in the world had populations larger than a million people, yet at the close of the century more than five hundred cities had more than a million inhabitants, many boasting more than ten million residents and still expanding. Metropolitan Los Angeles has a current population of approximately thirteen million and is projected to...
double in the next twenty-five years. Given the complexity of the rapidly urbanizing metropolis, to continue to oppose nature against culture, landscape against city—and not only as negational absolutes but also in the guise of benign, complementary overlaps—is to risk complete failure of the architectural and planning arts to make any real or significant contribution to future urban formations.

With this preface, we can begin to imagine how the concept of landscape urbanism suggests a more promising, more radical, and more creative form of practice than that defined by rigid disciplinary categorizations. Perhaps the very complexity of the metabolism that drives the contemporary metropolis demands a conflation of professional and institutionalized distinctions into a new synthetic art, a spatio-material practice able to bridge scale and scope with critical insight and imaginative depth [FIG. 4].

By way of providing a schematic outline for such a practice, I can sketch four provisional themes: processes over time, the staging of surfaces, the operational or working method, and the imaginary. The first of these themes addresses processes over time. The principle is that the processes of urbanization—capital accumulation, deregulation, globalization, environmental protection, and so on—are much more significant for the shaping of urban relationships than are the spatial forms of urbanism in and of themselves. The modernist notion that new physical structures would yield new patterns of socialization has exhausted its run, failing by virtue of trying to contain the dynamic multiplicity of urban processes within a fixed, rigid, spatial frame that neither derived from nor redirected any of the processes moving through it. This emphasis on urban processes is not meant to exclude spatial form but rather seeks to construct a dialectical understanding of how it relates to the processes that flow through, manifest, and sustain it.

This suggests shifting attention away from the object qualities of space (whether formal or scenic) to the systems that condition the distribution and density of urban form. Field diagrams or maps describing the play of those forces are particularly useful instruments in furthering an understanding of urban events and processes. For example, the geographer Walter Christaller’s diagrams of population distribution and city planner Ludwig Hilberseimer’s diagrams of regional settlement patterns each articulate flows and forces in relation to urban form.

In comparing the formal determinism of modernist urban planning and the more recent rise of neo-traditional “New Urbanism,” the cultural geographer David Harvey has written that both projects fail because of their presumption that spatial order can control history and process. Harvey argues that “the struggle” for designers and planners lies not with spatial form and aesthetic appearances alone but with the advancement of “more socially just, politically emancipatory, and ecologically sane mix(es) of spatio-temporal production processes,” rather than the capitulation to those processes “imposed by uncontrolled capital accumulation, backed by class privilege and gross inequalities of
political-economic power." His point is that the projection of new possibilities for future urbanisms must derive less from an understanding of form and more from an understanding of process—how things work in space and time.

In conceptualizing a more organic, fluid urbanism, ecology itself becomes an extremely useful lens through which to analyze and project alternative urban futures. The lessons of ecology have aimed to show how all life on the planet is deeply bound into dynamic relationships. Moreover, the complexity of interaction between elements within ecological systems is such that linear, mechanistic models prove to be markedly inadequate to describe them. Rather, the discipline of ecology suggests that individual agents acting across a broad field of operation produce incremental and cumulative effects that continually evolve the shape of an environment over time. Thus, dynamic relationships and agencies of process become highlighted in ecological thinking, accounting for a particular spatial form as merely a provisional state of matter, on its way to becoming something else. Consequently, apparently incoherent or complex conditions that one might initially mistake as random or chaotic can, in fact, be shown to be highly structured entities that comprise a particular set of geometrical and spatial orders. In this sense, cities and infrastructures are just as "ecological" as forests and rivers.

Since the publication in 1969 of Ian McHarg’s Design With Nature, landscape architects have been particularly busy developing a range of ecological techniques
for the planning and design of sites. But, for a variety of reasons, some outlined earlier, ecology has been used only in the context of some thing called the “environment,” which is generally thought to be of “nature” and exclusive of the city. Even those who have included the city in the ecological equation have done so only from the perspective of natural systems (hydrology, air-flow, vegetational communities, and so on). 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.

One model for such a conflation that comes to mind in this context is Louis Kahn’s 1953 diagram for vehicular circulation in Philadelphia. With regards to this project, Kahn wrote:

Expressways are like rivers. These rivers frame the area to be served.
Rivers have Harbors. Harbors are the municipal parking towers; from
the Harbors branch a system of Canals that serve the interior; ... from the
Canals branch cul-de-sac Docks; the Docks serve as entrance halls to
the buildings.⁹

Later, in Kahn’s proposal for Market Street East came a whole repertoire of
“gateways,” “viaducts,” and “reservoirs,” each finding new expression in the urban
field as iconographic figures illuminated in colored light at nighttime allowing
for both navigation and the regulation of speed.

Kahn’s diagrams suggest the need for contemporary techniques of represent-
ing the fluid, process-driven characteristics of the city, wherein the full range of
agents, actors, and forces that work across a given territory might be brought
into consideration, mobilized, and redirected. This work must necessarily view
the entire metropolis as a living arena of processes and exchanges over time,
allowing new forces and relationships to prepare the ground for new activities
and patterns of occupancy. The designation terra firma (firm, not changing;
fixed and definite) gives way in favor of the shifting processes coursing through
and across the urban field: terra fluxus.

The second theme of the landscape urbanism project concerns itself with the
phenomenon of the horizontal surface, the ground plane, the “field” of action.
These surfaces constitute the urban field when considered across a wide range
of scales, from the sidewalk to the street to the entire infrastructural matrix of
urban surfaces. This suggests contemporary interest in surface continuities, where
roofs and grounds become one and the same; and this is certainly of great value
with regard to conflating separations between landscape and building—one
thinks of the collaborations between Peter Eisenman and Laurie Olin in this
regard. However, I would emphasize a second understanding of surface: surface
understood as urban infrastructure. This understanding of the urban surface is
evident in Rem Koolhaas’s notion that urbanism is strategic and directed toward the “irrigation of territories with potential.” Unlike architecture, which consumes the potential of a site in order to project, urban infrastructure sows the seeds of future possibility, staging the ground for both uncertainty and promise. This preparation of surfaces for future appropriation differs from merely formal interest in single surface construction. It is much more strategic, emphasizing means over ends and operational logic over compositional design.

For example, the grid has historically proven to be a particularly effective field operation, extending a framework across a vast surface for flexible and changing development over time, such as the real estate and street grid of Manhattan, or the land survey grid of the Midwestern United States. In these instances, an abstract formal operation characterizes the surface, imbuing it with specificity and operational potential. This organization lends legibility and order to the surface while allowing for the autonomy and individuality of each part, and remaining open to alternative permutations over time. This stages the surface with orders and infrastructures permitting a vast range of accommodations and is indicative of an urbanism that eschews formal object-making for the tactical work of choreography, a choreography of elements and materials in time that extends new networks, new linkages, and new opportunities.

This understanding of surface highlights the trajectories of shifting populations, demographics, and interest groups upon the urban surface; traces of people provisionally stage a site in different ways at different times for various programmatic events, while connecting a variety of such events temporally around the larger territory. This attempts to create an environment that is not so much an object that has been “designed” as it is an ecology of various systems and elements that set in motion a diverse network of interaction. Landscape urbanism is here both instigator and accelerator, working across vast surfaces of potential. This approach, at once simple and conventional, affords residents a range of programmatic configurations as seasons, needs, and desires change. The thrust of this work is less toward formal resolution and more toward public processes of design and future appropriation. Concerned with a working surface over time, this is a kind of urbanism that anticipates change, open-endedness, and negotiation.

This leads in turn to the third theme of landscape urbanism, which is the operation or working method. How does one conceptualize urban geographies that function across a range of scales and implicate a host of players? Moreover, beyond issues of representation, how does one actually operate or put into effect the work of the urbanist, given the exigencies of contemporary development? There is no shortage of critical utopias, but so few of them have made it past the drawing board. It is both tragic and ironic that as designers we are all ultimately interested in the density of building but that most who actually accomplish this can only do so through the typically unimaginative and uncritical techniques of
design as a service profession. On the other hand, the visionaries, it would seem, are as always provocative and interesting, but their utopias continually evade the problem of an operative strategy.

There is much more that the practice of landscape urbanism holds for questions of representation. I believe that landscape urbanism suggests a reconsideration of traditional conceptual, representational, and operative techniques. The possibilities of vast scale shifts across both time and space, working synoptic maps alongside the intimate recordings of local circumstance, comparing cinematic and choreographic techniques to spatial notation, entering the algebraic, digital space of the computer while messing around with paint, clay, and ink, and engaging real estate developers and engineers alongside the highly specialized imagines and poets of contemporary culture—all these activities and more seem integral to any real and significant practice of synthetic urban projection. But the techniques to address the sheer scope of issues here are desperately lacking—and this area alone, it would seem to me, is deserving of our utmost attention and research.

This of course arrives at the fourth theme of landscape urbanism, which is the imaginary. There is simply no point whatsoever in addressing any of the above themes for their own sake. The collective imagination, informed and stimulated by the experiences of the material world, must continue to be the primary motivation of any creative endeavor. In many ways, the failing of twentieth-century planning can be attributed to the absolute impoverishment of the imagination with regard to the optimized rationalization of development practices and capital accumulation. Public space in the city must surely be more than mere token compensation or vessels for this generic activity called “recreation.” Public spaces are firstly the containers of collective memory and desire, and secondly they are the places for geographic and social imagination to extend new relationships and sets of possibility. Materiality, representation, and imagination are not separate worlds; political change through practices of place construction owes as much to the representational and symbolic realms as to material activities. And so it seems landscape urbanism is first and last an imaginative project, a speculative thickening of the world of possibilities.

In conclusion, I would return to the paradoxical separateness of landscape from urbanism in the formulation that occasions this essay. Neither term is fully conflated into the other. I do believe that this paradox is not only inescapable but necessary to maintain. No matter how ambitious and far-reaching the above outlined practices may be, at the end of the day there will still always be doors, windows, gardens, stream corridors, apples, and lattes. There is an inevitable intimacy with things that characterizes rich urban experience. The failure of earlier urban design and regionally scaled enterprises was the oversimplification, the reduction, of the phenomenal richness of physical life. A good designer must be able to weave the diagram and the strategy in relationship to the tactile and
the poetic. In other words, the union of landscape with urbanism promises new relational and systemic workings across territories of vast scale and scope, situating the parts in relation to the whole, but at the same time the separateness of landscape from urbanism acknowledges a level of material physicality, of intimacy and difference, that is always nested deep within the larger matrix or field.

In mobilizing the new ecologies of our future metropolitan regions, the critically minded landscape urbanist cannot afford to neglect the dialectical nature of being and becoming, of differences both permanent and transient. The lyrical play between nectar and NutraSweet, between birdsong and Beastie Boys, between the springtime flood surge and the drip of tap water, between mossy heaths and hot asphaltic surfaces, between controlled spaces and vast wild reserves, and between all matters and events that occur in local and highly situated moments, is precisely the ever-diversifying source of human enrichment and creativity. I can think of no greater raison d’être for persisting with the advancement of landscape urbanism than this.

Notes
Landscapes of Infrastructure

Elizabeth Mossop
FIG. 1. Infrastructure as public space as in Spackman and Mossop’s Moore Park Bus Interchange, Sydney
The emergence of a discourse based on the relationship between contemporary urbanism and landscape theory and methods signifies an important shift for landscape architecture as a discipline [FIG. 1]. It offers the vehicle by which landscape architecture can reengage with citymaking and take a more significant political role in the debates surrounding urbanization, public policy, development, urban design, and environmental sustainability. The discourse of landscape urbanism establishes the significance of infrastructure and its associated landscape in the development of contemporary urbanism, and in the generation of public space.

Landscape urbanism brings together a number of different landscape-generated ideas in the exploration of contemporary urbanism. Landscape is used as a metaphor for contemporary urban conditions, such as the field scenarios described by James Corner and Stan Allen, the “urbanscape” described by Richard Marshall, or the matrix of landscape described by Rem Koolhaas, all of which refer to an urban type that, unlike the traditional core/periphery model, is not focused on a dense middle but instead is a more fragmented matrix of discontinuous land uses. Landscape is also used to represent and understand the dynamic systems of the city, and is increasingly perceived as the significant medium for citymaking. Strategies have been developed that attempt to make ecological processes operational in design, harnessing natural phenomena such as erosion, succession, or water cycles in the generation of landscapes. Designed landscapes are thus allowed to develop over time as can be seen in recent proposals for Fresh Kills in New York and Downsview Park in Toronto. These proposals and others highlight the way in which the landscape of infrastructure has become the most effective means to explore the relationship between natural processes and the city, which is the integral factor in a truly synthetic landscape urbanism.

As early as the 1880s, Frederick Law Olmsted’s proposals for Boston’s Emerald Necklace illustrate the intertwining of transport infrastructure, flood and drainage engineering, the creation of scenic landscapes, and urban planning [FIG. 2]. Here the close collaboration between landscape design, urban strategies, and engineering produced a complex project integrating ideas about nature and infrastructure as well as health, recreation, and scenery. The work of Frederick Law Olmsted on major urban projects like Manhattan’s Central Park and Brooklyn’s Prospect Park, as well as Frederick Law Olmsted, Jr.’s proposals for other major urban park networks, were a significant influence on the urbanism of the time, although their most ambitious urban proposals, such as that for Los Angeles, remain unimplemented.
Walter Burley Griffin's 1911 design for Canberra, national capital of Australia, in which significant features of the natural environment played a key role in locating the city's major axes and key structures, is another example of a strong relationship between city form and the natural landscape structure [FIG. 3]. His designs for residential subdivisions—strongly influenced by Olmsted's work—also illustrate methods for developing urban infrastructure that conserve and enhance the natural landscape, as can be seen at his Castlecrag in Sydney.¹

In the first half of the twentieth century, ecology and planning were for the first time explicitly linked, in the work Patrick Geddes, in Benton MacKaye's grounding of regional planning in human ecology, in Aldo Leopold's writings on the idea of a land-based ethic, and in Lewis Mumford's description of the city as composed from human processes intricately interwoven with natural processes.² This work led to the development of regional environmental planning, and in particular the work of Ian McHarg at the University of Pennsylvania, where he was invited to create a program in landscape architecture and regional planning beginning in 1954. His unique curriculum profoundly influenced the entire discipline of landscape architecture, and has been so thoroughly absorbed into the culture of landscape architecture that it is difficult to properly appreciate its significance at the time. His intellectual leap in comprehensively applying the understanding of ecological processes and natural systems to human settlements and planning was of enormous significance. He was a great communicator and polemical speaker, and his book Design with Nature remains one of the most important works shaping our thinking on human settlement.
When professional education in urban design was beginning at Harvard University in the 1960s, Hideo Sasaki, the Chair of the Department of Landscape Architecture, suggested its inclusion within the program. Although this did not transpire, it illustrates the breadth of Sasaki’s vision for landscape architects and his assertion of their taking an influential role in shaping the city. This challenge was not effectively taken up, and the discipline has always struggled with its perceived subordinate role to architecture in any discourse on urbanism. Since that time, landscape architects have by and large accepted this, both in practice and within academia, and as a result have increasingly been relegated to a more peripheral or marginal role in debates on urbanization. The mainstream of the profession has been more focused on design at the scale of the individual site, on conservation-based planning, and on visual issues and the amelioration of the impact of development. While there has always been rhetoric calling for a unification of ecology and design, there have been few compelling solutions to urban problems exhibiting this fusion.

There are a number of reasons why this is so. One is that the period spanning from the 1960s through the 1980s saw the transformation of landscape architecture into a full-fledged professional discipline. It has grown in scale and also in scope, and many leading practitioners have been absorbed in the processes of building an academic structure to support the expansion of the discipline and the profession, and in developing organizations and methods for the design and implementation of projects of ever-increasing complexity and scale. Of more significance, however, are two related and powerful paradigms that
continue to influence and shape landscape architecture's intellectual trajectory. The first is a worldview that separates the works of humans from the natural world, and the second is the schism within the discipline of landscape architecture, between environment and design.

The perception of the world as "man versus nature," strongly influenced by the ideas of the American transcendentalists, has led to a conceptualization of nature as inherently good and cities and development as inherently bad. These ideas were of profound significance in the nineteenth century, and the designed landscapes that resulted have been most influential on twentieth-century landscape design. This way of thinking also came to the fore after the Second World War in the developing environmental critiques of modernization, for the first time articulated in ecological/scientific terms, most influentially by Rachel Carson in Silent Spring and Ian McHarg in Design with Nature.

McHarg, in particular, through his teaching and practice in landscape architecture, influenced its intellectual development. His evangelical style reflected a polarized view of the world and of the profession of landscape architecture. He continued to make an absolute distinction between the sustaining, spiritually renewing countryside and the ugly, dirty, brutal industrial city. In Design with Nature he describes sprawling suburbs, out of control freeways and traffic, pollution, ugly commercial environments, soulless cities of office towers, and the evils of industrial agriculture. His methods assume an infallibility that produces one objective and replicable answer, and he polarized the profession by insisting that his was the only ethical path for planning and development. But McHarg's methodology fails to account for the significance of design in the planning process, and his scientific rhetoric devalues the expression of art and culture. Much of the work that has followed McHarg in this vein also has a strong tendency to be anti-urban and anti-design. At its cruelest, the underlying legacy is the idea that if the process is right, the design solution will also be right. Embodied in this is a fundamental misunderstanding of design, of the relationship between planning and design, and of the complexity of the design process.
In opposition to these views, there has been the ongoing development within the discipline of the art of landscape design. This line of work has continued to be concerned with the creation of spaces for the accommodation of human activity that delight the senses, and has focused on the development and techniques of the creative process, the nature of formal solutions, and the technical and professional issues of implementation, as can be seen in the work of designers such as Lawrence Halprin, Dan Kiley, and more recently Laurie Olin and Peter Walker [FIG. 4]. The impact of postmodernism has forced a greater engagement with social and cultural issues and a reevaluation of the influence of history. It has also been significant in the exploration in the 1980s and 1990s of environmental and land-based art, which has led to an engagement with natural phenomena and processes in design, as can be seen in the work of Hargreaves Associates or Michael Van Valkenburgh Associates [FIG. 5]. Traditionally this more design- and art-focused work has had little overt engagement with the issues of ecological sustainability.

These two schools of thought have tended to separate themselves in terms of scale, with ecological/environmental planning operating at the regional scale and design-focused projects at the scale of individual sites. They tend to be characterized as planning, ecology, sustainability, science, and conservation on one side and art, design, and development on the other. This schism in the discipline, and the territoriality it perpetuates, has led directly to landscape architecture’s failure to engage with urbanism and with the bringing together of ecology and design.

There have, however, been some significant attempts to synthesize the ecological systems approach with urbanism. In 1984, two publications developed
the discourse relating ecology and the city: Michael Hough's *City Form and Natural Process* and Anne Spirn's *The Granite Garden*. Both attempted the development of theories and methods applying the understanding of ecology and natural processes to a more sophisticated conceptualization of cities and urban processes, and Hough's ongoing work has continued to develop strategies for the application of ecological ideas in urban design. This engagement with the city, although driven by an environmentalist agenda, has forced the development of systems involving both human and natural processes.

**BLURRING BOUNDARIES AND HYBRID LANDSCAPES.**

While it is important to acknowledge the significant intellectual shifts that have informed the development of landscape urbanism, there is much to be gained by building on the strengths of work done by ecological urbanists like Hough and Spirn as well as that of architectural theorists like Kenneth Frampton, Peter Rowe, and Rem Koolhaas. The issue of territoriality is instrumental in our current dilemma of how to deal with contemporary urban development, and disciplinary divisions have only served us ill in coming to terms with the complexity of current patterns of urbanization. One of landscape urbanism's more intriguing aspects is its very crossing of disciplinary boundaries.

The issue of boundaries is also relevant in revisiting the question of the separation of humans from nature and the confusion in discussing the urban landscape often caused by equating "landscape" with nature or naturalness—this in spite of the ongoing and explicit manipulation and construction of the urban landscapes we inhabit. The profession of landscape architecture has been plagued by an unthinking acceptance that nature-landscape is always good and beautiful, which has often replaced a more focused exploration of "solutions" to the design of urban landscapes. Instead we see the ubiquitous creation of mediocre naturalistic pastoral landscapes across every urban or suburban condition. Since the 1980s, however, there has been an investigation of, and focus on, the unnaturalness of the landscape, particularly influenced by the work of designers and commentators from the Netherlands, with its strong tradition of constructed landscapes. In contemporary discussion the difference between natural landscapes and human landscapes is much less clearly defined.

In parallel with this has been the development of the field of urban ecology, the investigation of the characteristics of the plant and animal communities in the urban landscape, subject to natural processes but profoundly shaped by the impact of humans and development. This has led to new design strategies that are based on an acceptance of the disturbed and hybrid nature of these landscapes and the idea that landscape design can be instrumental in working with natural processes to make new hybrid ecological systems. It is clearly not about making approximations of pristine natural environments, but rather making functioning ecologically based systems that deal with human activity and natural
processes in the urban environment. Bringing all of the factors together is complex, requiring a synthesis of social, political, and economic factors, as well as issues related to urban wildlife and water management.

In moving these ideas forward to a greater mainstream acceptance, there is a desperate need for successfully functioning prototypes. Architectural critic Bart Lootsma has said, “Designing is not enough: the implementation of schemes and the limitation of undesirable and unsustainable developments are called for.” Working against the implementation of projects derived from the ideas of landscape urbanism is that they resist easy communication. The dynamic and systematic quality of projects is much harder to grasp than an individual object or clear formal strategy of more traditional urban landscape designs. One of the characteristics of systems that are trying to work with natural processes is the idea of their development over time, and the formal outcomes of projects that rely on process are difficult to predict, in a way that is often unacceptable to public agencies and other clients.

RECOVERING THE LANDSCAPES OF INFRASTRUCTURE
Explorations in landscape urbanism have focused on infrastructure as the most important generative public landscape. In the course of the twentieth century we have seen the increasing standardization of infrastructural systems as they meet higher standards of technical efficiency. These ubiquitous urban environments have been considered and evaluated solely on technical criteria and somehow exempted from having to function socially, aesthetically, or ecologically. As landscape architect Kathy Poole writes in relation to public infrastructure, “Through roughly 150 years of industrialization we have come to believe that the politics of efficiency are beyond question and that standardization is the ultimate expression of democracy.”

Such a reexamination of infrastructural space involves the recognition that all types of space are valuable, not just the privileged spaces of more traditional parks and squares, and they must therefore be habitable in a meaningful way. This requires the rethinking of the mono-functional realm of infrastructure and its rescue from the limbo of urban devastation to recognize its role as a part of the formal inhabited city. Designers need to engage with this infrastructural landscape: mundane parking facilities, difficult spaces under elevated roads, complex transit interchanges, and landscapes generated by waste processes. Landscape urbanism also suggests that this happens by an instrumental engagement with ecological processes as well as with the function of infrastructure and the social and cultural needs of the community. This functional engagement with ecological processes is distinct from the representations of natural phenomena and process that have been a significant influence on landscape design in the 1990s. The strategy is an attempt to make the necessities of dealing with human impact a part of the making and generation of urban landscapes.
This relationship between natural systems and the public infrastructure of the city begins to suggest a means of developing urban strategies through the development of networks of landscape infrastructure related to ecological systems. The starting point is that the most permanent and enduring elements of cities are often related to the underlying landscapes—the geology, the topography, the rivers and harbors, and the climate. This does not mean a denial of the realities of globalization or the influence of technology, but recognition of the importance of place and of connection to natural systems.

This suggests there should be a relationship between the underlying structures of topography and hydrology and the major structuring elements of urban form, such as the use of catchments as the basis for physical planning and regulation. There is an obvious synergy between the need to create networks of open space to serve social needs and new approaches to open systems of urban water management.

At the city scale, we see a version of this in historical examples where extreme topographic conditions have controlled the form of development, such as in Rio de Janeiro or Sydney, where very steep topography has prevented development and preserved vegetation in urban areas close to harbors and beaches. In the city of Curitiba, in Brazil, recent planning initiatives undertaken in the 1990s have restructured the city’s open-space system to create a network of parks that also regulate floods and collect and treat urban runoff. At the neighborhood and site scales, we are beginning to see the implementation of design strategies that use the matrix of public and circulation space as the drainage and water treatment infrastructure. At Victoria Park in Sydney, the road system has been designed with planted swales that collect and begin the treatment of stormwater, as well as establishing street trees. Water is also collected and held within the neighborhood parks and treated in wetland park areas before being recycled in a series of sculptural water features [Fig. 6]. A similar approach to the integration of public space and water management can be seen in Atelier Dreiseitl’s designs for projects at Potsdamer Platz in Berlin, or Scharnhauser Park in Ostinger, Germany.
More traditional networks of open space can also offer the opportunity for the "re-naturalizing" or "day-lighting" of channelized urban streams into functioning hybrid systems. They use the ecological processes of natural streams in making systems that manage flooding, treat stormwater runoff, provide recreation opportunities, and enhance biodiversity. The design by Schaffer Barnsley for the Restoring the Waters project at Clear Paddock Creek in western Sydney is an example of this, as is Hargreaves Associates' Guadalupe River Park in San Jose, California, which created a stylized river channel and recreational landscape in managing urban flooding.\(^2\)

**THE LANDSCAPE OF MOVEMENT**

One of the biggest challenges is the design of the most mundane landscapes, those dominated by vehicles—carparks, roads, and freeways. The significance of the automobile must be dealt with rather than ignored in a nostalgic yen for a pre-car urbanism or blindly embraced for its romantic associations. It is time to engage with these landscapes that have been so poorly served by design. They have been a kind of shadow city, inhabited only by default. Many solutions to urban conflict between cars, mass transit, and people involve banishing the vehicles to subterranean underworlds, by their nature dark and atmospherically toxic. At the highest densities this separation may be the only solution, and the task is to redefine the nature of these spaces, as can be seen in Marcel Smets and Manuel de Sola-Morales's project for Leuven Station in Belgium [FIG. 7], or in the urban carpark designed by Béal et Blanciaert, in Roubaix Nord, France.\(^3\)

In many other instances, however, a reconciliation between the reality of private transport's convenience and the idealized places we want to live in has yet to be tangibly devised.

Road typologies have been distinguished in the past by their relationship to their surroundings. This was determined by their degree of specialization so that the most highly specialized freeways and expressways had almost no relationship to their environment, being corridors for the transit of automobiles only. They
were machines for transport, sealed from contamination by their environment, unchanging in section whatever their location, and their form determined solely by the technical requirements of their engineering. Older forms like boulevards and streets permitted different volumes of traffic movement but were also connected into the surrounding fabric and fulfilled a more diverse range of urban functions.

Investigating the design of roads requires understanding their operation at different scales. The plans and longitudinal sections of roads relate to the driver and the experience of movement through their corridors, whereas their cross sections relate the roads to the landscape within which they sit. From within the road we can explore the relationship between the visual and kinesthetic sensations of movement through space provided by the road, and how these can be employed in their design. Instead of only seeing the road from the driver's point of view, designers have recently begun to look at it from the perspective of the landscape through which it passes, responding to it as an element of the urban fabric and an integral part of the city.

Infrastructure increasingly provides the public spaces of our cities, and the infrastructure of movement is an essential presence in the developed world. Whether for cars, bicycles, or people, it is the connection of elements to one another that is the foundation of urban and suburban life. Like other infrastructure, roads are required to perform multiple functions: they must fulfill the requirements of public space and must be connected to other functioning urban systems of public transit, pedestrian movement, water management, economic development, public facilities, and ecological systems. These demands are therefore propelling new design approaches.

Freeways, the most specialized roads, are being designed to perform a more complex range of functions and to be an integrated part of the urban landscapes they traverse. In Melbourne, Denton Corker Marshall's Gateway project heightens the driver's experience of entering the city and also changes the relationship of the freeway to the city, making it a functioning part of the urban fabric. Also in Melbourne, the design of the extension to the Eastern Freeway, by Tract Consultants and Wood Marsh, is designed as part of an integrated strategy for providing open space, the management of urban flooding, and conservation. The design of the roadside landscape also responds to its locality through the use of wall and planting materials. The new design of the Great Western Highway, between Leura and Katoomba in the Blue Mountains west of Sydney, by Spackman and Mossop, responds to the locality by minimizing its impact on the spectacular and rugged terrain through the vertical separation of carriageways, the use of tunnels, and elevated carriageways. It also preserves the historic urban pattern of the relationship between the highway and adjacent towns. The A14 Viaduct in Nanterre in France, designed by Deqc and Cornet, illustrates a more simply architectural solution to diversifying function by adding a Motorway Operations Center to the underside of the elevated viaduct.
The city of Barcelona, in particular, has developed strategies for civilizing urban freeways. A number of projects have been completed implementing strategies dealing with different aspects of the relationships between major arteries and the surrounding city, from the Moll de la Fusta by Manuel de Sola-Morales, completed for the 1990 Olympic redevelopment, to projects such as the Parc Trinitat’s attempt to capture the space inside freeway loops for recreational use (Batlle y Roig, 1990–93), or the layered multifunctional strategies developed for the Rambla de la Ronda del Mig by Jordi Heinrich and Olga Tarrasó (1995–2003).

At lower traffic densities, it becomes possible to design roads as spaces to be shared by people and vehicles. In the Netherlands, the design of residential streets as public spaces for play, socializing, and trees, as well as for different kinds of movement, has been a matter of ongoing development in the twentieth century with the realization of many projects, known as wonerfs, throughout the country. Across the Atlantic, in Walter Hood’s late-1990s design for Poplar Street in Macon, Georgia, public space has been reclaimed from traffic space to create a generous central median or rambla, allowing a range of new uses to enliven the street. The traffic space is unusual in that it is flexible and is explicitly designed to serve the needs of both drivers and pedestrians. To this end the parking areas are designed to operate as shaded spaces opening to the central “yard” areas, places for people to occupy as well as for car storage. These parking areas are designed with the intention of urban amenity and the acknowledgment of their vital role in the urban experience.15

Perhaps the most challenging and neglected urban landscape type is the carpark. We are beginning to see many innovative structures for the accommodation of multilevel parking,15 but for the surface parking ubiquitous in the suburbs, there are only a few projects that suggest non-standard possibilities. Landscape architect Peter Walker has explored the design of roads and parking infrastructure as a seamless extension of the designed landscape. He uses non-standard pavements and architectural planting to create spaces like garden rooms where the needs of people and cars are balanced. At IBM headquarters at Solana, Texas (1984–89), the strong use of architectural planting, skillful planning and use of materials makes the roads and parking areas an integrated and inviting part of the landscape. Parked cars recede under tree canopies, turning circles provide formal building approaches, and the spaces for circulation and car storage become viable public spaces. The Flamingstrasse housing project in Berlin by Büro Keifer also uses non-standard pavement material to change the use and perception of the parking area. Here the surface is strongly patterned to facilitate orderly car parking, as well as encouraging ball games and children’s play at other times.17 A more extensive approach, where the parking area is treated as an orchard or forest planting, is Michel Desvigne and Christine Dalnoky’s landscape design for the Thompson factory outside Paris. In this phased design,
swales are used to harvest the water needed to establish bands of planting that create an overall impression of a tree-filled space. Over time the bands are replaced with large-canopied trees that dominate the parking.

These projects illustrate a potential to bridge the divide between ecology and design so persistent since the impact of Ian McHarg's work. We can see designed landscapes where new hybrid systems develop that harness natural processes and strengthen sustainable systems without creating picturesque landscapes. We can also see the possibility of re-examining even the most challenging infrastructural landscapes and a new attitude to infrastructure that goes beyond technical considerations to embrace issues of ecological sustainability, connection to place and context, and cultural relationships.

If we think of landscape as an infrastructure which underlies other urban systems, rather than equating it with nature or ecology we have a much more workable conceptual framework for designing urban systems. This is particularly apt where those systems no longer function in a core/periphery model but as a matrix. This framework of landscape infrastructure should provide the most permanent layer of urban development to preserve the viability of natural systems and regional cultures.

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16. A number of projects for carports that illustrate innovative approaches were featured in the exhibition *Architecture on the Move, Cities and Mobilities*, and illustrated in the accompanying catalog, Francis Rambert, *Architecture on the Move, Cities and Mobility* (Barcelona: Actar, 2003).