

## URBAN NATURE AND HUMAN DESIGN

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Human survival depends upon adapting ourselves and our landscapes—cities, buildings, gardens, roadways, rivers, fields, forests—in new, life-sustaining ways, shaping contexts that reflect the interconnections of air, earth, water, life, and culture, that help us feel and understand these connections, landscapes that are functional, sustainable, meaningful, and artful.

My career as landscape architect and planner, teacher, scholar, author, and photographer has been dedicated to advancing this goal. I once thought that the obstacle to achieving it was lack of knowledge, and I wrote my first book, *The Granite Garden: Urban Nature and Human Design*, to fill that void. The book presents, synthesizes, and applies knowledge from many disciplines to show how cities are shaped by natural processes, and, thus, are inseparable from the natural world, and to demonstrate how cities can be planned and designed in concert with natural processes rather than in conflict. Organized by sections on air, earth, water, life, and ecosystems, the book contains successful cases from scales of house and garden to city and region. After the book’s publication in 1984, I was astonished by how many people, including scientists and naturalists, resisted or ignored the evidence that human settlements, including cities, are part of the natural world. “What’s your book about?” people would ask me. “About nature in the city and about how differently we would design cities if we thought of them as part of nature rather than separate from it,” I would answer. A puzzled frown would invariably appear: “Nature in the city? What nature?” Then an expression of dawning realization, “Oh, you mean trees and parks!”

Until confronted by readers’ reactions, I had taken for granted my own definition of nature: the belief that nature consists of the biological, physical, and chemical processes that create and sustain the earth. I was also blind to my own emphasis in *The Granite Garden* on nature’s value in sustaining and enriching human life. I became aware of this bias after encountering the hostility of a reader who stressed, instead, the value of natural features such as trees and animals in and of themselves, over any value to humans. To that reader, the word “humanist” was an epithet. I have come to realize that ideas of nature and what is natural stem from strongly-held feelings and beliefs. These views are highly personal and

varied, and changing them is not simply a matter of marshaling compelling verbal arguments, but of reaching both mind and heart. Reflecting on the varied responses to the book's portrayal of urban nature and human design also helped me understand the conflicts and confusion that plague my own profession of landscape architecture.

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It is impossible to make a garden, or even to shape a larger landscape, without expressing ideas about nature. For thousands of years, nature has been both mirror and model for landscape design and planning, has been looked to for inspiration, guidance, and authority. Those like Frederick Law Olmsted, who established landscape architecture as a profession in the United States in the nineteenth century, accepted the challenge George Perkins Marsh laid down in his book of 1864, *Man and Nature*: "In reclaiming and reoccupying lands laid waste by human improvidence or malice . . . the task is to become a co-worker with nature in the reconstruction of the damaged fabric."<sup>1</sup> Landscape architects have explored and debated what it means to design with nature for well over a century.

Most landscape architects today regard ecological science as an important source of principles for landscape design. Some, however, embrace ecology as the primary authority for determining the "natural" (and therefore correct) way to design landscapes. To its most extreme practitioners, ecological design is deterministic, its "laws" couched in terms that recall religious dogma. Debates over what constitutes a "genuinely ecological practice of landscape architecture" escalated in the 1980s and 1990s, with various groups accusing each other of "non-ecological" behavior.<sup>2</sup> There have been bitter quarrels over the proper materials, styles, and methods of ecological landscape design. Some advocate the exclusive use of native, as opposed to naturalized, plants. Some urge the eradication of "exotic" "invaders" and condemn others for planting naturalized, non-native plants. Some conceal the artifice of their works; others celebrate the human ability to transform landscape.

Designers who refer to their work as "natural" or "ecological" make ideas of nature central and explicit, citing nature as an authority to justify decisions to select some materials or plants and exclude others, to arrange them in particular patterns, and to tend the result in certain ways. But appealing to nature as the authority for landscape design has pitfalls: to describe one sort of landscape as natural implies that there are unnatural landscapes which are somehow different (and presumably wrong). Yet, over time and place, quite different sorts of landscapes have been claimed as natural, much the same way opposing nations claim to have God on their side, and some designers invoke nature to call upon divine authority. To Frank Lloyd Wright, for example, nature was the manifestation of

God: "Nature should be spelled with a capital 'N,' not because Nature is God but because all that we can learn of God we will learn from the body of God, which we call Nature."<sup>3</sup>

Now, too, the authority of science is cited to augment the authority of nature and God. Ecology as a science (a way of describing the world), ecology as a cause (a mandate for moral action), and ecology as an aesthetic (a norm for beauty) are often confused. It is important to distinguish the insights ecology yields as a description of the world, on the one hand, from how these insights have served as a source of prescriptive principles and aesthetic values, on the other. The perception of the world as a complex network of relations, with humans as one part of that web, has been a major contribution of ecology. There has been a tendency, however, to move directly from these insights to prescription and proscription, citing ecology as an authority in much the same way that nature was employed in the past to derive laws for landscape design and to define a single aesthetic norm, in this case "the ecological aesthetic."<sup>4</sup> Laurie Olin has criticized this approach as "a new deterministic and doctrinaire view of what is 'natural' and 'beautiful'" embodying a "chilling, close-minded stance of moral certitude."<sup>5</sup>

Such conflicts and the confusion they engender are about conflicting ideas of nature: whether humans are outside or inside nature, whether human impact is inevitably destructive or potentially beneficial, whether one can know an objective nature apart from human values. Differences in basic assumptions are so fundamental they may make it impossible to resolve the conflicts, but it *is* possible to clarify differences and dispel confusion. Much confusion comes from launching the debate without defining its terms.

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So what is nature? For the past twenty years, I have asked my graduate students that question. Their responses have included the following. Nature was given as a trust to humans by God. Nature is trees and rocks, everything except humans and the things humans make. Nature is a place where one cannot see the hand of humans, a place to be alone. Nature consists of creative and life-sustaining processes which connect everything in the physical and biological worlds, including humans. Nature is a cultural construct with no meaning or existence outside human society. Nature is something that cannot be known. Nature is sacred. Nature is God. While this is a broad range of definitions, it does not represent the full spectrum of possible answers. The experiential and spiritual aspects of nature are cited frequently, for example, and nature as material resource is rarely mentioned; students of geology or engineering might produce a different range of definitions.<sup>6</sup>

Nature is the word Raymond Williams called “perhaps the most complex word in the [English] language.”<sup>7</sup> It comes from the Latin *natura*, which comes in turn from *nasci*, to be born. Thus nature is linked to other words from the same root, such as nascent, innate, native, and nation. In English, as in French and Latin, the word nature originally described a quality—the essential character of something—then later became an independent noun. Williams identified two additional areas of meaning: “the inherent force which directs either the world or human beings or both” and “the material world itself, taken as including or not including human beings.” Nature is an abstraction, writes Williams, a set of ideas for which many cultures have no one name, “a singular name for the real multiplicity of things and living processes.”<sup>8</sup>

As products of culture, ideas of nature vary from people to people, place to place, period to period. Even in a particular time and place, what constitutes the “natural” way of doing things has been disputed. In the early twentieth century, for example, Frank Lloyd Wright and Jens Jensen, fellow residents of Chicago and Wisconsin, friends throughout most of their lives, agreed that nature was the authority for design, and sought to express the moral messages or “sermons” they read in hills and valleys, rivers and trees. Despite this apparent common ground, the two men “argued incessantly about the nature of nature,” about what form a “natural” garden should take.<sup>9</sup>

Wright’s understanding of nature was grounded in his family’s Emersonian philosophy.<sup>10</sup> He had contempt for what he called “some sentimental feeling about animals and grass and trees and out-of-doors generally,” as opposed to reverence for nature as an internal ideal, the very “‘nature’ of God.”<sup>11</sup> To Wright, landscape was often an imperfect manifestation of nature; the task of the architect was to bring its outer form into conformity with an inner ideal, its nature, or essential characteristics. Wright derived his principles for design from the underlying structure of flowers, trees, and terrain, and his landscape designs were often abstract versions of regional landscapes of prairie or desert.

If Wright’s obsession was to extract and express an ideal inner nature, Jensen’s was to protect and promote the “native” features of regional landscapes. Jensen believed there was a correspondence between a region’s climate, physiography, and flora and its human inhabitants; landscape fostered, then symbolized, a relationship between people and place. Unlike Wright, Jensen gave no impression in his published works that he believed humans could improve upon the native landscape: “Nature talks more finely and more deeply when left alone.”<sup>12</sup> He revered what he called the “primitive,” and found his “main source of inspiration . . . in the unadulterated, untouched work of the great Master.”<sup>13</sup> These ideas led Jensen to imitate the outward appearance of the local

landscape, its meadows, woodlands, and riverbanks: "Through generations of evolution our native landscape becomes a part of us, and out of this we may form fitting compositions for our people."<sup>14</sup>

Many of Jensen's ideas, such as the relationship he saw between nature and nation and his advocacy of native plants, were common ideas in Europe and North America at the time.<sup>15</sup> Contemporary ecological theories drew parallels between plant and animal communities and human communities and, in some cases, extended this analogy to justify certain human activities as natural.<sup>16</sup> Ideas of the relationship between native plants and "folk" were carried to ideological extremes under National Socialism in Germany. In 1939, for example, the Central Office for Vegetation Mapping of the German Reich declared that it was necessary to "cleanse the German landscape of unharmonious foreign substance." Such ideas became part of official policy as "Rules for the Design of the Landscape" developed by Heinrich Himmler's staff in 1942 for Polish territories annexed in 1939.<sup>17</sup> The use of "native" plants and "natural" gardens to represent the Nazi political agenda should dispel forever the illusion of innocence surrounding the words nature, natural, and native and their application to garden design. Nature is one of the most powerfully loaded, ideological words in the English (and German) language.

"Nature" and "natural" are among the words landscape architects (or ecologists, for that matter) use most frequently to justify their designs or research or to evoke a sense of "goodness," but they rarely examine or express precisely what the words mean to them, and they are generally ignorant of the ideological minefields they tread. Invoking nature, they imagine they are talking about a single phenomenon with universal meaning, when in fact their ideas may be entirely different from one another, even antithetical. At first the abstraction of the word nature conceals differences. Then when arguments inevitably ensue, it befuddles and confounds.

The history of twentieth-century landscape architecture has been told largely as a history of forms rather than a history of ideas and rhetorical expression. This has been especially true of the history of "natural" or ecological design. Gardens of different periods built to imitate wild landscapes may appear similar, yet express different, even divergent, values and ideas. The Fens and Riverway in Boston and Columbus Park in Chicago, for example, were built to resemble what the designers describe as the "natural" scenery of their region, but the motivations that underlie them were quite different in important respects.<sup>18</sup> Proponents of an ecological approach to landscape design often cite these projects as precedents without critically examining their underlying values and motives, contributing further to the confusion around issues of nature as model and authority for landscape design.

Boston's Fens and Riverway, designed by Frederick Law Olmsted, were built over nearly two decades in the 1880s and 1890s, the first attempt anywhere, so far as I know, to construct a wetland.<sup>19</sup> The function and the form of the Fens and Riverway were revolutionary; the wild appearance was in contrast to the prevailing formal or pastoral styles.<sup>20</sup> These projects, built on the site of tidal flats and floodplains fouled by sewage and industrial effluent, were designed to purify water and protect adjacent land from flooding. They also incorporated an interceptor sewer, a parkway, and Boston's first streetcar line. Together, they formed a landscape system designed to accommodate the flow of water, removal of wastes, and movement of people; Olmsted conceived them as a new type of urban open space that he took care to distinguish from a park. This skeleton of woods and wetland, road, sewer, and public transit structured the growing city and its suburbs. The Fens and Riverway were a fusion of art, agriculture, engineering, and science. Olmsted's contemporaries knew that these parks were constructed, for they had seen and smelled the stinking, muddy mess the Fens replaced; the recognition of the transformation was part of their social meaning and aesthetic power.

Thirty years later, in 1916, Jens Jensen designed Columbus Park in Chicago to "symbolize" a prairie landscape. He made a large meadow, excavated a meandering lagoon, and planted groves of trees as a representation of the Illinois landscape: prairie, prairie river, and forest edge. All the plants used in the park were native to Illinois; they "belonged," as Jensen put it. In outward appearance, the "Prairie River" looked much like the Fens. Both Olmsted and Jensen intended their projects to expose townspeople to what they saw as the beneficial influence of rural scenery, particularly those people who were unable to travel outside the city and were barred from "neighboring fields, woods, pond-sides, river-banks, valleys, or hills."<sup>21</sup> Despite these similarities, the aims of the two men and the goals of their projects were very different in important ways.

Jensen's agenda at Columbus Park was to bring people, especially "the growing minds" of youth, into contact with their "home environment," for he believed that "We are molded into a people by the thing we live with day after day."<sup>22</sup> Every region should display the beauty of its local landscape: "This encourages each race, each country, each state, and each county to bring out the best within its borders."<sup>23</sup> Jensen elaborated on these ideas of "environmental influences" in his writings, attributing certain characteristics among populations of European countries and American regions to the influence of their landscapes. While he stressed that each regional landscape has its own beauty, he repeatedly revealed his prejudice for the superiority of northern regions and peoples with such statements as: "Environmental influences of the hot south have almost destroyed the strong and hardy characteristics of . . . northern

people."<sup>24</sup> Jensen drew parallels between people and plants, and advocated the sole use of species native to a place: "To me no plant is more refined than that which belongs. There is no comparison between native plants and those imported from foreign shores which are . . . novelties."<sup>25</sup>

Like many of his contemporaries, Olmsted thought that environment influenced human behavior, but his perspective differed from Jensen's. He believed that contemplation of "natural scenery" had beneficial physical, mental, and moral effects, and that the lack of such opportunity could lead to depression and mental illness.<sup>26</sup> In constructing such natural scenery, Olmsted advocated the practice of mixing native and hardy exotic plants, as described in William Robinson's book of 1870, *The Wild Garden*, and he argued with Charles Sprague Sargent, who opposed using non-native plants in the Riverway. The upshot was that a mixture of native and non-native species was planted on the Boston side of the Riverway, while only native species were planted on the other side, in Brookline, where Sargent had the authority to approve the plantings.<sup>27</sup> The primary purpose of the Riverway was "to abate existing nuisances, avoid threatened dangers and provide for the permanent, wholesome and seemly disposition of the drainage of Muddy River Valley."<sup>28</sup> The Fens and Riverway are an application of the ideas proposed by George Perkins Marsh in 1864 in *Man and Nature*. In reclaiming polluted tidal flats and derelict floodplain, Olmsted planned to "hasten the process already begun" by nature, thereby achieving more than the "unassisted processes of nature." He would have been familiar with Marsh's well-known book, *Man and Nature*, which was reprinted several times in the nineteenth century. The attempt to manage landscape processes to restore land and water polluted by human wastes and to promote human health, safety, and welfare was what made these projects so significant. Such goals were largely absent from Jensen's work.

The natural garden movement in the early part of the twentieth century, of which Jensen was a proponent, and the ecological design movement of the latter part seem to have much in common. Both have stressed native plants and plant communities as material and model for garden design. Beyond these and other similarities, however, there are deep differences in the ideas of nature underlying the two movements. In the United States, natural garden design in the early twentieth century was part of the larger context of regionalism expressed in art, literature, and politics. American regionalism was a populist movement that promoted the local roots of place and folk over the increasing power of the federal government, the growth of national corporations, and the influence of foreign styles.<sup>29</sup> Jensen's intention in using regional landscapes and native plants was to shape human society; he did not discuss the value of plants, animals, or biological and physical processes apart from their

significance for human purpose. This anthropocentric context is a contrast to late-twentieth-century environmentalism, where animals, plants, and ecosystems may be accorded value and even legal rights, not just for the present or future value they may have for humans, but also for *themselves*.<sup>30</sup>

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Authors from Cicero to Karl Marx have distinguished between a “first” and “second” nature, where the first represents a nature unaltered by human labor. Cicero defined second nature thus: “We sow corn, we plant trees, we fertilize the soil by irrigation, we confine the rivers and straighten or divert their courses. In short, by means of our hands we try to create . . . a *second* nature within the natural world.” John Dixon Hunt calls gardens a “third nature,” a self-conscious re-presentation of first and second natures, an artful interpretation “of a specific place . . . for specific people.”<sup>31</sup> But Cicero’s “first nature” exists only as an ideal; there is no place unaltered by human activities. His “second nature” and Hunt’s “third nature” are landscapes, the expression of actions and ideas in place. To call some landscapes “natural” and others “artificial” or “cultural” misses the truth that landscapes are never wholly one or the other.

Landscape associates a place with all who dwell there, past and present. The Danish word *landskab*, the German *Landschaft*, and the Old English *landscipe* combine two roots. “Land” means both a place and the people living there (earth, country, nation). *Skabe* and *schaffen* mean “to shape”; suffixes *-skab* and *-schaft*, as in the English *-ship*, also mean association, partnership. Still strong in Nordic languages, these original meanings have all but disappeared from English. Modern English dictionaries define landscape as a static scene of rural fields, hills, forests, water, “a portion of land that the eye can comprehend in a single view.”<sup>32</sup> But landscape is not a mere visible surface, static composition, or passive backdrop to human theater. Nor is landscape only rural. Cities are landscapes, too.

Landscape in its original sense—the mutual shaping of people and place—encompasses both the population of a place and its physical features: its topography, water flow, and plant life; its infrastructure of streets and sewers; its land uses, buildings, and open spaces. And humans are not the sole authors. The urban landscape is shaped by rain, plants and animals, and human hands and minds. Rain falls, carving valleys and soaking soil. Grasses, shrubs, and trees colonize abandoned land and produce new habitat. People mold landscape with hands, tools, and machines, through law, public policy, the investing and withholding of capital, and other actions undertaken hundreds or thousands of miles away. The processes that shape landscape operate at different scales of

space and time: from the local to the national, from the ephemeral to the enduring.

Language has consequences. It structures how one thinks, what kinds of things one is able to express, and how one acts. Language makes it possible to conceive ideas and see new meanings. It can also suppress thought, disguise meaning, and make people blind. Take the word “nature.” Is nature a sacred entity, where humans are one with all living creatures, or a wilderness requiring protection from humans? Are natural phenomena, like trees and wind, animated by gods, or is nature merely a bunch of resources for human use? Is nature a web of life-sustaining processes that connects everything in the physical and biological worlds, including humans? These and other ideas of nature coexist. They influence whether people think cities are part of the natural world or *not*, and how they act to shape cities. Someone who believes that the city has degraded “nature” is apt to see only pollution there. Someone who assumes that the city has destroyed or displaced “nature” is not likely to see the effects of the natural processes that still shape its landscape. Such perceptions have profound effects on how cities are designed, built, and sustained (or *not* sustained) over time.

Given the problems of conflicting definitions, I now use the word *nature* sparingly, deliberately, and explicitly. For me, nature consists of the creative and life-sustaining processes that connect everything in the biological world and the physical universe, including humans. When I use the word, it is in that sense. For me, nature is not a place, not a location in space, and not a particular feature like a tree or a mountain. I am always taken aback when someone says that they are going to “go out into nature” (presumably somewhere in the countryside or where there are few humans) or when someone speaks of “bringing nature into the city” (as if natural processes ever went away). This reaction makes me a bit odd, in my culture, but such ways of thinking are not as innocent as they may seem. They can have terrible consequences; the recent tragedy of Hurricane Katrina’s impact on New Orleans is but one small example. I use the word landscape as freely as I use nature sparingly, for I hope to recover the original meanings of the word.

To see landscape as mere scenery is to emphasize appearance over habitability and to conceal what is hidden from view, the deep context underlying the surface. The words environment and place, commonly used to replace landscape in twentieth-century English, are inadequate substitutes, for they refer to surroundings or locale and omit people. Landscape connotes a sense of the purposefully shaped, the sensual and aesthetic, and embeddedness in culture, and the roots of the word imply a mutual shaping of people and place.

Landscape architects design and plan landscapes to serve human purposes at scales from garden to region. This range in scope is fundamental to the discipline, and my proposals include designs for small urban parks and plans for vast urban watersheds. My work aims to understand how the interaction of natural and cultural processes shapes landscapes and how to intervene in and shape those processes to achieve desired goals. While the methods and means of designing and planning landscapes at the scales of garden, neighborhood, city, and region may differ, the processes that shape those landscapes—natural, social, economic, and political—are the same. Understanding landscape as the product of interacting processes provides a way of seeing relationships among actions and phenomena that may appear unconnected, but are closely related.

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Consider the example of several serious issues that are usually addressed individually with narrowly-defined, single-purpose solutions that compete for limited resources: the flooding of homes and businesses; pollution of rivers and harbors; and the deterioration of low-income, inner-city communities.

Large portions of many American cities contain extensive tracts of vacant land, once covered by buildings. These are commonly regarded as problems, but they also afford opportunities to restore the city's natural environment and to rebuild inner-city neighborhoods. What is rarely recognized is that much of this vacant land is concentrated in valley bottoms. I first discovered this correlation between buried floodplains and vacant land in Boston in 1985, when I visited low-income neighborhoods and noticed that hilltops and hillsides had very few vacant lots, while valley bottoms were largely open. Old maps showed that streams had once flowed through the valleys. I traced the successive settlement and abandonment of these neighborhoods by comparing maps from 1876 to 1984. Homes were built first on hilltops and upper slopes, while floodplains and streams were filled in and developed last with cheaper housing. Some buildings were abandoned as early as 1910; by 1964 extensive areas in the bottomlands were vacant. Water flowing underground, flooding basements and undermining foundations, contributed to the abandonment. The abandonment was also fueled by political processes and social discrimination that discouraged investment in old urban neighborhoods while encouraging the development of new suburban communities, and by socio-economic phenomena like population migration and arson. In the 1970s, many landlords burned down their decaying buildings to collect fire insurance, and by 1985 even more land was vacant. Local people and city officials believed the only causes were socio-

economic. They did not see the connection to the natural processes of poor drainage and subsidence in the buried floodplains and, tragically, they rebuilt on low-lying vacant land.

Similar conditions exist in many other American cities. In the Mill Creek neighborhood in West Philadelphia, where I have worked since 1987, there is a broad band of vacant land and buildings that follows the course of an old stream. In the late nineteenth century, the stream was buried in a sewer, the floodplain was filled in, and buildings were built on top. Periodically, since the 1930s, buildings constructed along the sewer have caved in.

Burying streams like those in Boston and Philadelphia, and turning them into huge conduits carrying both stormwater and sewage, created another problem besides flooding and subsidence: combined sewer overflows. After a heavy rain, so much stormwater comes off the streets and flows into the sewer—mixing with all the wastewater from homes and businesses—that there is too much volume for the sewage treatment plant to handle. As a result, untreated sewage overflows directly into the river. This is a big problem in Philadelphia and in many other old cities built when it was standard practice to combine sanitary and storm sewers.

In the 1970s, many cities separated the sanitary and storm sewers, so that stormwater flows directly into rivers and does not overload treatment plants. Then scientists discovered that this change did not improve the quality of river water as much as they had expected, because urban stormwater is also polluted. The current wisdom is that cities should probably treat stormwater runoff as well as sanitary sewage. It actually is an advantage to have a combined system. The problem, then, is how to deal with massive volumes of water that need to be treated after a rainstorm. Do you build enormous new sewage treatment plants, as some cities have done?

An understanding of natural processes suggests another way to prevent combined sewer overflows: detain the stormwater above ground in order to extend the time it takes the water to get to the sewage treatment plant. Look again at the buried floodplains in urban neighborhoods. They ought to be recognized as an important structural part of the landscape, a special zone where new buildings should not be built. Imagine if they were reconstructed as greenways and parks like Olmsted's Fens and Riverway were. A landscape infrastructure designed to detain and filter stormwater would prevent floods and combined sewer overflows downstream, improve regional water quality, and improve living conditions in inner-city neighborhoods.

I first proposed these ideas in Boston in 1985.<sup>33</sup> Then, in Philadelphia, I worked for years to convince the City Planning Commission and the

Philadelphia Water Department that the buried creek was both a force to be reckoned with and a resource to be exploited, but failed to convince the planners and engineers. When the plan for West Philadelphia was released in 1994, there was no mention of the problems that Mill Creek posed. The planners and engineers could not see what was right before their eyes. I began to understand that the underlying problem was a kind of illiteracy. I wrote my next book, *The Language of Landscape*, to help people relearn this fundamental skill.

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Literacy in landscape language enables people to read environmental, social, economic, and political stories embedded in their local landscape, and empowers them to think about how to tell new stories. *The Language of Landscape* begins with a prologue, "The Yellowwood and the Forgotten Creek." The text, adapted here, conveys my reasons for writing the book.

Once a yellowwood stood by an old library—leafing, flowering, fruiting, setting seed; roots grabbed hold, sucked air and water from beneath a plaza of brick. Students sat each spring under the yellowwood, listening to their names named, glad for green shade, walked under it to the library, breathed musky June flowers, kicked yellow leaves of October across red bricks.

For many years the yellowwood grew; while red stone blackened, the building decayed. Then men came to fix the library, piled stacks of tools, tiles, and sacks around the tree, sealing soil under bricks. Two years later, the library reopened, leaded glass gleaming, blackened stone brightened. "How elegant," people said. That fall the tree lost its leaves early, in September.

In May, the yellowwood flowered, also early, and profusely. Thousands of fragrant white blooms hung in long clusters; petals covered bricks, blew across grass. "How beautiful," people said. How sad, though. Several years' bud scars bunched against each twig's growing tip. Abundant flowers signaled a dying, and seeds found no purchase in the plaza. People admired the tree and walked on; they had lost the language that gives tongue to its tale. Once a yellowwood stood. No more. And few knew why.

One day a street caved in. Sidewalks collapsed into a block-long chasm. People looked down, shocked to see a strong, brown, rushing river. "A truck fell into a hole like that years back," someone said. "A whole block of homes collapsed into a hole one night a long time ago," said someone else. They weren't sure where. Six months later, the hole was filled, street patched, side-

walks rebuilt. Years went by, new folks moved in, water seeped, streets dipped, walls cracked.

Once a creek flowed—long before there was anyone to give it a name—coursing down, carving, plunging, pooling, thousands of years before dams harnessed its power, people buried it in a sewer and built houses on top. Now, swollen with rain and sewage, the buried creek bursts pipes, soaks soil, floods basements, undermines buildings. During storms, brown water gushes from inlets and manholes into streets and, downstream, overwhelms the treatment plant, overflowing into the river from which the city draws its water.

Vacant lots overgrown by meadows and shrubby thickets near boarded-up homes and community gardens filled with flowers and vegetables follow a meandering line no one seems to see. In a school that stands on this unseen line, the gym floods every time it rains. Once a year, teachers take students on buses to a place outside the city to see and study “nature.”

On a once-vacant lot, brand new houses—red brick, yellow siding, green sliver of lawn out front, gates open—rise in contrast to nearby older, shattered houses and land laid waste: “First Time Buyers own this home for less than you pay in rent,” a sign urges. The houses have been built by churches from coins and foundation funds, the land a gift from the city. “How beautiful,” people say. No one wonders why the land was free, why water puddles there, why the name of the place is Mill Creek.

Signs of hope, signs of warning are all around, unseen, unheard, undetected. Most people can no longer read the signs: whether they live in a floodplain, whether they are rebuilding an urban neighborhood or planting the seeds of its destruction, whether they are protecting or polluting the water they drink, caring for or killing a tree. Most have forgotten the language and cannot read the stories the wildflowers and saplings on vacant lots tell of life’s regenerative power; many do not understand the beauty of a community garden’s messy order. They cannot hear or see the language of landscape.

Architects’ drawings show no roots, no growing, just green lollipops and buildings floating on a page, as if ground were flat and blank, the tree an object not a life. Planners’ maps show no buried rivers, no flowing, just streets, lines of ownership, and proposals for future use, as if past were not present, as if the city were merely a human construct, not a living, changing landscape. Children’s textbooks, from science to history, show no nearby

scenes, suggest or demand no first-hand knowing, just formulas and faroff people and places, as if numbers and language had no local meaning, as if their present had no past, no future, the student a vessel not an actor.

The yellowwood was the first yellowwood I ever saw, its perfumed flowers an amazing surprise my first year as a graduate student, the same year the hole and the river emerged near my apartment. The yellowwood, gone, is still on my daily path; the forgotten creek is now the heart of my work. Back then I knew nothing of dying trees or buried rivers. Now I have learned to read what sloping valleys and sinking streets tell, what bud scars say. Landscapes are rich with complex language, spoken and written in land, air, and water. Humans are story-telling animals, thinking in metaphors steeped in landscape: putting down roots means commitment, an uprooting is a traumatic event. Like a living tree rooted in place, language is rooted in landscape.

The meanings landscapes hold are not just metaphorical and metaphysical, but real, their messages practical; understanding may mean survival instead of extinction. Losing, or failing to hear and read, the language of landscape threatens body and spirit, for the pragmatic and the imaginative aspects of landscape language have always coexisted. Relearning the language that holds life in place is an urgent task.<sup>34</sup>

The Yellowwood and the Forgotten Creek are not just parables, but true stories of failure; the school is real, and so are the new houses for first-time homeowners, built on the buried floodplain. I decided to organize my teaching and research to address these failures. My students and I began a program with a public school in the Mill Creek neighborhood, Sulzberger Middle School, the school in the Prologue to *The Language of Landscape*. Mill Creek is one of the poorest neighborhoods in Philadelphia, and the population is now virtually all African-American, though until recently it had been racially integrated for more than a century. The program at Sulzberger had four parts: teaching the children (ages ten to thirteen) to read their landscape, to propose landscape change, to build landscape improvements, and to document their accomplishments. By working with children and their teachers, I hoped to reach parents and other adults. What began as a community-based, environmental education program organized around the urban watershed grew into a program on landscape literacy and community development. In the process, I learned that the consequences of landscape illiteracy are far greater than I had imagined.

A Sulzberger teacher told me that her students called their neighborhood "The Bottom." So they already know it's in a floodplain? "No, they mean it's at the bottom." Both meanings of the word can be read in the area around the Sulzberger School: standing water after rain; slumping streets and sidewalks; vacant, rubble-strewn house lots; whole square blocks of abandoned land; men standing around street corners on a work-day afternoon, jobless.

The school's environmental science curriculum treated at length such topics as tropical rain forests and exotic wildlife, while issues of local importance like watersheds and the plant succession taking place on vacant lots a block or two from the school received scant attention or none at all. One popular science teacher took students once a year to an environmental center in the suburbs to see and study "nature." To change the teachers' and students' perceptions that Mill Creek had nothing to do with "nature" was quite a challenge. It was equally hard to persuade students that the neighborhood had ever been different or that it might be changed.

At the start of the Mill Creek Program, as the Sulzberger teachers called it, my students taught weekly workshops on Mill Creek and its urban watershed. They led a field trip outside the school to look for signs of the buried creek (slumping sidewalks, cracks in walls, manhole covers). One eighth-grade teacher followed up with further assignments, including an essay on the buried creek, the problems it posed, and ideas for solutions. The students did what was asked of them, but the creek was not real to them. When my students spoke of designs for change, the children told them all the reasons the proposals would fail. "It won't happen." "Someone will wreck it." Studying the history of the neighborhood proved to be the key that unlocked the students' imagination.

The breakthrough came six months into the Mill Creek Project. The catalyst was a series of weekly classes taught by students in my seminar. Each of my university students led a group of six or seven eighth-graders in ninety-minute workshops. The sessions focused on particular time periods. There were no lectures and no secondary sources. At the end of every class, two students from each group "reported out" by telling the rest of the class what they had discovered.

My students brought in texts, maps, and photographs. To help the children draw out meanings from the documents, they posed a series of questions. By breaking up big questions into smaller questions to which the children could find answers, my students led them to develop a hypothesis and then to find further evidence to support it. Only after the Sulzberger students had identified potential explanations for what they observed did my students tell them about further information. The idea

was to encourage the Sulzberger students to form the habit of looking for significant detail, of framing questions, and of reasoning out possible answers. The goal was to enable the Sulzberger students to transfer this process of reading historical documents to the reading of their landscape, which is itself a kind of historical document.

During the third class, one thirteen-year-old looked at a photograph from 1880 showing a stream, a mill, and workmen dwarfed by the huge sewer they were building, with new row houses in the distance: "You mean, there really was a *creek!*?" she exclaimed. From then on, the kids were hooked. The students' energy carried over into the next class, which focused on planning for the future. A few weeks later, staff from the City Planning Commission and the West Philadelphia Empowerment Zone visited the class. Sulzberger students asked the planners: "Why did you let those new houses be built on the buried floodplain? Did you warn the people who bought them?" "What are you doing about the Mill Creek sewer?" "What have you done about redlining?" "Why haven't you started a community bank?"

Landscape literacy entails more than reading, it means shaping landscape also. Each student wrote and illustrated a proposal for how the creek might be transformed from a liability into a neighborhood asset. The essays and drawings were published at the end of the school year in a booklet and a website.

At the beginning of the semester, Sulzberger students described their neighborhood in negative terms and said they would not live in Mill Creek if they had a choice. Only one student planned to attend college. Two months later, all but one student said they planned to attend college. The teacher reported that his students' performance in all subjects had improved dramatically. He attributed this to the way that primary materials challenged and made history real for them and to their growing perception of how their own lives and landscape were related to the larger city, region, and nation.

Ten years ago, I thought that the worst effect of landscape illiteracy was to produce environmental injustice in the form of physical hazards to health and safety. The Sulzberger students taught me that there is an even greater injustice: to be ashamed of where one lives. To feel ashamed of one's home neighborhood saps self esteem and can engender a sense of blame and resignation. Before the students at Sulzberger Middle School learned to read their landscape more fully, many believed that the poor conditions were their fault. Learning how the landscape came to be that way gave them a sense of relief. Once they gained the skill to read the landscape and its history, they began to see their home in a more positive light and brimmed with ideas for how it might be improved. Secure in

their knowledge, they challenged public officials and impressed them with articulate proposals. To read and shape landscape is to learn and teach: to know the world, to express ideas, and to influence others.

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If humans are to survive, we must find new ways to adapt ourselves to our surroundings, ways that let us see the interconnections of the world around us and our part in it. We must also find ways to adapt our landscapes along the lines summarized here. I have devoted my career to promoting this. But I have shifted away from my earlier conviction that the main problem lies in ignorance: Now I believe that language, too, is key. Language is not merely a tool for communication, but a medium, also, for thought and action. Language can liberate and provoke thought, but it can also impede thinking. Language inspires and channels what we do.

And language is more than words. Landscape itself is a form of language. I believe that the language of landscape is our native language. Landscape was the original dwelling; humans evolved among plants and animals, under the sky, upon the earth, near water. Everyone, in every culture, carries that legacy in body and mind. Humans touched, saw, heard, smelled, tasted, lived in, and shaped landscapes before the species had words to describe all that it did. Landscapes were the first human texts, read before the invention of other signs and symbols. Clouds, wind, and sun were recognized as clues to weather; ripples and eddies were read as signs of rocks and life under water, caves and ledges as promise of shelter, trees as guides to food and water, bird calls as warnings of predators.

The language of landscape can be spoken, written, read, and imagined. "Speaking" and reading landscape is a byproduct of living and a strategy of survival—creating refuge, providing prospect, growing food. To read and shape landscape is to learn and teach: to know the world, to express ideas and to influence others. Landscape as language makes thought tangible and imagination possible. Through it, humans share experiences with future generations, just as ancestors inscribed their values and beliefs in the landscapes they left as a legacy, a rich lode of literature: natural and cultural histories, landscapes of purpose, poetry, power, and prayer.

Not everyone is a fisherman or a farmer for whom landscape is livelihood, but all can learn to read landscape, to understand those readings, and to inscribe new wisdom into life in city, suburb, and countryside, to cultivate the power of landscape expression as if one's life depended upon it. For it does.

## Notes

This essay is adapted from several of my prior publications: *The Language of Landscape* (New Haven, Conn., 1998); "The Authority of Nature: Conflict and Confusion in Landscape Architecture," in *Nature and Ideology*, ed. Joachim Wolschke-Bulmahn (Washington, D.C., 1997); "One with Nature: Landscape, Language, Empathy, and Imagination," 2001 International Cosmos Prize Address; and "Restoring Mill Creek: Landscape Literacy, Environmental Justice, and City Planning and Design," *Landscape Research* 30:3 (July 2006): 395–413.

<sup>1</sup> George Perkins Marsh, *Man and Nature* (1864).

<sup>2</sup> See George Thompson and Frederick Steiner, eds., *Ecological Design and Planning* (New York, 1997). This collection of essays reveals some of the conflict and confusion in the field in the late 1990s, as well as some pitfalls of appealing to "ecology" or "nature" for authority in landscape design. This criticism should in no way be interpreted as a rejection of "ecological" design, but rather should be seen as an attempt to construct firmer ground for future discussions.

<sup>3</sup> Quoted by Brendan Gill in *Many Masks* (New York, 1987), 22. Another version, almost word for word, is transcribed from a tape of August 4, 1957 in Bruce Brooks Pfeiffer, *Frank Lloyd Wright: His Living Voice* (Fresno, 1987), 88. Wright spoke with Mike Wallace in 1957 on the television program "The Mike Wallace Interview." "I've always considered myself deeply religious," said Wright. "Do you go to any specific church?" asked Wallace. Wright replied, "My church [pause], I put a capital 'N' on Nature and go there." For a discussion of how ideas of nature are expressed in the work of Frank Lloyd Wright, see my essay, "Frank Lloyd Wright: Architect of Landscape," in *Designs for an American Landscape: 1922–1932*, ed. David DeLong (New York, 1996), 135–69.

<sup>4</sup> Carol Franklin, "Allowing the Land to Live," in Thompson and Steiner, eds., *Ecological Design*.

<sup>5</sup> Laurie Olin, "Form, Meaning, and Expression in Landscape Architecture," *Landscape Journal* 7:2 (1988): 150. A special issue on "Nature, Form, and Meaning," edited by Anne Whiston Spirn.

<sup>6</sup> On the first day of class, I ask students to define nature. Sometimes at the end of the semester I ask them to write a short paper defining nature once again. Their answers are more articulate and reflective, but rarely change in substance from the first brief statement. I have concluded that ideas of nature are deeply held beliefs, closely tied to religious values, even for those people who do not consider themselves "religious." By the age of twenty-five, most students' ideas of nature seem set, or at least not modified greatly by a single course on the subject. (Students ranged in age from twenty-two to fifty; most were in their mid- to late twenties). While largely North American, approximately one-third have come from other parts of the world, including Europe, the Middle East, Africa, Asia, South America, and Australia. Of the North Americans, most grew up in the suburbs or in rural areas; a higher proportion of foreign students are from cities.

<sup>7</sup> Raymond Williams, *Keywords: A Vocabulary of Culture and Society*, rev. ed. (New York, 1983), 219. Many essays and entire books have been written on the origins, history, use, and significance of the word nature. See, for example: Raymond Williams, "Ideas of Nature," in *Problems in Materialism and Culture* (London, 1980), 67–85; C.S. Lewis, "Nature," in *Studies in Words* (Cambridge, 1967); Arthur O. Lovejoy, "Some Meanings of 'Nature,'" in A.O. Lovejoy et al., *A Documentary History of Primitivism and Related Ideas* (Baltimore, 1935), 447–456; Arthur O. Lovejoy, "Nature as Aesthetic Norm," in *Essays in the History of Ideas* (Baltimore, 1948), 69–77; R.G. Collingwood, *The Idea of Nature* (London, 1945); Clarence Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought to the End of the Eighteenth Century* (Berkeley, 1967); William Leiss, *The Domination of Nature* (Boston, 1974); Neil Evernden, *The Social Creation of Nature* (Baltimore, 1992); William Cronon, ed., *Common Ground: Toward Rethinking the Human Place in Nature* (New York, 1996).

<sup>8</sup> This description of the origins of the word nature draws from Williams, *Keywords*.

<sup>9</sup> Personal communication, Cornelia Brierly of the Taliesin Fellowship. Brierly was assigned to assist Jensen when he visited Wright at Taliesin.

<sup>10</sup> See William Cronon, "Inconstant Unity," in *Frank Lloyd Wright: Architect*, ed. Terrance Riley (New York, 1994) for an excellent discussion of the roots of Wright's philosophy.

<sup>11</sup> Wright, "An Autobiography," in *Collected Writings*, Volume 2, ed. Bruce Brooks Pfeiffer (New York, 1992), 163.

<sup>12</sup> Jens Jensen, *Siftings, A Major Portion of The Clearing, and Collected Writings* (Chicago, 1956), 94.

<sup>13</sup> Jensen, *Siftings*, 23.

<sup>14</sup> Jensen, *Siftings*, 21.

<sup>15</sup> Jensen was born of a Danish-speaking family in the Slesvig region—a border zone of northern Germany and southern Denmark. This region was politically and culturally contested ground for more than a century. Despite two good books on Jensen's life and work, his complex relationship to Danish and German ideas of nature and nation has not been fully explored. See Leonard Eaton, *Landscape Artist in America: The Life and Work of Jens Jensen* (Chicago, 1964); Robert E. Grese, *Jens Jensen: Maker of Natural Parks and Gardens* (Baltimore, 1992); and Joachim Wolschke-Bulmahn's review of Grese in *Journal of Garden History* 15 (1995), 54–55. For perspectives on contemporary Danish and German ideas of nature and natural gardens, see Kenneth Olwig, "Historical Geography and Society/Nature Problematic: The Perspective of J.F. Schouw, George Perkins Marsh, and E. Reclus," *Journal of Historical Geography* 6:1 (1980), *Nature's Ideological Landscape* (London, 1984), and Joachim Wolschke-Bulmahn, "'The Peculiar Garden': The Advent and the Destruction of Modernism in German Garden Design," in *Masters of American Garden Design III: The Modern Garden in Europe and the United States, Proceedings of the Garden Conservancy Symposium (March 1993)*, ed. Robin Karson. See also Frank Waugh, *The Natural Style of Landscaping* (Boston, 1917) for a North American perspective and Alan Ruff, *Holland and the Ecological Landscape* (Stockport, 1979) for an introduction to the work of Jacques Thijsse, J. Landwehr, and the Dutch Heem (home) parks.

<sup>16</sup> For a history of the Chicago school of ecology and the interplay between science and a social philosophy that stressed the value of cooperation over conflict, see Gregg Mitman, *The State of Nature: Ecology, Community, and American Social Thought 1900–1950* (Chicago, 1992).

<sup>17</sup> For a discussion of ecological theory in Germany during the nineteenth and early twentieth centuries and parallels between the eradication of non-native plants in Nazi Germany and the extermination of non-Aryan human populations, see Gert Groening and Joachim Wolschke-Bulmahn, "Some Notes on the Mania for Native Plants in Germany," *Landscape Journal* 11:2 (1992), 116–12. There is some evidence that Jensen was sympathetic to at least some of these ideas; see Wolschke-Bulmahn, "'The Peculiar Garden.'"

<sup>18</sup> Grese in *Jens Jensen* presents a useful comparison of the work of Olmsted and Jensen in this and other respects, but emphasizes similarities and does not probe their ideological differences.

<sup>19</sup> For more detail on Olmsted's approach, see Anne Whiston Spirn, "Constructing Nature: The Legacy of Frederick Law Olmsted," in Cronon, *Uncommon Ground*.

<sup>20</sup> The Ramble at Central Park was planted to appear "wild," but it was only a small part of the park. William Robinson, an English acquaintance of Olmsted, published his book *The Wild Garden* in 1870. Olmsted was undoubtedly also aware of Martin Johnson Heade's contemporary paintings depicting marshes along Boston's North Shore.

<sup>21</sup> Frederick Law Olmsted, "Parks, Parkways and Pleasure Grounds," *Engineering Magazine* 9:2 (May 1895), 253–254.

<sup>22</sup> Jensen, *Siftings*, 83.

<sup>23</sup> Jensen, *Siftings*, 46.

<sup>24</sup> Jensen, *Siftings*, 35.

<sup>25</sup> Jensen, *Siftings*, 45.

<sup>26</sup> Such views were common at the time, and Olmsted discussed them frequently in relation to his work. See, for example, Frederick Law Olmsted, "The Yosemite Valley and the Mariposa Big Trees: A Preliminary Report" (1865), reprinted in *Landscape Architecture* 43 (1952), and *General Plan for the Improvement of the Niagara Reservation* (New York, 1887).

<sup>27</sup> For quotations of Olmsted's and Sargent's disagreement on this subject, see Cynthia Zaitzevsky, *Frederick Law Olmsted and the Boston Park System* (Cambridge, 1982), 196.

<sup>28</sup> Frederick Law Olmsted, *General Plan for the Sanitary Improvement of Muddy River and for Completing a Continuous Promenade between Boston Common and Jamaica Pond* (Boston, 1881).

<sup>29</sup> Robert Dorman, *Revolt of the Provinces: The Regionalist Movement in America* (Chapel Hill, 1993).

<sup>30</sup> See Donald Scherer and Thomas Attig, eds., *Ethics and the Environment* (Englewood Cliffs, 1983). At its most extreme, contemporary environmentalism can even sound anti-human. Ian McHarg referred to humans as a "planetary disease" in 1969 with the publication of his book *Design with Nature* (Garden City, 1969). Despite misanthropic rhetoric, McHarg had close links to the earlier regionalist movement through his mentor Lewis Mumford.

<sup>31</sup> From Cicero, *De natura deorum*, quoted and translated by John Dixon Hunt, "The Idea of the Garden, and the Three Natures," in *Zum Naturbegriff der Gegenwart* (Stuttgart, 1993), 312.

<sup>32</sup> Merriam-Webster, *Webster's Third New International Dictionary, Unabridged* (electronic version, 2006).

<sup>33</sup> For an account of the Boston case, see Anne Whiston Spirn, "Reclaiming Common Ground: Water, Neighborhoods, and Public Spaces," in *The American Planning Tradition: Culture and Policy*, ed. Robert Fishman (Washington, D.C. and Baltimore, Md., 2000). For the Philadelphia case, see Anne Whiston Spirn, "Restoring Mill Creek: Landscape Literacy, Environmental Justice, and City Planning and Design," *Landscape Research* 30:3 (July 2006): 395–413.

<sup>34</sup> Anne Whiston Spirn, *The Language of Landscape* (New Haven, Conn., 1998), 10–11.