

Constructing Nature: The Legacy of Frederick Law Olmsted

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FREDERICK LAW OLMSTED (1822–1903) LEFT A LEGACY OF WONDERFUL places, from Central Park to Boston’s “Emerald Necklace,” from Niagara Falls to Yosemite. Few people now recognize these as built landscapes. Most are startled to learn that New York’s Central Park was constructed, that even the Ramble is an “artful wilderness,” and that Boston’s Fens and Riverway were molded out of polluted mudflats, planted to grow into tidal marsh and floodplain forest. Even those few who recognize Central Park and the Fens as constructions are surprised at how extensively the experiences of Niagara Falls and Yosemite are shaped by design, for these have come to stand as monuments of nature untouched by human artifice.¹

Olmsted’s contemporaries certainly recognized that landscapes like Central Park and the Fens were designed and built. After all, they were familiar with the previous appearances of those sites and the lengthy and ambitious process of transformation. However, this popular realization soon faded. Olmsted was so skillful at concealing the artifice that both the projects he had so brilliantly constructed and the profession he had worked so hard to establish became largely invisible. Today the works of the profession of landscape architecture are often not “seen,” not understood as having been designed and deliberately constructed, even when the landscape has been radically reshaped. Many landmarks of landscape architecture are assumed to be works of nature or felicitous, serendipitous products of culture. This blindness prevents their appreciation as artful answers to knotty questions of conflicting environmental values and competing purposes.

Olmsted is justly recognized and remembered for his built works, but his legacy consists of far more than *places*. He was a pragmatic visionary who, through a fusion of theory and practice, shaped the American landscape from city to wilderness. He was a pivotal figure in the formative years of the conservation movement and struggled with issues that still face American society. In his report on Yosemite he urged that such extraordinary places be made accessible to all and not remain the property of an elite. At Niagara he worked with the "processes of nature" to form a frame for the falls. At Biltmore he constructed a forest "out of whole cloth" and planned its management for pleasure and utility. In Boston's Fens and Riverway he employed the lessons of a lifetime to transform urban landscapes polluted by waste into habitats that enhanced human health, safety, and welfare, while they reintroduced a sense of the wild into the heart of the city.

Much of Olmsted's work, written and built, is remarkably fresh a century after his retirement, but its potential has not been fully explored and realized. Projects that should have been widely replicated were forgotten, then occasionally reinvented, or they were misunderstood, then poorly imitated. Lately, admirers have praised the pastoral scenery of Olmsted's urban parks, while critics have attacked his ideas that exposure to such scenery would improve the morals of working-class people.² Admirers and critics alike have focused upon the specifics of his expression, whether formal or verbal, and have neglected the larger significance of his vision and methods. Olmsted's legacy needs reclaiming.

Yosemite

YOSEMITE WAS THE FIRST TRACT OF WILD LAND SET ASIDE BY AN ACT OF Congress, in 1864, "for public use, resort, and recreation."³ There was no precedent in the United States for such an action, and Olmsted was asked to chair a commission to recommend what should be done with Yosemite. In 1865 he outlined the case for preserving Yosemite and the strategies for managing it. His view was frankly anthropocentric: Yosemite should be preserved because it had value for humans; to be in a place surrounded by "natural scenery" promoted human health and welfare. Such scenery, he felt, should never be private property, but should be held in trust for public purposes, for its importance to the nation was comparable to strategic, defensive points along national boundaries. Without government action to assure "free enjoyment" for all citizens, Olmsted predicted, places like Yosemite would become "rich men's parks" and the public would be barred from the beneficial effects of its scenery. He cited the example of Great Britain, where "the enjoyment of the choicest natural scenes in the country" was the "monopoly . . . of a very few, very rich people."⁴

In 1865, the year of Olmsted's report, several hundred people visited Yosemite. Visitors had to hire a guide and horses and travel three to four

days, for forty miles along a "very poor trail." Olmsted's proposals for Yosemite were deceptively simple: provide free access for all visitors in a manner that preserved the valley's scenic qualities. He proposed that a public road be constructed to connect Yosemite with the nearest road and that five cabins be built in the valley, convenient to camping places and each providing at least one free room for public use. He proposed paths and prospects to shape visitors' experience of Yosemite by directing their movement and gaze. To enhance an individual's experience of this scenery without the distracting intrusion of "artificial construction," he recommended building a narrow, one-way trail in a circuit around the valley, concealed by trees so that it would be invisible to viewers gazing from one side to another.⁵

Olmsted read his report to the other commissioners and a handful of journalists and friends in August 1865. He returned to New York soon after this meeting, and the report was never submitted to the California legislature. There is evidence that it was suppressed by several commissioners who felt that it conflicted with their own political and financial interests (one held the sole charter to build a toll road from the nearest railroad to Yosemite and to run a stagecoach line along it).⁶ One of the journalists present at the reading, Samuel Bowles, was publisher of the *Springfield Republican*. He reported Olmsted's ideas and urged that New York preserve such places as Niagara Falls for popular use.⁷

To Olmsted the significance of Yosemite lay in the quality of its scenery—"the union of the deepest sublimity with the deepest beauty of nature"—not in any one scene or series of views, but in the whole.⁸ Although he noted the economic significance of such scenery, its benefit to public health and welfare concerned him most intensely. Olmsted was convinced that the "contemplation of natural scenes of an impressive character" had lasting beneficial physical, mental, and moral effects, particularly if it occurred "in connection with relief from ordinary cares, change of air and change of habits." Furthermore, he believed that such contemplation increased the subsequent capacity for happiness and that the lack of such opportunity could lead to depression and mental illness.⁹ What was it about natural scenery that accounted for such an effect? In its contemplation, he said, the mind was "occupied without purpose," producing an enjoyment of the moment, an escape from stresses of the present and worries about the future; it exercised and refreshed both mind and body. In his extended description of the values of natural scenery, Olmsted was describing the effect he believed it had upon himself. He frequently suffered nervous ailments of one sort or another, from which he found relief in "natural scenery," as opposed to "artificial pleasures" such as "theatres, parades, and promenades."¹⁰

Olmsted predicted that within a century millions of visitors would come to Yosemite each year and advised that precautions be taken to manage the landscape so that these visitors would cause the least damage, for "the slight harm which the few hundred visitors of this year might do, if no care were

taken to prevent it, would not be slight if it should be repeated by millions.”¹¹ Today Yosemite is one of the most popular national parks, with about 2.5 million visitors per year. It is also an urban park, serving the surrounding metropolitan regions of California and Nevada. Bumper-to-bumper traffic often clogs the road through the valley, and trucks haul out more than twenty tons of garbage per day.¹² The air is polluted by car exhaust. Earth and plants along the main trails are pummeled and trampled by those who make the pilgrimage to Yosemite. Such are the conditions in other national parks, in Yellowstone, in Acadia, in landscapes like Niagara that have come to embody a cultural ideal of nature.

The question Olmsted posed in 1865 remains unresolved: how to admit all the visitors who wish to come without their destroying the very thing they value? The moment people come to a place, even as reverent observers, they alter what they came to experience. Preventing the destructive effects of human visitation requires management of water and soil, plants and animals, and people (and this is now routine at national parks and forests). Yet management is something most people don't associate with wilderness; even the *idea* of management is anathema to some. This is because they see wilderness as something separate from humanity—as untouched by human labor and culture, on the one hand, and as a place where one's behavior is free and unconstrained, on the other. Both ideas are problematic; both



Traffic congestion at Yosemite, 1980. (Courtesy Carl Steinitz, Department of Landscape Architecture, Graduate School of Design, Harvard University)

result, ultimately, in the destruction of what they value.¹³ Ironically, Olmsted's concealment of the artifice of his intervention (a tradition continued today in the national parks) permits the misconception that places like Yosemite are not designed and managed.

Olmsted's work at Central Park and at Yosemite was informed by similar ideas about the value of natural scenery, the importance of free public access, and the necessity for managing the landscape (albeit concealed) to realize the value of both the scenery and the access. He advocated both the preservation of remote wild lands and the restoration of urban landscapes that had been ravaged by human use, and he continued to work across this spectrum of environments for the rest of his career.

Niagara Falls

NIAGARA FALLS IS MORE THAN A BIG WATERFALL. FOR AMERICANS IT IS *the* waterfall. Niagara has long been, for many, the epitome of the sublime, offering the experience of a powerful natural feature of superhuman scale that inspires awe and fear. To others it has been a spectacle, a source of cheap power, a historic landmark, a livelihood. Niagara has never meant the same thing to everyone, and its meanings have changed over time, reflections of cultural context. The falls and their frame have been repeatedly reconstructed, literally and figuratively, their form and meaning revisited by generation after generation. (See illustrations on pp. 163–67.)

Niagara Falls was a popular tourist destination throughout the early nineteenth century. By the 1860s, however, it had become a natural wonder that failed to astonish. Water flow over the falls was diminished by diversions for power and industry, and visitors had to pick their way along muddy paths bordered by dilapidated factories. On his return from California and Yosemite, Olmsted joined the campaign to establish Niagara Falls as a public reservation and restore its scenic qualities.¹⁴ Here was sublime scenery that was freely accessible to urban populations. Niagara provided Olmsted with the opportunity to apply the ideas he had outlined in his report on Yosemite. In 1879 he was appointed a consultant to the state survey that studied the falls and recommended that the state of New York repurchase property along the Niagara River and the American Falls (the state had sold the land bordering the Niagara River and Falls in 1806). The state survey also proposed that the landscape around Niagara be designed as a frame within which the falls could be experienced in diverse ways.¹⁵

In 1886, after Olmsted had lobbied for the preservation of Niagara for over twenty years, he and his partner Calvert Vaux were hired to prepare a plan for Niagara Reservation.¹⁶ Their report of 1887 analyzed the disappointment of first-time visitors to Niagara and identified two types of response: the failure of the falls to meet expectations and the distraction posed by the "objectionable artificial character" of the context.¹⁷ They con-

cluded that no improvement could “increase the astonishing qualities of Niagara”¹⁸ and therefore focused on enclosing river and falls within a frame of “natural scenery.” This required the removal of all “artificial” structures: mills, other industrial buildings, and the “illuminating apparatus” used to project red, white, and blue lights on the falls at night.¹⁹ In some areas they proposed merely to remove walls along the riverbank and allow the river “to take its course.”²⁰ In others they planned to “hasten the process already begun” by nature,²¹ thereby achieving more than the “unassisted processes of nature.”²² For example, they recommended that stone retaining walls along the mainland shore be removed, the shoreline reshaped, and the old stone reused to form low walls with pockets of soil and planted with “wil-lows, rushes, ferns, irises, . . . and other water side plants of the region” so that they looked just like the “natural, low, rocky shores of the neighboring islands.”²³ Though Olmsted and Vaux were “far from thinking that all that is required to accomplish the designed end is to ‘let Nature alone,’ ” this was the very impression they sought to create by their “unobtrusive” interventions.²⁴

Olmsted and Vaux designed paths and prospects—carriageways with views, shoreline footpaths, and overlooks with railings to prevent crowds from tumbling into the chasm. The plan choreographed the experience of the visitors to accommodate their large numbers (as many as ten thousand per day) and their diverse expectations and to prevent destruction of the scenic qualities they came to see.²⁵ Most visitors arrived by train in large numbers; to disperse these crowds, picnic areas and other attractions were provided near the train station, with paths leading off toward the river and the falls. Olmsted recognized that most visitors would be satisfied with a short walk to the falls and a brief view of the spectacle. For those who preferred to contemplate the sublime scenery in solitude, there were foot-paths along the river to more remote areas.

Olmsted’s plan of 1887 successfully accommodated tourists with diverse values and expectations, but failed to address the fundamental conflict at Niagara Falls in coming decades—the tension between scenic landmark and source of power. By 1909 the view enclosed by the frame of natural scenery so carefully designed by Olmsted and Vaux was of “American Falls Running Dry.”²⁶ (See the photograph on p. 164, showing only a trickle of water flowing over the falls.) The conflict between sublime scenery and material resources was not limited to Niagara.²⁷ The split in the conservation movement—between those who would preserve sublime scenery and those who supported managed use of the material resources it represented—grew wider and progressively more bitter through the twentieth century. Future reconstructions of Niagara occurred against this changing cultural backdrop.

The conflict between the consumption of the falls as symbolic scenery and as a source of power has been addressed by one international board after another and been the subject of multiple treaties between Canada and the United States. The specific proposals of each successive board reveal the

changing cultural context within which Niagara was seen. The recommendations of the international boards set up in 1926 and in 1967 provide striking similarities to and telling differences with the report by Olmsted and Vaux in 1887.

The 1926 board was appointed to determine how the "vanished beauty" of Niagara Falls might be restored.²⁸ The board investigated commercial, hydrological, and aesthetic issues (water use, tourism, patterns of water flow and erosion, and the relationship between water depth and the greenish-blue color of the Horseshoe Falls) and employed this data "to plan the betterment of the spectacle by using water to greater scenic advantage."²⁹ To this end, they proposed the use of concealed weirs to divert more water over the American Falls, to raise the water level in the rapids, and to "throw more water against the head of Goat Island."³⁰ Since tourists visited mainly in the summer, they suggested that power companies be permitted to divert water (10,000 cubic feet per second on each side) from October 1 to April 1.³¹

The 1967 board was set up to investigate "measures necessary to preserve or enhance the beauty of the American Falls," with specific concern for the prevention of erosion and accumulation of fallen rock that was transforming the falls from a waterfall into a cascade.³² As they had been in 1887 and 1926, the concerns were aesthetic and symbolic, for the falls were deemed "one of the most spectacular natural phenomena in the world" and "a symbol of international amity and cooperation."³³ In an elaborate series of studies spanning seven years, the board probed, sampled, tested, modeled, and evaluated the American Falls. A temporary dam was built to drain the falls for five and a half months, so that the dry river bottom and rock face could be inspected, photographed, and mapped and so that instruments could be installed in fissures to measure water pressure and ground movement.³⁴ All this information was used to construct a model of the American Falls one-fiftieth its actual size, with turbulence, mist, illumination, and volume of water all carefully simulated. The model was built so that rocks at the base (talus) could be removed, and a committee of landscape architects charged with the task of "choosing a permanent arrangement of talus that would have the most dramatic effect."³⁵ Finally, the flow of water over the "real" Niagara Falls was reduced and then increased from 8,000 to 15,000 cubic feet per second and the visual effects recorded and evaluated. (See illustrations on pp. 165-67.)

After all this manipulation of the falls, both actual and virtual, the International Joint Commission concluded that "man should not interfere with the natural process," for the falls are a "reminder of man's relationship with his environment. Indeed, this is the very essence of their attractiveness."³⁶ Let the talus accumulate, and do not stabilize the rock mass, because to alter the falls would be "to create, on a grand scale, an artificial waterfall in a formal park. It would interfere with the geologic process and would be contrary to the recent emphasis on environmental values."³⁷ The commission

also recommended that guidelines be set to prevent the "intrusion of . . . towers . . . and commercial features whose appearance on the skyline will result in an artificial encirclement that will overshadow and stifle the magnificence of the Falls."³⁸ By the 1970s it was not just Niagara Falls but Olmsted's plan that seemed worthy of preservation.³⁹

In some ways, the three sets of recommendations are remarkably similar. All emphasize the falls' visual appearance, referring to Niagara as a "spectacle," and all advocate a frame of "natural" scenery. In his report Olmsted carefully explained his ideas about the value of natural scenery and its benefits to health, but the later reports take this value as self-evident, leaving their own assumptions unexamined. Why is the "natural" frame preferred to the urban in 1929 and the 1970s? Note the perjorative implications of the words "artificial" and "formal," as opposed to "natural" scenery in the 1975 report. Why must the city be screened from view? Frank Lloyd Wright's *Fallingwater*, one of the most powerful architectural images of the twentieth century, gains its appeal from the juxtaposition of building and waterfall. Why not Niagara? There is evident in 1974 a fear that this would diminish the falls, "overshadow" and "stifle" their "magnificence."

The three groups differ in whether they propose to manipulate the falls as opposed to the frame. Olmsted dismissed the idea that the falls themselves could be altered; the 1920s board felt that the water flow above the falls could and should be shaped to magnify the spectacle; the 1970s commission acknowledged that the falls could be manipulated (and its board's had done so), but recoiled from the act. Olmsted was working during a time when sublime landscapes like those of Niagara and Yosemite were seen as creations of God or nature; they could be framed but not constructed. The board of 1926 was working when projects such as the Grand Coulee Dam were being conceived as a progressive union of nature and culture, an organic machine, a manufactured sublime. By the 1960s people had the failed promise of Grand Coulee and all those other dams in the backs of their minds, along with the connections they represented to the development of the atomic bomb and the excesses of industrial agriculture described in Rachel Carson's *Silent Spring*.⁴⁰ There was a sense of guilt over what humans had wrought, as well as a notion that nature (not just the scenery) was fragile and required human protection, that human actions could "emasculate" the falls.⁴¹ Still, it is curious that in 1974 the commission deemed it all right to construct the frame, but not the falls; to alter the amount of water flowing over the falls, but not move the rocks.

Niagara Falls is shaped by water flowing, rocks falling, and trees growing, by artists and tourists, by journalists and landscape architects, by engineers and workers who divert the water. Niagara is constructed through processes of nonhuman nature, through water use and treaties, through paintings and postcards, memory and myth. Even the most awesome landscapes are products of both nature and culture, and they change in predictable and unpredictable ways in response to both. Olmsted employed the shaping capacity

of water flow and of plant growth and reproduction to design over time. Through writing and lobbying, he influenced public perception of Niagara in his own time, but he could not anticipate the future social and political events that would continue to shape Niagara.

Biltmore

BILTMORE, ONCE THE HOME OF GEORGE VANDERBILT, IS NOW PART OF THE Pisgah National Forest. Driving up the entrance road through a lush, mature forest, one finds it difficult to imagine that this landscape was constructed—made, as Olmsted put it, “out of the whole cloth.”⁴² Vanderbilt assembled his huge estate near Asheville, North Carolina, through the purchase of many small farms and woodlots. He retained Olmsted in 1888 to advise him on the improvement of his newly acquired property. The site was unpromising, Olmsted reported, the soil was “extremely poor and intractable,”⁴³ the woods were “miserable, all the good trees having again and again been culled out and only runts left.”⁴⁴ Vanderbilt had thought to plant a pastoral landscape of groves and grass, but Olmsted warned that he would “get very poor results at great cost.”⁴⁵ Instead, he persuaded Vanderbilt to underwrite America’s first large-scale experiment in forestry. Olmsted’s plan for the estate included a park and garden near the house,



Biltmore Forest prior to improvement. (*Gifford Pinchot, Biltmore Forest: An Account of Its Treatment, and the Results of the First Year’s Work [Chicago: Lakeside Press, 1893], courtesy Francis Loeb Library, Graduate School of Design, Harvard University*)

farmlands "on the river bottom chiefly to keep and fatten live stock with a view to manure," and the remainder as forest.⁴⁶ Thousands of acres of scrubby, second-growth woodland and old fields were ultimately planted as forest and managed for economic return and aesthetic enjoyment.⁴⁷

By January 1891 work was well under way, with white pines planted on three hundred acres of old fields, nursery stock readied for the forest, and gangs of workmen assembled to take out "the poor and dilapidated trees of the existing woods."⁴⁸ A large nursery was established at Biltmore to supply forest trees and shrubs in the quantity required and variety desired.⁴⁹ In 1891 the recently established nursery included about 100,000 trees and bushes "of merchantable size" and about 500,000 seedlings and cuttings that had been propagated there.⁵⁰

Olmsted saw in Biltmore an opportunity to demonstrate the promise of forestry techniques for the management of land used for recreation.⁵¹ Working with a private client, he hoped to avoid the frustrations and misunderstandings he had met in public projects, such as Central Park, where public protest thwarted his plans for landscape management. In Central Park, Olmsted had planted trees thickly, with the intention of culling the weaker trees later, and had introduced "nurse" trees to shelter more tender species intended ultimately to predominate. Years later, when workers cut the trees as planned, park visitors sometimes stood in front of the trees and tried "to wrest the axe from the hand of the woodsman."⁵² Olmsted and J. B. Harrison wrote "Observations on the Treatment of Public Plantations, More Especially Related to the Use of the Axe" in 1889 to persuade the public that landscape management includes the creative use of the ax as well as the generative act of planting seeds. The chance to work with a single client must have seemed a welcome relief and an opportunity to gain a powerful patron for forestry. Olmsted encouraged Vanderbilt to become involved in the management of his forest as a suitable, long-term, and "most interesting rural occupation."⁵³

At Biltmore, Olmsted nurtured the future development of American forestry in more ways than one. Gifford Pinchot, later the first director of the U.S. Forest Service, visited Biltmore upon his return from studying forestry in Europe and was soon employed to work on a management plan. Pinchot later recalled his excitement: "Here was my chance. Biltmore could be made to prove what America did not yet understand, that trees could be cut and the forest preserved at one and the same time."⁵⁴ Working under Olmsted at Biltmore was Pinchot's first job, which included an apprenticeship in public relations, as well as in forestry. Among his first assignments was the preparation of an exhibit and pamphlet on the project for the Chicago world's fair of 1893, which was sent to thousands of newspapers and prompted much commentary.⁵⁵ Pinchot continued to work at Biltmore after Olmsted's retirement in 1893, but also took on other jobs as a consulting forester. His successor at Biltmore as resident forester, Alvin Schenck, established the Biltmore Forest School in 1897, the first such school in America.⁵⁶ By the



MAP OF BILTMORE FOREST.

Plotted according to Raw Lines; Contour-lines according to the 40 ft. (12 m.) Raw Lines, Green; Intermediate Contours, Dark Green.

Biltmore Forest, 1893. (Gifford Pinchot, *Biltmore Forest: An Account of Its Treatment, and the Results of the First Year's Work* [Chicago: Lakeside Press, 1893], courtesy Francis Loeb Library, Graduate School of Design, Harvard University)

early 1900s, however, it became clear that the forest was a financial fiasco in the short term and would yield no economic return for many years. If one of the richest men in America couldn't afford an experiment in forest management, then who could? Pinchot's experience at Biltmore convinced him that the long time frame required by forest management demanded that forest reserves be managed by public agencies.

Pinchot's notion that "trees could be cut and the forest preserved at one and the same time" lies at the core of some of the most bitter disputes of the environmental movement during the last century. They split the ideals of the Forest Service from those of the National Park Service, the goals of the Sierra Club from those of Resources for the Future. They lie at the heart of the debate over the fate of forests, from the wilds of Oregon to the streets of Dayton.

Trees cannot be cut and "the forest" preserved unless there is agreement on what a forest is and whom it is it for. Is it everyday habitat or sacred symbol, mental image or material resource? Is it for plants, animals, or people? And which ones—for native oaks or Norway maples; for spotted owls or English sparrows; for hikers or hunters, naturalists or lumbermen; for local residents or distant populations? There are many kinds of forests, and the answers depend upon the context of a particular place.³⁷ Since an old-growth forest and an urban forest of trees in city parks and streets are not the same, different priorities should inform their management.

For Olmsted it was appropriate to apply the same methods of forest man-

agement to trees in urban parks and to those in rural woodlands. He published his pamphlet on forestry as applied to Central Park in 1889 as he was commencing work at Biltmore. Nearly a century later, the city forester of Dayton, Ohio, found himself embroiled in a controversy much like the one Olmsted encountered at Central Park, when he proposed a sustained management program for Dayton's urban forest. The forester planned to harvest diseased and dying street and park trees while they were still marketable, using the proceeds to pay for the cost of removing and planting new trees. The local Sierra Club and Audubon Society chapters opposed the program, citing loss of wildlife habitat in rotten trunks and fallen trees and the desire to "let nature take her course." They sued the city and won, forcing the abandonment of the program.⁵⁸ Preservation versus conservation—this, in a nutshell, is the core dilemma of environmentalism.

The powerful lesson of Biltmore is what human impulse can accomplish given sufficient time, with an eye to restoration and beauty, as well as to utility. One hundred years ago there was no forest at Biltmore, just cut-over woods and infertile fields. Now there is forest. Olmsted had the designer's faith that he could make something better, not worse. Key to his belief in himself was the ability to envision the future shape of the landscape, to guide it over time, and to imagine human intervention as potentially beneficial, not inevitably detrimental. He aimed to demonstrate how human intervention could make a forest more beautiful *and* more productive, provided one pursued long-term goals and a gradual return on investment, rather than short-term gain and maximum profit.

Olmsted took a long-term view of landscape construction and development. Unlike a building, a landscape is never "finished" after construction; it grows and changes, season by season, year by year. The form of a landscape can be fundamentally changed through the way it is managed. As design through time, landscape architecture often entails a succession of designs, sometimes requiring the alteration or even the deliberate destruction of early phases through growth, succession, or thinning, for example. At Central Park, Olmsted had envisioned a design that had to be implemented over several decades after the initial construction. And the forest at Biltmore would mature well beyond his own lifetime; at the age of eighty-eight he could say, "The entire undertaking looks to results that can be fully realized only after many years, and, except to a botanist, its value lies in its promises and experiments rather than its actualities."⁵⁹

The Fens and the Riverway

IN OCTOBER 1893 OLMSTED WROTE TO HIS PARTNERS FROM BILTMORE, warning them to turn down any business that would distract them from the Boston work, especially the Riverway, and to follow that work carefully, day by day: "The aims are novel, the conditions are novel. You cannot trust



Biltmore entrance drive under construction, ca. 1890s. (Courtesy National Park Service, Frederick Law Olmsted National Historic Site)



Biltmore entrance drive. (Courtesy National Park Service, Frederick Law Olmsted National Historic Site)

to usage.” The Boston works, he said, would be “points to date from in the history of American landscape architecture, as much as Central Park. They will be the openings of new chapters of the art.”⁶⁰

Boston’s Fens and Riverway were built over nearly two decades (1880s–1890s) as an urban “wilderness,” the first attempt anywhere, so far as I know, to *construct* a wetland. 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 movement of people, the flow of water, and the removal of wastes. This skeleton of park, road, sewer, and public transit structured the growing city and its suburbs. The latter features were not part of the original park plan; Olmsted persuaded the city engineer to approve the construction of a tidal marsh instead of a concrete flood basin. He got the city to adopt a radical expansion of the project’s scope and concept.

Olmsted’s contemporaries knew full well that these parks were constructed, for they had seen and smelled the filthy, stinking, muddy mess the Fens replaced; the recognition of the transformation was part of their social meaning and aesthetic power. Today these works are admired, but are widely assumed to be preserved bits of “nature” in the city, rather than places that were designed and built, daring experiments of engineering, ecology, landscape design, and city planning.

The Fens and the Riverway yielded new knowledge and techniques, but not without trial and error. While Olmsted based his design upon a general understanding of natural processes of water movement—tides, currents, and flooding—and plant growth and succession, gained from experience with



The Fens and Boston, ca. 1925. (Courtesy National Park Service, Frederick Law Olmsted National Historic Site)



The Fens and Boston, 1983. (Courtesy Alex S. MacLean/Landlides)



Constructing the Riverway, 1892. (Courtesy National Park Service, Frederick Law Olmsted National Historic Site)



The Riverway, 1920. (Courtesy National Park Service, Frederick Law Olmsted National Historic Site)

projects such as that at Niagara, he had no existing models to guide him. Yet he undertook this risky experiment on a project that was in the public spotlight. In collaboration with the city's engineer, he worked out a plan for the basin to receive rising floodwaters and a design for the tidal gate that would enhance water circulation and regulate water exchange between the Fens and the river.⁶¹ Olmsted engaged Charles Sprague Sargent, director of the Arnold Arboretum, to advise him on plant selection and methods for establishing the marsh. In the first phase, in 1883, more than 100,000 plants—grasses, flowers, shrubs, and vines—were planted in a space of two and a half acres.⁶² These included many species, both native and exotic, so that if some died, others would survive. Some plants were also intended as “nurses” to shelter more tender plants from sun and wind until they took hold. Securing the plants and finding a contractor capable of this novel construction proved difficult. Almost all the plants died before the end of the first year and had to be replaced. Furious and mortified, Olmsted wrote the contractor, “The mere loss of so many plants is the smallest part of the disaster. The whole plan is a wreck.”⁶³ The Fens were replanted, and within ten years the marshy landscape looked as if it had always been there.

Not only the function but also the appearance of the Fens and Riverway were revolutionary; up to this time, urban parks had been designed mainly in the formal or pastoral styles.⁶⁴ Olmsted introduced this “wild” appearance to bring the advantages of “natural scenery” found in places like Yosemite to “those who cannot travel”:

Cities are now grown so great that hours are consumed in gaining the “country,” and, when the fields are reached, entrance is forbidden. Accordingly, it becomes necessary to acquire, for the free use and enjoyment of all, such neighboring fields, woods, pond-sides, river-banks, valleys, or hills as may present, *or may be made to present*, fine scenery of one type or another.⁶⁵

The idea of constructing parks that imitated the appearance of the regional landscape of forest, prairie, and floodplain was pursued later in the early-twentieth-century work of Jens Jensen and the Prairie school. Superficially, Jensen's “Prairie River” in Chicago looked very similar to the Fens, but the aims of the two projects, and the two men, were very different. Olmsted imitated “natural scenery” because he believed that contact with such scenery would improve human health. Jensen used native plants and imitated the scenery of the region for political reasons. Jensen's “Prairie River” and other projects were ideological works with a chauvinistic agenda where “native” plants and the local landscape were seen as superior to “foreign” plants and places.⁶⁶ In this they reflected contemporary ecological theories of plant “communities” as embodying similarities to human communities and, by extension, as justifying certain human activities as “natural.”⁶⁷ It was the understanding of landscape *processes* applied to landscape restoration and human health, safety, and welfare that made the Fens and the Riv-

erway so significant. Olmsted imitated the local landscape in the service of these goals, and he often included hardy, exotic plants, along with native species.⁶⁸ Jensen emphasized visual appearance and the use of native plants; there was no underlying function of reclamation, flood control, and health. The fact that Jensen's work and Olmsted's resemble each other in visual appearance has led many later designers to confuse and conflate the intentions of these two quite dissimilar men.⁶⁹

The Fens and the Riverway anticipated by nearly a century the introduction of "ecological" planning and design in landscape architecture in the 1960s, the recent appreciation of urban "wilds," and the "new" field of landscape restoration. In the 1970s eight thousand acres of freshwater marsh in Boston's Charles River watershed were purchased by the U.S. government to serve as "natural storage areas" for floodwaters. Heralding the project as revolutionary, the authors of the plan were unaware of the more radical precedent of the Fens, where wetlands were built, not preserved. Also in the 1970s the Woodlands, a new community for 150,000 people near Houston, was planned around a "natural drainage system" of preserved and constructed streams and swales. In the 1960s landscaped drainage channels and detention basins were built in Denver as parkland designed to prevent floods.⁷⁰

Why were Olmsted's landmark achievements in the Fens and the Riverway—projects that should have been widely replicated models—first forgotten and then repeatedly reinvented? The answer lies mainly in the cultural conception of nature and of city: on the one hand, their "natural" appearance concealed their construction; on the other, the persistent mental opposition of nature and city gradually eroded the memory of Olmsted's contribution. For several decades after Olmsted's death, his successors continued to propose this type of project. Landscape architects like Frederick Law Olmsted, Jr., and John Nolen were important figures in the development of city planning as a "new" profession in the early 1900s. They served as the first presidents of the American City Planning Institute, offered the first course in city planning, and founded the first departments of city planning in American universities.⁷¹ By the 1950s, however, city planning was emphasizing social and economic concerns over aesthetic and environmental issues and was moving increasingly away from "physical" planning, to a focus on the formulation of policies.⁷²

Disasters might have been avoided in other sections of Boston if projects similar to the Fens and the Riverway had been implemented. In Roxbury and Dorchester, for example, streams were buried in sewers and houses built on low-lying land in the 1880s and 1890s. Most of these houses have long since been abandoned and demolished, after leaky sewers saturated the soil and owners failed to maintain the buildings. In some areas 90 percent of the original floodplain is now vacant, open land once again. How paradoxical that people perceive these vacant lots on the floodplain as "unnatural" and the landscapes of the Fens and the Riverway as "natural"! Olmsted's



Vacant land on floodplain in inner-city neighborhood, Boston, 1985. (Anne Whiston Spirn, personal collection)

example has guided my own work on the reconstruction of these and other inner-city landscapes in Boston and Philadelphia.⁷³ Boston's combined sewers overflow after rainstorms, making Olmsted's concept as appropriate as ever. Restored landscapes on low-lying vacant lands could be designed to serve as both parks and storm-water storage areas, as the Fens and Riverway once did and the parks in Denver now do, to prevent flooding and promote good water quality.

And the fate of the Fens itself? The Fens functioned as planned for only a short time. In 1910, just fifteen years after construction, the Charles River Dam was built, diminishing the importance of the Fens for flood control. Since the dam converted the Charles from a brackish into a freshwater river, many of the plants died, and then the site was used as a convenient dumping ground for dirt and debris from subway excavations.⁷⁴ The Fens of today bears little resemblance to that of Olmsted. In the 1980s the Massachusetts Department of Environmental Management engaged consultants to prepare a plan for the "preservation" of the Fens because of its importance as a historic landscape. A team of historians, preservationists, and landscape architects proposed that the Fens be restored to their original appearance, thus treating them like an ornamental object, used solely for strolling, looking, and thinking. The plan to preserve the Fens is a pale imitation that mocks the meaning and misses the significance of the original. Its intended function could have been restored: a place where floodwaters, flowing off roofs and streets, course and pool, filling the basin, dropping their silty load

before entering the river, a place linked to the system of sewers that sustains the health and safety of Boston's citizens. The restoration could have amended a sewer system that now pollutes the water it is meant to protect; this would have been a restoration effort in the spirit of the original.

How could the planners miss such an obvious idea in this "age of ecology"? What was the value the planners thought they were restoring—that of the scenery? Their proposal demonstrates a fundamental misunderstanding of the project's significance: the comprehensive scope of its functions, the dialogue between cultural and natural processes, the relevance for present urban problems. Their failure to perceive this relevance is both amazing and sobering. Our short individual and collective memories present a major human conundrum. How can human communities manage landscape change that takes place over a hundred years or more, when people's perceptions and priorities change from generation to generation, or even from election to election? What one generation starts, another may overturn or fail to finish. Humans may not have the right "attention span" to manage environmental change, and this may be the species's fatal flaw.⁷⁵ Perhaps this is the value of history—as an attempt to extend the time frame of our memory beyond the human lifetime. The only problem is that history represents selective memory.

Reclaiming Olmsted, Reconstructing 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.

—George Perkins Marsh, *Man and Nature* (1864)

OLMSTED'S PROJECTS EMBODY THIS PRINCIPLE. THE MARSHES, MEADOWS, and forests he conceived in Boston, Biltmore, and Niagara were built of materials that were both given and worked: earth, rock, water, and plants of the place; dredged mud, quarried stone, channeled water, and bred plants. His landscapes were constructed by human imagination, human labor, and processes of nonhuman nature. Olmsted's drawn plans and on-site adjustments guided the labor of others—dredging, grading, planting, pruning, tending. He envisioned how the trees, shrubs, grasses, and flowers that he caused to be planted would grow, beget and nurture other plants, live, and die, and how water, flowing through the channels he molded, would modify further the shorelines he shaped. Olmsted shaped sites like Yosemite more indirectly through the influence of his writings on policy and through the application, after his death, of lessons learned from his work at Niagara. Olmsted's values and ideas inspired the landscapes he conceived; but these were shaped in turn by the culture of his time, class, and gender.

In employing natural and cultural processes as “co-workers,” Olmsted foresaw some results and failed to anticipate others. He successfully matched the form of the landscapes he designed to the rhythms of nonhuman processes and the spatial structure they created, and he planned within a frame of time and space appropriate to the processes involved. He sought common solutions to social and environmental problems by defining every project as comprehensively as possible, expanding its scope when necessary. But Olmsted was generally more skilled at taking account of physical and biological processes than at accounting for social and political processes. Time and again, his projects were destroyed or fundamentally altered because he failed to take such processes into account.⁷⁶

Olmsted invented methods of practice, advanced the discipline of landscape architecture, and set a standard for professional conduct. He undertook risky innovation to advance the field, avoided short-term expedience in favor of long-term interests, and put public service before personal gain. But he also believed that professionals were a privileged elite whose expert opinions should not be questioned, and he failed to appreciate the power of popular culture to affect people’s attitudes toward his projects.

Olmsted’s legacy was double-edged; his ideas and the work that stemmed from them contained the seeds of both success and failure. Even as he established and expanded the influence of his profession, landscape architecture, in his own time, he planted the seeds of its invisibility. On the one hand, he understood physical and biological processes and applied that knowledge inventively. On the other, he disguised the artifice, so that ultimately the built landscapes were not recognized and valued as human constructs. He planted trees to look like “natural scenery” and then felt frustrated when people, accepting the scenery as “natural,” objected to cutting the trees he had planned to cull. His concealment of the art was so successful that it backfired. His notion of the social utility of natural scenery was lost; ultimately, it was viewed as decorative, not functional. Ironically, it was the “natural” appearance of his work that prevented people from appreciating how it fulfilled a broad range of functions.⁷⁷

Landscapes blur the boundaries between the human and the nonhuman. Most people cannot distinguish between the parts of Biltmore Forest that merely grew and those that were planted, between the shores of Niagara that were shaped solely by river’s flow and plants’ growth and those planted to resemble them. Calling some landscapes “natural” and others “artificial” or “cultural” ignores the fact that landscapes are never wholly one or the other. Such thinking promotes the persistent, common conception of the city as a degraded environment and wilderness as a pristine place untainted by human presence. Seeing humans, ourselves, as solely or mainly a contaminating influence prevents us from appreciating the potential beneficial effects we might have and limits what we can imagine as possible.

Olmsted offers an example to emulate, not imitate. In reclaiming his legacy, we should do so selectively, learning from both his successes and his

failures, retaining those ideas that are still relevant and discarding others as relics. We may apply some of the principles upon which his work is based but not imitate the work itself; employ and celebrate the physical and biological *processes* that connect human and nonhuman nature but not always copy the outward *appearance* of natural features, not always try to conceal the design. We may embrace his notion of environmental benefits for all without adopting his belief that exposure to natural scenery will improve morals. And we may embrace his high standards for professional conduct while rejecting his notion of professional privilege.

Olmsted represented a middle ground—which eroded in the twentieth century—between John Muir’s idea of nature as “temple” and Gifford Pinchot’s idea of nature as “workshop.” To Muir a wilderness like Yosemite was sacred ground: “our holy Yosemite,” as he put it.⁷⁸ Grazing the meadows and cutting the trees was sacrilege—plundering paradise. To Pinchot, Yosemite’s water and timber were material resources to be conserved and used. Olmsted could reconcile reverence and use, and he did this through art. He could speak of the sacred qualities of Yosemite, the “reverent mood” it evoked, yet still condone cutting and planting trees and shaping the scene, because he could envision future groves and glades still sublime. Like Olmsted, most designers believe that their work will make the world a better place, or at least improve some small part of it.

Failure to recognize the Fens and the Riverway as *designed*, as an artful, deliberate reconstruction of landscapes laid waste by human occupation, blinds us to the possibility of such transformations elsewhere. Recognition demands that renewal accompany use, that we not just abandon those places whose original appeal or value has been destroyed through human use but also take responsibility for creating life-sustaining habitats. Failure to acknowledge the constructedness of Niagara Falls and Yosemite conceals their connection to landscapes where the human is more dominant. Acknowledging the role of human ideas and purposes in constructing these landscapes forces us to clearly confront the *human* values we inevitably project upon such places. Demystifying the construction of these extraordinary places celebrates the human ability to shape them and promotes the possibility of fostering similar qualities in ordinary landscapes.

To deny the dynamic reality of the nonhuman world is also misleading and potentially destructive. Rain, rivers, mountains, trees, and birds are not just figments of human imagination; they *exist*. We perceive them only through our own human senses, refer to them by names we have given them, and employ them to tell our own stories, but they also have an existence outside that which *we* grant them. Failure to appreciate the dynamic, autonomous role of nonhuman features and phenomena promotes the illusion that humans can construct and control everything. Recognition prompts an understanding of human limitations, admits the possibility of unforeseen consequences, and recommends caution for undertakings so large in scale that unanticipated consequences might spell disaster.

All landscapes are constructed. Garden, forest, city, and wilderness are shaped by rivers and rain, plants and animals, human hands and minds. They are phenomena of nature *and* products of culture. There is always a tension in landscape between the reality and autonomy of the nonhuman and its cultural construction, between the human impulse to wonder at the wild and the compulsion to use, manage, and control. Landscapes of city and wilderness represent poles of a continuum in the history and intensity of human intervention. Seen thus, they bracket a range of environments, some destructive of life and some life-sustaining, some structured largely by human habitation, some a reminder that the human is only one possibility among many. For the world is not infinitely malleable; nature may be constructed, but it is not *only* a construction.

41. Analogous arguments can be found in John Brinckerhoff Jackson, "Beyond Wilderness," *A Sense of Place, a Sense of Time* (New Haven: Yale Univ. Press, 1994), 71–91, and in the wonderful collection of essays by Michael Pollan, *Second Nature: A Gardener's Education* (New York: Atlantic Monthly Press, 1991).
42. Wendell Berry, *Home Economics* (San Francisco: North Point, 1987), 138, 143.
43. Gary Snyder, quoted in *New York Times*, "Week in Review," Sept. 18, 1994, 6.

Constructing Nature

1. This essay draws from an unpublished lecture for the Frederick Law Olmsted National Historic Site in 1985, "Frederick Law Olmsted: The Legacy of a Pragmatic Visionary." Although many ideas were shaped by the discussions of 1994, I would like to thank Shary Berg, former director of the Olmsted Site, for inviting me to give the original lecture and for making the Olmsted Office archives available at a time when they were closed to scholars. I am also grateful to W. George Batchelor, my research assistant for the project in 1985, to Emily Stern, who helped with additional research in summer 1994 when I was a guest scholar at the Woodrow Wilson International Center for Scholars, and to Sylvia Palms for assistance in checking facts and assembling the illustrations for publication. I would also like to extend a special thanks to Bill Cronon, who as editor was always provocative, supportive, demanding, and collegial.
2. Olmsted was a product of his own time, place, and position in society. The specifics of his views on the moral value of natural scenery, for example, or on class and gender, seem naive and patronizing to a modern reader. Recently, scholars have criticized his social views, particularly in reference to the urban working class; see, for example, Roy Rosenzweig and Elizabeth Blackmar, *The Park and the People: A History of Central Park* (Ithaca: Cornell Univ. Press, 1992). Despite this critique, many of Olmsted's ideas, methods, and results remain models for contemporary practice.
3. Act of Congress quoted by Laura Wood Roper in her introductory note to "The Yosemite Valley and the Mariposa Big Trees: A Preliminary Report (1865) by Frederick Law Olmsted," *Landscape Architecture* 43 (1952): 12.
4. *Ibid.*, 21.
5. *Ibid.*, 24.
6. *Ibid.*, 12–13. Roper recounts the presumed history of the report and its suppression and describes how it was reconstructed and published for the first time in 1952.
7. Hans Huth, *Nature and the American: Three Centuries of Changing Attitudes*, new ed. (Lincoln: Univ. of Nebraska Press, 1990), 150.
8. Roper, "Yosemite Valley," 16.
9. *Ibid.*, 20. Such views were common at the time. See, for example, *The Home Book of the Picturesque; or, American Scenery, Art, and Literature* (New York: Putnam, 1851).

10. Olmsted's description of the positive effects of natural scenery may sound dated and naive, but recent studies have documented the beneficial effects of plants on human health and healing. Hospital patients who have windows with views of trees or other "natural" scenery have been shown to heal faster than patients who have views of buildings or no window at all. See Roger Ulrich and Russ Parsons, "Influences of Passive Experiences with Plants on Individual Well-being and Health," in Diane Relf, ed., *The Role of Horticulture in Human Well-being and Social Development* (Portland: Timber Press, 1992), 93–105.

11. Roper, "Yosemite Valley," 22.

12. Yosemite National Park generates twenty-five tons of garbage per day in mid-August; one-half of this comes from Yosemite Valley. Concessions contribute an additional ten tons per day. Don Fox, personal communication.

13. For a history and critique of such views, see the essays by Richard White and William Cronon in this volume.

14. Among the other members of this campaign were Frederick E. Church, whose paintings of Niagara Falls were part of this effort to focus attention on Niagara, and the publisher Samuel Bowles, who had been present when Olmsted read his report on Yosemite. Elizabeth McKinsey has traced the changing meanings of Niagara over time and pointed out that Niagara had already paled as an icon of the sublime by the middle of the nineteenth century. See her *Niagara Falls: Icon of the American Sublime* (New York: Cambridge Univ. Press, 1985).

15. See Olmsted's report in James T. Gardiner, *Special Report of New York State Survey on the Preservation of the Scenery of Niagara Falls* (Albany: Charles Van Benthuyzen, 1880), 27–31. Gardiner, previously a member of the California State Geological Survey, had surveyed and mapped Yosemite at the request of the commission Olmsted chaired. He and Olmsted remained friends for many years. See Roper, "Yosemite Valley," 12.

16. Olmsted's lobbying took diverse forms. For example, he and Charles Eliot Norton paid young graduates of Harvard Theological Seminary to visit Niagara and write press releases describing the blighted conditions surrounding the falls.

17. Frederick Law Olmsted and Calvert Vaux, *General Plan for the Improvement of the Niagara Reservation* (Niagara Falls: Gazette Book and Job Office, 1887), 3. There was a good deal of friction between Olmsted and his partner Vaux at this time. His son John Charles Olmsted wrote to Vaux to try to smooth things over and described how hard his father was working on the Niagara report ("He *can't* take writing easily") and how important the writing was to him. See Letter from John Charles Olmsted to Calvert Vaux, Sept. 2, 1887, Olmsted Papers, Library of Congress.

18. Olmsted and Vaux, *General Plan*, 4.

19. *Ibid.*, 6–7.

20. *Ibid.*, 20.

21. *Ibid.*, 19.

22. *Ibid.*, 8.

23. Ibid., 18.

24. Ibid., 8.

25. Ibid., 13.

26. After Olmsted's death his sons were hired to revisit the problem of diminished flow and unsightly banks. Photographs from the Olmsted Office files record the conditions they found. Frederick Law Olmsted National Historic Site, Brookline, Mass.

27. At Yosemite, John Muir and Gifford Pinchot had clashed over the issue of sheep grazing in 1897. To Muir sheep were "hoofed locusts" that should be banned from the valley. Pinchot had favored a compromise: permit grazing, but regulate it.

28. J. Horace McFarland, "The Niagara Falls Situation," *Landscape Architecture* 19 (1929): 157-62. See also the final report of the Special International Niagara Board, *The Preservation of Niagara Falls* (Ottawa: F. A. Ackland, 1930). McFarland, one of two American members of the board appointed by President Hoover, was chairman of the Art Commission of the State of Pennsylvania and former president of the American Civic Association. The other American member was an officer in the U.S. Army Corps of Engineers. The two Canadian members were the deputy minister of mines and the director of the Dominion Water Power and Reclamation Service.

29. McFarland, "Niagara Falls Situation," 160.

30. Ibid.

31. Ibid., 160-61.

32. International Joint Commission, *Preservation and Enhancement of the American Falls at Niagara* (n.p., 1975), 26. The IJC appointed the American Falls International Board to study the issues and make recommendations. The four-member board consisted of two landscape architects (including Garrett Eckbo from the United States), an officer of the U.S. Army Corps of Engineers, and the director of Water Planning and Management Branch, Environment Canada. The above report summarizes the recommendations of the board and actions taken by the IJC. For greater detail on the studies and recommendations of the board, see American Falls International Board, *Preservation and Enhancement of the American Falls at Niagara: Final Report to the International Joint Commission* (n.p., 1974); *Preservation and Enhancement of the American Falls at Niagara: Interim Report to the International Joint Commission and Appendix B: Aesthetics* (n.p., Dec. 1971); and *Intrusions on Views of Niagara Falls* (n.p., Nov. 9, 1970). See also Martin Krieger, "Up the Plastic Tree," *Landscape Architecture* 63 (1973): 349-60, 411.

33. International Joint Commission, *Preservation and Enhancement*, 1, 17.

34. Ibid., 12.

35. Ibid., 13.

36. Ibid., 17.

37. Ibid., 19.

38. Ibid.

39. Faye B. Harwell, "Recovering the 'Lost' Niagara," *Landscape Architecture* 71 (1981): 454–55.
40. See Richard White, *The Organic Machine* (New York: Hill and Wang, 1995).
41. American Falls International Board, *Appendix B*, 32.
42. Letter from Olmsted to Richard Morris Hunt, March 2, 1889, Olmsted Papers, Library of Congress. "The value of the site is in its outlook; the local scenery is not attractive. The soil is extremely poor and intractable. There is not a single circumstance that can be turned to account in gaining any desirable local character, picturesque, for instance, or geniality. Whatever we aim at must be made 'out of the whole cloth.' "
43. *Ibid.*
44. Letter from Olmsted to Fred Kingsbury, Jan. 20, 1891, Olmsted Papers, Library of Congress.
45. *Ibid.*
46. *Ibid.*
47. After Vanderbilt died, in 1914, his forest of more than 100,000 acres was deeded to the U.S. government to become the first national forest east of the Mississippi. This included the original forest plantations, as well as land already forested when he purchased it.
48. Letter to Kingsbury, Jan. 20, 1891.
49. Frederick Law Olmsted, Report to George Vanderbilt, July 12, 1889, Olmsted Papers, Library of Congress, 34–35. "The nursery price of *Rhododendron Maximum* in New York, three feet high, has been \$2.00 a plant. You can have plants gathered for you within twenty miles of your residence, by the thousand, probably at ten cents a plant, and after two years in nursery they will be better plants than I have been able to get from any nurseryman in Europe or America."
50. Frederick Law Olmsted, "George W. Vanderbilt's Nursery," *The Lyceum* 2, no. 6 (Dec. 1891): 7.
51. Olmsted's interest in forestry was long-standing. See Laura Wood Roper, *FLO: A Biography of Frederick Law Olmsted* (Baltimore: Johns Hopkins Univ. Press, 1973), 415, for his activities prior to Biltmore.
52. Frederick Law Olmsted and J. B. Harrison, *Observations on the Treatment of Public Plantations, More Especially Related to the Use of the Axe* (1889), reprinted in Frederick Law Olmsted, Jr., and Theodora Kimball, eds., *Forty Years of Landscape Architecture: Central Park* (Cambridge: MIT Press, 1973), 362–75.
53. Report to Vanderbilt, 19.
54. Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace, 1947), 49. In this book, his autobiography, Pinchot also referred to Olmsted as "one of the men of the century" (48).
55. *Ibid.*, 57.

56. *Ibid.*; 65.

57. The details of competing claims often pose a quandary. Maybe this is why it is so easy for people to be “for” saving the rain forests. In far-off places the goals are abstract and the details of the dilemmas unknown. The popular conception of Amazonia is of an unpopulated wilderness, yet millions of people live there. See Candace Slater’s essay in this volume.

58. For a more detailed description of the Dayton case, see Anne Whiston Spirn, *The Granite Garden: Urban Nature and Human Design* (New York: Basic Books, 1984), 174–75.

59. Olmsted, “Vanderbilt’s Nursery,” 7.

60. Letter to Charles Eliot and John Charles Olmsted, Oct. 28, 1893. Olmsted Papers, Library of Congress.

61. For a description of these projects in the overall context of Boston, see Spirn, *Granite Garden*. For a description of how the basin and the tidal gate were intended to work, see Olmsted’s account of his dialogue with the city’s engineer in an 1886 lecture to the Boston Society of Architects, “The Problem and Its Solution.” The handwritten notes for this lecture are in the Olmsted Papers at the Library of Congress. They were transcribed by Cynthia Zaitzevsky and reprinted in her dissertation, “Frederick Law Olmsted and the Boston Park System” (Harvard Univ., 1975), 295–306, and excerpted in her book of the same title (Cambridge: Harvard Univ. Press, 1982). For a description of how the flood control function worked, see E. W. Howe, “The Back Bay Park, Boston” (speech to the Boston Society of Civil Engineers, March 16, 1881).

62. Zaitzevsky, *Olmsted*, 188.

63. Letter to F. L. Temple, March 15, 1886, Olmsted Papers, Library of Congress. Temple was the landscape gardener Olmsted had hired to plant the Fens. Of the 100,000 plants, only 35,000 survived, many of which were “nurse” plants intended to die. Of the plant species intended to predominate over time, 75–95 percent were dead. See also Zaitzevsky, *Olmsted*, 187–90.

64. 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. (I am grateful to William Cronon and Neil Levine for this reference.)

65. Frederick Law Olmsted, “Parks, Parkways and Pleasure Grounds,” *Engineering Magazine* 9 (1895): 253–54 (italics added).

66. See Joachim Wolschke-Bulmahn’s review of Robert E. Grese, *Jens Jensen: Maker of Natural Parks and Gardens* (Baltimore: Johns Hopkins Univ. Press, 1992), in *Journal of Garden History* 15 (1995): 54–55.

67. See Gert Groening and Joachim Wolschke-Bulmahn, “Some Notes on the Mania for Native Plants in Germany,” *Landscape Journal* 11 (1992): 116–26, for parallels between the eradication of non-native plants in Nazi Germany and the extermination of non-Aryan human populations. This essay provoked a very strong reaction: Kim

Sorvig, "Natives and Nazis: An Imaginary Conspiracy in Ecological Design," *Landscape Journal* 13 (1994): 58–61; Gert Groening and Joachim Wolschke-Bulmahn, "Response: If the Shoe Fits, Wear It," *ibid.*, 194–96.

68. We know Olmsted approved of including hardy exotic plants because this was a point over which he and Charles Sprague Sargent argued on the Boston projects. Sargent deplored the use of exotic species; this is ironic, since he was director of the Arnold Arboretum, which had many trees from other regions and continents. Olmsted preferred to follow William Robinson's practice of mixing native and hardy exotic plants, as described in *The Wild Garden* (1870). See Zaitzevsky, *Olmsted*, 196, for quotations showing how Olmsted and Sargent disagreed on this subject.

69. The assumed superiority of native over exotic species is still a strong value of many landscape architects and ecologists today.

70. These projects are all described in Spirn, *Granite Garden*.

71. The first course in city planning in the United States was offered in 1909, in the School of Landscape Architecture at Harvard, several of whose faculty later founded the first school of city planning, in 1929. The first city-planning degree was a master's of landscape architecture and city planning offered at Harvard in 1923. See Anne Whiston Spirn, "Urban Nature and Human Design: Renewing the Great Tradition," *Journal of Planning Education and Research* 5 (Autumn 1985): 39–51. See also John L. Hancock, "Planners in the Changing American City: 1900–1940," *Journal of the American Institute of Planners* 33 (1967): 290–304.

72. Many plans for parks and parkways as a multipurpose urban infrastructure were never implemented and are now being rediscovered and proposed anew. Mike Davis and others, for example, have revived interest in proposals for the Los Angeles River made by Frederick Law Olmsted, Jr.

73. The Boston proposals are described in Steve Curwood, "Profile: Shaping the City to Nature's Laws," *Boston Sunday Globe*, May 26, 1985, and Anne Whiston Spirn, "Reclaiming Common Ground: The Future Shape of Boston" (lecture sponsored by the Boston Society of Architects, American Institute of Architects, and McGraw-Hill, May 1985). See also Anne Whiston Spirn, "Landscape Planning and the City," *Landscape and Urban Planning* 13 (1986): 433–41. For a description of the Philadelphia proposals, see Thomas Hine, "Surroundings: A Long-Buried Creek in West Philadelphia," *Philadelphia Sunday Inquirer*, Nov. 15, 1992. See also Anne Whiston Spirn, *The West Philadelphia Landscape Plan: A Framework for Action and Vacant Land: A Resource for Reshaping Urban Neighborhoods* (Philadelphia: Department of Landscape Architecture and Regional Planning, Univ. of Pennsylvania, 1991).

74. Daniel Schodek includes the Boston subway of 1895 (the nation's first) and the Charles River Dam and Basin of 1910 as two landmark projects in his book *Landmarks of American Civil Engineering* (Cambridge: MIT Press, 1987). He refers to Olmsted's Emerald Necklace as ringing the city with "some of the loveliest waterways and parklands in the country," but fails to see its significance as a landmark of engineering. Exhibiting a fundamental misunderstanding that is all too common, he contrasts what he terms Olmsted's "nostalgic sense of the landscape" in the Fens with the scientific and commercial concerns of the Charles River Dam (301). The Fens also exposes the power and problem of cultural construction. Even as culture

enables us to see some things, it blinds us to others. Once the Fens became a marsh, it was perceived as a potential dump. In contrast, the forested floodplain of the Riverway was not used as a dump.

75. This is a point Michael Barbour has made repeatedly.

76. He acknowledged this shortcoming. He titled a pamphlet on Central Park "The Spoils of the Park, with a Few Leaves from the Deep-Laden Note-books of a Wholly Impractical Man," reprinted in Olmsted and Kimball, *Forty Years*, 117–55.

77. The modern meanings of the word "artifice" reveal a negative attitude toward the deliberately and artfully made versus the given or "natural." "Artifice" originally referred to an *art* of making and "artificial" to something that was made or modified through human skill and art, often in imitation of something in nature. Now the usual meaning of "artifice" is trickery, and "artificial" connotes something that is not genuine, that seeks to fool. This double meaning has been part of the English language for a long time. See *Webster's New International Dictionary* (2nd ed.) and the *Oxford English Dictionary*. The first use of "artifice" with this negative meaning cited by the *OED* dates from the seventeenth century. It is interesting to note that although Olmsted employed artistry ("artifice") in shaping landscape, his frequent use of the word "artificial" was generally in its negative sense in reference to qualities or features that were not "natural." Perhaps the negative connotation of "artificial" explains why Olmsted's works are seldom seen as constructed. (I am grateful to Mark Rose and William Cronon for discussions that prompted these points.)

78. From a letter to Ralph Waldo Emerson: "I invite you to join me in a month's worship with Nature in the high temples of the great Sierra Crown beyond our holy Yosemite. It will cost you nothing save the time and very little of that for you will be mostly in Eternity." Quoted in Huth, *Nature*, 151.

Amazonia as Edenic Narrative

1. For one critique of these schemes, see Susanna Hecht and Alexander Cockburn, *The Fate of the Forest: Developers, Destroyers, and Defenders of the Amazon* (London: Verso, 1989). Other critiques are listed in the bibliography. Two newer works that do not appear there are Ronald A. Foresta, *Amazon Conservation in the Age of Development: The Limits of Providence* (Gainesville: Univ. of Florida Press, 1991), and Marianne Schmink and Charles H. Wood, *Contested Frontiers in Amazonia* (New York: Columbia Univ. Press, 1992).

2. For a summary of the Trombetas situation, see Rosa Azevedo and Edna Castro, *Negros do Trombetas: Guardiães de Matas e Rios* (Belém do Pará: Editora da Universidade, 1993). See also *Informe Revisão Constitucional—Os Direitos dos Remanescentes de Quilombos*, nos. 2, 3, and 4 (São Paulo: Comissão Pro-Índio de São Paulo, Jan. 12, 17, and 27, 1994).

3. The European explorers were wont to conceive of the Americas as a kind of Eden. See Henri Baudet, *Paradise on Earth: Some Thoughts on European Images of Non-European Man*, trans. Elizabeth Wentholt (New Haven: Yale Univ. Press, 1965), and Sérgio Buarque de Holanda, *Visão do Paraíso*, 2nd rev. ed., *Brasiliana* 33 (São Paulo: Editora Nacional/Editora da Universidade de São Paulo, 1969). See also the