Landscape Designers, Doctors, and the Making of Healthy Urban Spaces in 19th Century America

Robert Martensen, M.D., Ph.D.
National Institute of Health, Office of NIH History & Museum

During the middle decades of the 19th century, a loose collaborative of landscape designers and physicians looked to each other for ideas and support as they crafted an urban vision that combined environmental health, aesthetics, and a democratic *ethos* in a uniquely American mixture. From approximately 1840 to 1880, they crafted a health/environmental dualism that informed the design not only of large urban parks, which were then a contested public undertaking, but also of military encampments and hospitals, the one-room schoolhouse, 'rural' cemeteries, and early suburbs (Szcygiel and Hewitt 2000). My Meristem Forum presentation of March 30, 2007 discusses two of the movement's leaders — John Rauch, a Chicago physician whose environmental analyses shaped landforms of the Chicago park system, and his correspondent and muse, Frederick Law Olmsted, the leading landscape designer of the 19th century.

Olmsted, Rauch, and their collaborators made use of the predominant communicable disease conception of the pre-bacteriological-era — miasma theory — to guide their urban reforms. At its simplest, miasma theory, which has a history stretching back to the ancient Hippocratics and Vitruvius, assumes that the products of stagnation and decay, be they bad air, dirty water, or rotting meat and vegetables, account for most human afflictions. If stagnation and decay can be prevented at both physical and social levels, the argument ran, health is likely to ensue. For them, 'health' meant 'salubrity,' which is an

Previous Page:
New York City Housing Authority community garden, Marlboro Houses, Brooklyn, NY.
PHOTO USED WITH PERMISSION BY PHOTOGRAPHER LLOYD CARTER, NYCHA

Left:
Bethesda Fountain in Central Park was created to celebrate the completion of the Croton Aqueduct (1842), which for the first time provided all New Yorkers with clean drinking water. Crowning the fountain, The Angel of the Waters sculpture references the biblical angel who rendered the Pond of Bethesda healing water such that "whosoever stepped in were made whole of whatever disease he had." (John 5:4).
PHOTO USED WITH PERMISSION BY NEW YORK CITY PARKS PHOTO ARCHIVE. PHOTO BY ALAJOS L. SCHUSLER (1934)

ancient Latin word that suffuses discussions of environmental health from Vitruvius in second century Rome onward through Ulysses S. Grant's analysis of sites for potential military encampments.

According to Webster's Dictionary, "salubrity" means "favorableness to the preservation of health" and "a quality of wholesomeness, healthfulness." Any major environmental e lement — land form, water moving and still, climate patterns, vegetation, wind patterns, history of local epidemics — had its role to play in whether or not an observer assessed a site as salubrious or not. Observers could judge an area to be rich in agricultural potential, such as the Mississippi delta, but insalubrious due to its poor drainage and history of pestilence, for example. Historian Conovery Bolton Valencius (2002) recently published a superb book, "The Health of the Country", that explores how American settlers in the early 19th century often spoke in terms of salubrity as they assessed the agricultural potential and sustainability of various locations.

Nineteenth century city dwellers also employed a rhetoric of salubrity. Unlike today, when the infant mortality rate in New York City — 6.7 per 1,000 live births in 2007 — is lower than in many rural and suburban areas, many large cities in the U.S. and Europe during the early 19th century were so unhealthy that their populations could not maintain themselves without substantial net in-migration from the country. Even as wages for urban industrial workers began to rise in the early 19th century, contemporary commentators noted that urban environments were becoming less healthy than their 18th century counterparts. New York City was less healthy than London, but even along the Thames mortality rates for all decades worsened from 1815 to 1845. Writing on conditions in Manhattan in 1865, reformer Stephen Smith lamented: "Here infantile life unfolds its bud, but perishes before its first anniversary. Here youth is ugly with loathsome diseases and the deformities which follow physical degeneracy. . . . The poor themselves have a very expressive term for the slow process of decay which they suffer, viz.: 'Tenement-house Rot'" (Szreter and Mooney 1998)

Chicago and Rauch

Chicagoans might be accumulating personal wealth, but an 1835 editorial in the "Chicago Democrat" bemoaned that, "The atmosphere

has already become poisoned" due to standing water that was "green" and "putrid" from decaying vegetable matter (Grob 2005). The cause was Chicago's natural situation, which consisted of a flat topography, high water table, and clay soils — all perceived by contemporaries as pre-disposing cause for miasmatic afflictions such as cholera. Chicago's early streets, for example, did not drain; instead, filth and water accumulated. To ameliorate the unhealthful effects of limited natural drainage, Chicago leaders in 1852 established a new street grade that necessitated raising Chicago's streets, an activity they repeated in 1857 and 1868 to counter perceptions that their roadways remained "too damp" and "unhealthful" (Pierce 1937-57).

Rauch, an early leader at Chicago's Rush Medical College, used mortality statistics and a then-new instrument of environmental assessment — the eudiometer — to construct environmental profiles of places Chicagoans perceived as unhealthful. Chicago's cemetery, then located where Lincoln Park is today, along the shores of Lake Michigan northwest of downtown, was perceived as particularly miasmatic. Suspecting the cemetery as a point source for the pollution of the city's potable water supply, which came from the Lake, Rauch documented shoreline currents that proceeded from the cemetery site toward the city reservoir. Finding a correlation between high water tables and rates of putrefaction in the cemetery, Rauch organized a public campaign to remove the cemetery's occupants to a 'rural' location. Although the desire to make more profitable use of urban land, esthetic fashion, as well as health concerns, drove the calculus for rural cemeteries in Boston and Philadelphia, Rauch's Chicago effort seems motivated solely by his concern for public health (Rauch 1866).

Moving the cemetery away from the Lake and settled areas would only stop the production of morbid poisons, however, and Rauch thought something additional was required to ameliorate the former cemetery ground's reservoir of miasma. His solution was to transform the cemetery grounds into a public park. The park's new plantings and engineered land forms would "detoxify" the contaminated soils and contain gases that, if emitted into the air, would prove "otherwise injurious" (Rauch 1866, 66).

Politically, Rauch faced the task of persuading civic leaders that it was wise to use substantial public sums to transform one

The dairy in
Prospect Park,1909.
PHOTO USED WITH PERMISSION
BY PROSPECT PARK ARCHIVES,
BOB LEVINE COLLECTION

area — the former cemetery — and not another. In his influential 1868 report — "Public Parks: Their Effect upon the Moral, Physical and Sanitary Conditions of the Inhabitants of Large cities; with special reference to the City of Chicago" — Rauch sought to finesse the issue with a medical rationale. Miasma, he declared, does not reside in any one community or place. Its "subtle and invisible influence may be wafted to the remotest parts, abated in virulence, but still pestiferous." In 1869, in response to the campaign Rauch led, Illinois created a multi-park system for Chicago that would surround what was then the city's perimeter. Ten years later, Rauch boasted that "at least one million" trees had been planted in Chicago and that its planned 2,500 acres of new parks would lead to "diminished mortality rates and the improved general health of all city residents" (Rauch 1879, 15).

New York and Frederick Law Olmsted

As Rauch prepared his "Public Parks" report, he became acquainted with Olmsted's approach, and the two began corresponding. By the time Rauch and Olmsted became aware of each other, the latter had a well furnished imagination concerning how to prevent disease and encourage health through environmental manipulations of various kinds. Active during the Civil War as General Secretary of the U.S. Sanitary Commission, the New York-based volunteer organization that oversaw design and support for Union military camps and field hospitals, Olmsted was familiar with medical arguments for maximizing air circulation in dwellings as well as the dangers of decay of vegetable and animal matter. He recommended that Union military hospitals be designed so that each patient received no less than 800 cubic feet of fresh air each day, for example.

For parks and early suburbs, he and Calvert Vaux, his frequent collaborator, believed, like Rauch, that if the land did not generate salubrity, then the land needed to be re-engineered so that it did. Though it may seem counterintuitive to us, who may perceive Central Park (Manhattan) and Prospect Park's (Brooklyn) landforms as preserved natural scenery, Olmsted described the Central Park project as a "transformation of a broken, rocky, sterile, and intractable body of land, more than a mile square in extent, into a public ground." (In fact, constructing Central Park was the **largest public works** project

→ SEE SUGARMAN PAGE 138

Bethesda Fountain in Central Park, circa 1902.
PHOTO BY BENJAMIN J. FALK
USED WITH PERMISSION BY
LIBRARY OF CONGRESS PRINTS
AND PHOTOGRAPHS DIVISION

undertaken by New York City during the 19th century (Sutton 1971).

Olmsted, Vaux and their reformist contemporaries drew on an aesthetic sensibility that owed much to British and American designers of the late 18th and early 19th centuries, Capability Brown, William Kent, Humphrey Repton, and the American house designer Andrew Jackson Downing. None of these men embraced either cities or large-scale industry. Instead, their designs tended to evoke either a sanitized version of cottage life (Downing) or tidy arcadias replete with grazing livestock and sonorous rivulets (Brown and Repton). Olmsted and Vaux took cues from them. In its original version, Prospect Park, for example, contained an active dairy where visitors might purchase fresh milk, and in its first years Bethesda Fountain in Central Park provided free and clean drinking water. Prospect Park's dairy cows and the Bethesda Fountain provided vital commodities — safe milk and water — that ordinary city-dwellers of the 1860s and 1870s could not easily obtain otherwise. According to Olmsted:

> It is one great purpose of the (Central) Park to supply to the hundreds of thousands of tired workers, who have no opportunity to spend their summers in the country, a specimen of God's handiwork that shall be to them, inexpensively, what a month or two in the White Mountains or the Adirondacks is, at great cost, to those in easier circumstances (quoted in Sutton 1971).

Olmsted and Vaux also wanted 'natural features' in parks to promote harmony in human bodies at the individual and group levels. According to Olmsted, however, experiencing harmony was not something that one willed into being; instead, he wrote, parks had to be designed so that harmonious perceptions could arise spontaneously. How different groups of people and vehicles moved among each other was a crucial factor when considering public harmony. Careful consideration of circulatory pathways, which Olmsted pursued in a different register in his sanitary designs for military hospitals and camps, assumed great importance. He and Vaux designed separate roadways and grade changes to prevent unwanted and dangerous encounters between pedestrians, carriages, and horseback riders without having people use conscious judgment. For Olmsted, to be in one of his large urban parks was to experience "each individual adding by his mere presence to the

pleasure of all others, all helping to the greater happiness of each. You may thus often see vast numbers of persons brought closely together, poor and rich, young and old, Jew and Gentile" (Sutton 1971).

Olmsted's contemporaries came to see large urban parks as among democracy's finest achievements. As Henry Bellows rhapsodized in the "Atlantic Monthly" in the late 1860s, Central Park was "the most striking evidence of the sovereignty of the people yet afforded in the history of free institutions…It is a royal work, undertaken and achieved by the Democracy — surprising equally themselves and their skeptical friends at home and abroad" (Sutton 1971, 75). When Henry James took up the "social question" of public mixing in his "The American Scene" of 1905, he observed of Central Park that "to pass…from the discipline of the streets to this so different many-smiling presence is to be thrilled at every turn" (James 1968).

Conclusion

As Meristem and others advocate for Restorative Commons of various kinds, they receive the response from skeptics that the "scientific data" is not sufficiently established to warrant the initiative. They will hear that scientific consensus is necessary before society ought to embrace a significant change or new policy. Some of this country's most successful environmental initiatives, however, have been implemented when the science was still inchoate. When Congress passed the Clean Air & Water statutes of the 1970s, for example, environmental studies were in their infancy from a modern scientific perspective. What carried the initiatives forward politically was not a settled view from the scientists, but a mix of science and public resolve that America should not continue to poison its water and air so profligately. In the 19th century, Olmsted, Rauch, and their allies were able to curry public favor not on the basis of then cutting-edge science, the germ theory that was taking form in Louis Pasteur's lab in remote Paris, but by persuading city dwellers that they could enjoy each other in large public spaces that promoted health at the individualand social levels.

The shared vocabulary of health, disease, and environmental conditions that inspired them began to wane in the 1890s. Influential physicians began abandoning miasma theory and its preoccupation with general environmental conditions in favor of laboratory models of

disease causation based on discrete species of bacteria, viruses, and parasites. If, for example, one wanted to control diphtheria, the then-new logic ran, one did not need to build a great park; instead, one should develop a mass vaccination campaign to immunize the young. Instead of going broad in their environmental manipulations, the new medical sensibility recommended going narrow.

Now, early in the 21st century, many factors favor a return to the health/environmental dualism that flowered in the middle of the 19th century, notably in the great public parks of New York City and Chicago. Meristem, along with urban leaders, has great work to do as it reinvigorates in contemporary terms an approach that has generated much pleasure and sense of well-being among city dwellers.

Literature Cited

Grob, G. 2005. **The deadly truth: A history of disease in America.** Cambridge, MA: Harvard University. Press. 349 p.

James, H. 1968. **The American scene.** Bloomington, IN: Indiana University Press. 486 p.

Pierce, B.L. 1937-57 (3 volumes). **A history of Chicago.** New York: Knopf.

Rauch, J. 1866. **Intramural interments in populous cities and their influence upon health and epidemics.** Chicago: Tribune Co.

Rauch, J. 1879. **The sanitary problems of Chicago, past and present.** Cambridge, MA: Riverside Press.

Sutton, S.B., ed. 1971. **Civilizing American cities: a selection of Frederick Law Olmsted's writings on city landscapes.** Cambridge, MA: MIT Press. 310 p.

Szczygiel, B.; Hewitt, R. 2000. **Nineteenth-century medical landscapes: John H. Rauch, Frederick Law Olmsted, and the search for salubrity.** Bulletin of the History of Medicine. 74(4): 708-734.

Szreter, S; Mooney, G. 1998. **Urbanisation, mortality and the standard of living debate: new estimates of the expectation of life at birth in nineteenth-century British cities.** Economic History Review. 50(84): 84-112.

Valencius, C.B. 2002. **The health of the country: how American settlers understood themselves and their land.** New York: Basic Books. 388 p.