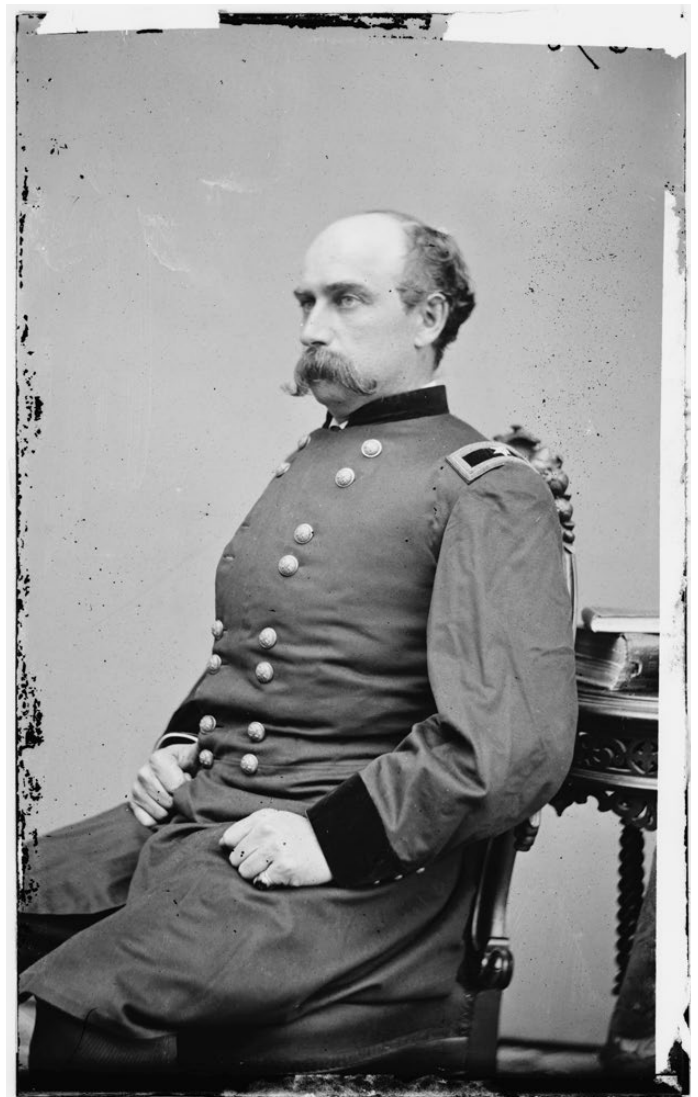


Living in Viele's World

For generations, New York City engineers have consulted a hand-colored map of Manhattan's waterways from 1865, a masterwork that depicts creeks and canals, marshes and meadows in vivid shades of blue, green, and pink. If you want to know whether a property might flood, where ground might be unstable, or whether a basement is likely to fill up with water, the map has your answers. "A swell lithograph, long as a Buick," one admirer enthused. It was drawn by Egbert Ludovicus Viele, a West Point-trained engineer who wanted to pictorially explain the health risks of filling up the city's natural watercourses and diminishing natural drainage in the name of urban development. To that end, the Viele Map, as it's now known, showed the streams, swamps, pig sties, and shanties.

Before New York City became a metropolis, with its underground web of subways and utilities running under the bristles of high rises, there was Viele. His map is the informational substrate—the foundation—that made today's city possible. But outside the offices of urban planners and civil engineers, very few people know Viele's name. They don't know that he proposed the first subway for New York—the Arcade Under-Ground Railway—and supported the creation of the Board of Public Health. Or that he was deeply involved in building both Central Park and Prospect Park. If they do know of a foundational New York architect, it is Viele's rival, Frederick Law Olmsted, who is given full credit for designing Central Park. Olmsted's New York freezes the heart of the city in a bucolic pastoral, a kind of never-never land. By contrast, Viele's city is still growing—up, down, betwixt, and beyond. Viele's story is as much about how New York became New York as it is about the politics of recognition—how credit is assigned to engineers.

Viele became interested in the connection between sanitation, engineering, and health when he was a lieutenant during the Mexican-American War, sitting frustrated on the north bank of the Rio Grande while cholera killed more of his men than actual combat. At the time, miasma theory



Egbert Ludovicus Viele. Library of Congress Prints and Photographs Division.

explained cholera as a product of offensive odors from rotting refuse. The British crusader Edwin Chadwick even envisioned a “pure air” solution, with tall tubes stretching into the heavens to draw fresh oxygen down for piped delivery to dwellings at a price. Viele was convinced that good sanitation could protect people from disease, and he later recounted his sense that topography, particularly places where water pooled, was driving infection.

Viele had a chance to test his ideas when he returned to New York in the mid-1850s. A few years earlier, New York City acquired a parcel of land, around 800 acres, through eminent domain. The space, to be turned into a park, would serve as the “city’s lungs,” with the belief that urban progress could enable social and moral growth. The task of converting that “cheerless waste into a scene of rural beauty,” in the words of one historian, fell to Viele. He meticulously mapped the muddy land, pooling patterns, and underground streams of the purchased plots, which he described as “perhaps the most unpropitious that could have been selected for such a purpose on the whole continent.”

sanitary surveys could promote hygienic environments. Their contrasting visions would both prove crucial to comprehensive city planning.

The two men were very different from each other. Olmsted was charming; Viele was crotchety. Olmsted’s vision was cheery, while Viele’s was weary. Olmsted was a Republican, Viele a Democrat—leading Viele to suspect that the city Republicans had planted Olmsted to derail his visionary proposal for Central Park. Viele silently glanced at Olmsted’s letter in his office and ignored him for the rest of the day, dismissing him because he wanted a more “practical man.” Yet Olmsted was persistent. Visits later, Viele gave him his first assignment. Olmsted would remember that moment where Viele “exhibited his practical ability by leading me through the midst of a number of vile sloughs in the black and unctuous slime of which I sometimes sank nearly half-leg deep.”

The city’s political divisions were sharp, and Republicans wanted to curb the Democrats’ influence over the project. The English-born architect Calvert Vaux convinced the park commissioners that Viele’s design was mediocre and mundane,

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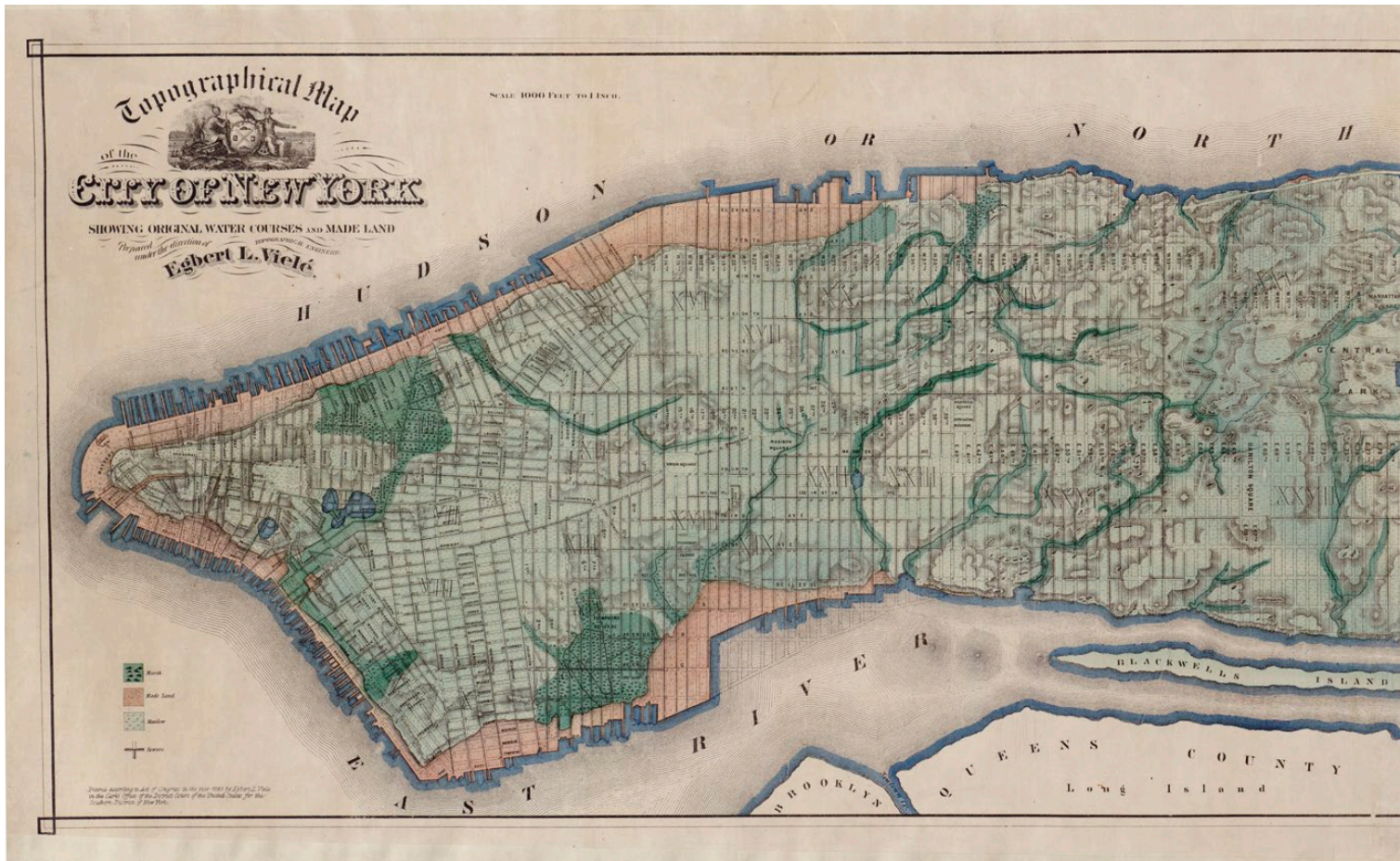
As Central Park’s first chief engineer, Viele emphasized drainage measures to ensure the park didn’t turn into “a pestilential spot, where rank vegetation and miasmatic odors taint every breath of air.” He aimed to transform the low swamp into a grassy meadow with a new reservoir, a driving loop for carriages, a sports field, a military parade ground, a botanical garden, and winding trails. Viele’s survey of both natural and installed drainage was detailed. He believed that his modern masterwork would rival the grand gardens of Berlin, Paris, and London, and still be completed under the allotted budget of \$1.5 million. Viele’s design, historian Jon Scott Logel notes, followed the maxim that “‘the greatest art is to conceal art’ through a mixture of ‘the natural’ and the ‘artificial.’”

Months into construction, in September 1857, a dapper Frederick Law Olmsted walked past the job seekers lined outside Viele’s shack office. Olmsted, an architect, carried an influential political endorsement as his letter of recommendation. Olmsted described himself as an “unpractical man” who valued “townsite consciousness,” an urban design that privileged public parks for democratizing healthful air and light. In contrast, Viele believed combining the tools of organized water-waste sewerage and systematic

something one would expect from a mere engineer. Viele was ousted, his design dropped. Instigated by Vaux, the city sponsored a design competition for the layout of the park. Vaux paired up with Olmsted, and in April 1858, they won the contest and a \$2,000 prize for their naturalistic Greensward plan, now referred to as the “Sistine Chapel of landscape design.” Olmsted was appointed Central Park’s chief architect, blending Viele and Olmsted’s former duties as chief engineer and superintendent. Viele contended that Vaux and Olmsted stole his plan, and a court later ruled in Viele’s favor and awarded him some \$8,000. (Viele and Olmsted clashed again on the design of Prospect Park in Brooklyn, whose initial planning began under Viele in late 1860.)

Viele’s activism was motivated by his belief that the developers shouldn’t ignore Manhattan’s natural topography. In 1865, when the Citizens Association of New York campaigned for the creation of a Board of Health, Viele was a strong proponent. One of his maps even appeared in a report, described as “medical topography.”

In the 1870s, Viele gained more influential positions, which he used to develop the Upper West Side and propose mass transit options using elevated railroads. And in 1883, to Olmsted’s dismay, Viele became president of the Parks



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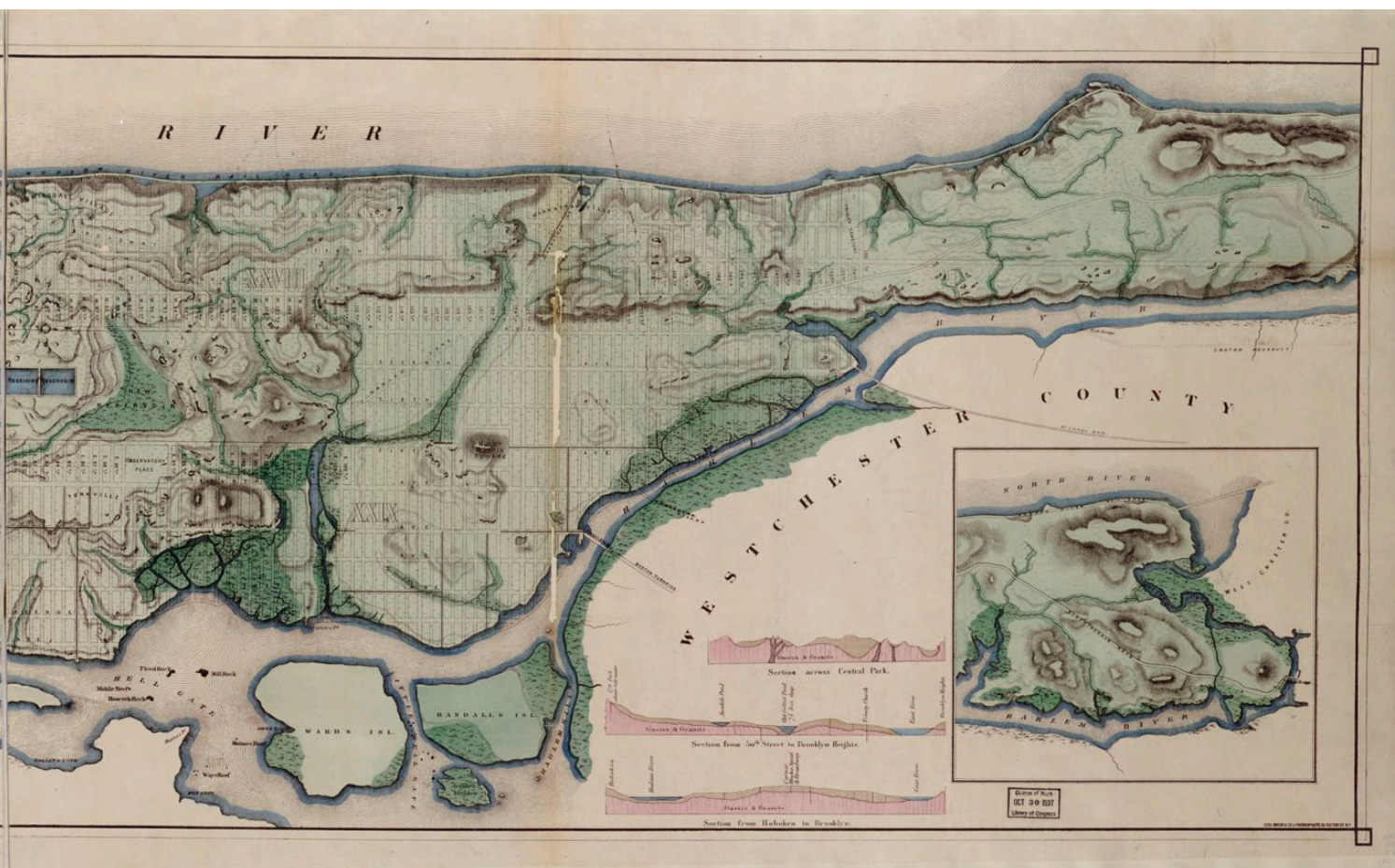
Commission that had once fired him. Olmsted grumbled that for 25 years, it had been Viele's "principal public business to mutilate and damn the park."

The design philosophies Viele and Olmsted championed, both vital for public health, offer insights into the politics of recognition evident across engineering—and how we as public and professionals assign prestige to one line of work over another. Viele and Olmsted were both agents of reform and in constant competition. The contrast in their design philosophies, however, alludes to a status game that still prevails in engineering today. An innovator who, for example, installs a "sheep meadow" in the middle of a metropolis receives many laurels and much praise—while those who do operations and maintenance fly under the radar of cultural recognition. Prestige is often mistaken for excellence, but it lands somewhat indiscriminately. As scholar Lewis Leopold wrote in 1913, "prestige ... throws its cold electric glitter on strong and weak, useful and useless, good and bad, true and false, beautiful and ugly alike."

The politics of prestige determine how society assigns fame, manufactures eminence, propagates popularity,

and ultimately judges one individual over another. "Due recognition is not just a courtesy we owe people. It is a vital human need," notes scholar Charles Taylor, pointing to how identity is partly shaped or misshaped by the presence or absence of recognition. But this dynamic also subtly shifts how and what gets remembered about the world, causing society to overlook promising opportunities for the future. In engineering, the status accrued by high prestige may end up depriving society of visionaries who see the potential in building sewers and draining swamps to create better lives for all.

But there is more to be gained from the contrast between Viele and Olmsted. Viele envisioned a city that might grow willy-nilly but in which peoples' lives could be improved by sanitation, by subways and elevated trains, and by canals. He lived in the real world—a working city with unruly aims and desires. Olmsted wanted to create a planned city with an orderly hierarchy of nature and commerce. It was a fantasy of pastoral hygiene—a contradiction that was at once idealistic and unrealistic for a polyglot city. In essence, Olmsted imagined a



city crystallized around a park where time stopped before the Industrial Revolution. Viele's New York was a protean space, relentlessly renovating and reconfiguring around its inhabitants and their needs. Today, the world may admire and amplify Olmstead's vision, but New Yorkers live in the city that Viele imagined.

"It is a difficult matter to persuade people to look forward to the comfort of generations to come after them, when they have to furnish the means for it," Viele wrote in 1860. "And nothing is so essential to the success of a system of sewerage, as to make it sufficiently extensive and comprehensive in the beginning." Viele's forward-thinking work connected the built environment—improved drainage and public works—with promoting health-conscious behavior. He also urged a kind of self-sacrifice for future generations; investment in the lives of those who come after. "In this sense," Logel observes in his history of New York City's design, "Viele was a precursor to the progressives who emerged in the last two decades of the nineteenth century." The persistent usefulness of Viele's map should inspire investment in the kind of foundational, life-sustaining engineering that benefits everyone.

Between 1861 and 1863, Viele served in the Union army as a military governor in Virginia and commanded Civil War campaigns in Georgia and South Carolina. Although his service seems to have been unexceptional, in later years he waxed poetic about his experience accompanying Abraham Lincoln to a battlefield. Viele described the president as "kind, genial, thoughtful, tender-hearted, magnanimous," with whom he enjoyed the "very closest intimacy" during his "wonderful fund of reminiscence and anecdote."

Viele later became a congressman, but he felt he never got the public recognition he deserved. He ordered for himself a 31-foot-tall pyramid tomb with columns and sphinxes—then the largest in the West Point cemetery. Paranoid about the prospect of being buried alive in his marble coffin, he had a buzzer installed so he could get help if needed. It was never used, except by some pranksters.

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