The Pennsylvania State University

The Graduate School

Department of Geography

RATIONALIZING THE LANDSCAPE:

SUPERIMPOSING THE GRID

UPON THE ISLAND OF MANHATTAN

A Thesis in

Geography

by

Reuben Skye Rose-Redwood

Submitted in Partial Fulfillment
of the Requirements
for a Degree of

Master of Science

August 2002

_____

Reuben Skye Rose-Redwood

We approve the thesis of Reuben Skye Rose-Redwood.

Date of Signature

_____	_____
Andrew Sluyter Assistant Professor of Geography Thesis Advisor	
_____	_____
James P. McCarthy Assistant Professor of Geography	
_____	_____
Roger M. Downs Professor of Geography Head of the Department of Geography	

ABSTRACT

During the nineteenth century, the Island of Manhattan was transformed into a physical representation of the Cartesian coordinate system via the development of the grid street plan. In this study, I examine the logic behind proposing and opposing the grid plan, while also exploring the "mechanics" (i.e. techniques or procedures) of inscribing a conceptual framework into the material landscape. Using discourse analysis, I argue that in addition to the enhancement of real estate values and economic efficiency, the grid's designers also sought to create a disciplined population to suit the needs of the emerging capitalist economy of the American Empire. The principles of surveying—the "rules of symmetry" and the use of "algebraic characters," in particular—were thought to discipline the mind such that one would take "the course which reason indicates." Not only was the logic of surveying the conceptual basis for designing the grid plan, the surveying process also served as the principal mechanism for physically inscribing the Cartesian coordinate system into the Manhattan landscape.

The development of the grid was a means by which to simplify, or "rationalize," the landscape through the process of spatially reorganizing the world to fit the logic of geometrical regularity. Imposing this mathematical order on the landscape had a profound impact on the environmental history of New York City, as much of the environmental variation on Manhattan Island was "obliterated" to make way for the homogenizing dictates of the grid. The development of the grid, therefore, is central to Manhattan's environmental history, and this study is a preliminary exploration of the material and conceptual processes responsible for the rationalization of the Manhattan landscape.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

PREFACE

Although I conducted most of the research while living in Manhattan during the summer of 2001, I wrote the majority of this thesis after the World Trade Center/Pentagon attacks of September 11th at an admittedly "comfortable" distance in central Pennsylvania. Like most Americans, I was deeply distressed by the horrific events of that day. Here was a blatant attack on U.S. hegemony, symbolically targeted at the centers of economic and military power. Since I am in many ways a beneficiary of U.S. global power, I could not help but feel personally attacked by anyone who challenged the status quo. Yet, it was also clear that the United States was no "innocent victim," as its imperial legacy shapes its current configuration. What is so startling when comparing the present crisis with the early nineteenth century, however, is that the activities currently under attack—the accumulation of wealth and the consolidation of power—were precisely the same activities that provided the impetus for rationalizing the Manhattan landscape into a grid some two centuries ago.

The designers of the grid longed for the day when posterity would look back with "grateful exultation" at what the Street Commissioner Gouverneur Morris (who was also the author of the final draft of the U.S. Constitution) quite frankly called "the day-dawn of our empire." The Street Commissioners who designed the Manhattan grid saw themselves as laying the politico-economic foundations of the American Empire. It is an interesting twist of fate that at precisely the same time that the United States is the most powerful country in the world—with New York City as its main economic headquarters—its citizens no longer seem to recognize that they are, in fact, the products

of Morris' imperial vision. It is my hope that the present study will shed some light on the historical processes that led to the remaking of the world in the pursuit of wealth and power, which are the prerequisites of what is commonly known as "freedom."

Reuben Skye Rose-Redwood
State College, Pennsylvania
April 2002

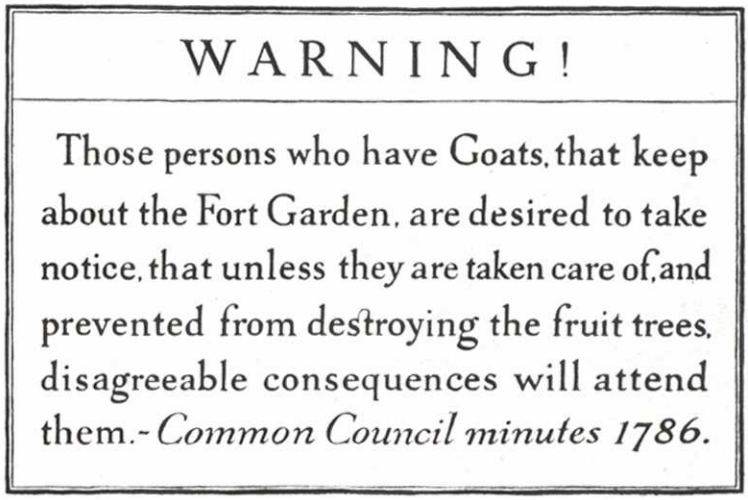
ACKNOWLEDGEMENTS

First and foremost, I would like to thank my grandmother Lillian Rosen for being kind enough to let me sleep on her couch for three or so months as I collected the archival materials that were essential for completing this preliminary research project. I admire her strength and wisdom and deeply enjoyed our many conversations about life, politics, and New York City history. I would also like to thank my parents, Amber Rose and Daniel Redwood, for their love and support all these years. I am grateful to have such wonderful family (aunts, uncles, cousins, grandparents, etc.) living in the New York City area as well as along the East Coast of the United States in general.

Here at Penn State University, I have enjoyed the camaraderie of my fellow graduate students. I also owe a good deal of gratitude to those professors who challenged me along the way to strive for academic excellence. I would like to thank environmental historian Adam Rome for his forthright, stick-to-the-facts feedback. Although I have not followed all of his suggestions, I think that this study is much improved from seriously considering his comments. I am also indebted to geographer James McCarthy for reading my thesis chapter by chapter and helping me think through the conundrums of social theory. I would like to give a special thanks to my advisor, historical ecologist Andrew Sluyter, not only for providing "moral support" for this project from the very beginning but also for giving me the freedom to explore my own creativity. His theoretical insights have in many ways been the inspiration for this work.

I also want to thank the various librarians at the New-York Historical Society, Columbia University, the Municipal Reference Library, and the New York Public Library

for helping a lowly graduate student search through the archives of the Empire City. I am grateful to the consulting engineer Eric Cardwell and policy analyst Laura Engler at the Manhattan Borough President's Topographical Office not only for providing me with access to the Randel Farm Maps but also for their enthusiasm with my project in general. I would also like to thank New York scholar Rebecca Shanor for her encouragement and our numerous conversations about the Manhattan grid by phone and in person. Lastly, I want to thank the U.S. Environmental Protection Agency's Science To Achieve Results (STAR) Graduate Fellowship Program for providing the financial support for this research.



Frontispiece: A Cautionary Note
(*Valentine's Manual of Old New York*, 1924)

1. INTRODUCTORY REMARKS

Amid life's wreck, we struggle to secure
Some floating fragment from oblivion's wave:
We pant for somewhat that may still endure,
And snatch at least a shadow from the grave.

—Clement Clarke Moore, *Poems* (1844)

One Last Glimpse Before Oblivion: A Bicycle Excursion

In the fall of 1897, James Reuel Smith began riding a bicycle around the Island of Manhattan looking for any remaining springs and wells not yet, as he put it, "covered with the stone and metal hives of humanity."[1] He likened himself to an explorer, who yearned for the "charm and enjoyment of a quest which yields in a measure the excitement of a voyage of discovery."[2] Smith knew quite well that as the tide of urbanization swept northward up the island, his beloved "picturesque surroundings"[3] would soon be a thing of the past, or relegated to designated "park" areas for public consumption. He therefore took it upon himself to meticulously document any and all watercourses he could find, and the result was a posthumously published book, *Springs and Wells of Manhattan and the Bronx: New York City at the End of the Nineteenth Century* (1938). In the first paragraph of the introduction, Smith notes that the city's "progress" threatens to completely reconfigure the Manhattan landscape: ". . . as with the very rapid progress of the City, especially during the last decade, springs and other natural features of the landscape are disappearing from sight with such celerity that it is merely a matter of months when there will be none whatever left in view upon Manhattan

[1] Smith (1938), *Springs and Wells of Manhattan and the Bronx: New York City at the End of the Nineteenth Century*, New York: New-York Historical Society, xiii.
[2] Ibid., xiv.
[3] Ibid.

Island."[4] While perhaps exaggerating a bit, Smith was indeed witnessing the most tumultuous environmental transformation of the Manhattan landscape since the last Ice Age.[5]

Yet, the land that Smith saw disappearing was no primeval wilderness. Long before European colonization, the Algonquin-speaking Lenape Indians inhabited the Island of Manhattan, growing maize (corn), beans, and various other crops while also establishing a network of trails to connect these cultivated areas with habitation sites throughout the region.[6] It is especially important to recall that the Lenape inhabited Manhattan Island before Europeans settled in the area, because studies focusing on the development of the Manhattan grid often fail to mention this fact altogether.[7] By ignoring the Indian presence, it can then simply be concluded that "most of the island was unsettled" and in a state of "wilderness" before the grid was superimposed upon the landscape.[8]

Smith, on the other hand, continuously notes the "relics" of Manhattan's Indian past. While walking through Inwood Hill in northern Manhattan during the summer of 1898, he met the son of an old boatman who "says that not far from here were found

---

[4] Ibid., xiii.

[5] In the Foreword to Smith's book, the Committee on Publications remarks that by the time of publication in 1938, a mere three years after Smith's death, "Almost all of the springs and wells which Mr. Smith described have been obliterated, and their surroundings have been changed completely in the intervening forty years." Ibid., vi.

[6] Burrows and Wallace (1999), *Gotham: A History of New York City to 1898*, New York: Oxford University Press, 5-9.

[7] Shanor (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*, Columbia University, Master's thesis; Marcuse (1987), "The Grid as City Plan: New York City and Laissez-Faire Planning in the Nineteenth Century," *Planning Perspectives* **2**, 287-310; Spann (1988), "The Greatest Grid: The New York Plan of 1811," *Two Centuries of American Planning*, Schaffer. Baltimore: Johns Hopkins University Press, 11-39.

[8] Shanor, *New York's Paper Streets*, 6. A draft of Shanor's thesis was published in Columbia University's New York Neighborhood Studies History Project series and the page numbers are different. In this study, I shall use the page numbers from the official thesis.

battle axes and other relics, and a cave that had been made by Indian braves."[9] This cave, however, was no longer visible as "There had been a landslide, and hundreds of tons of stone concealed the place."[10] But, at the intersection of 124th Street and 10th Avenue (Amsterdam Avenue), Smith recalls that "there is a fountain that is known traditionally as having been a favorite with the red man, and which is still spoken of by the old residents thereabouts as the 'Indian Spring.'"[11] This particular spring was so popular with "former white generations" who believed it "possess[ed] remarkable potency in the cure of stomach troubles" that as late as 1887 "people made fifteen-mile journeys . . . to obtain its waters for their supposed medicinal properties."[12] By the end of the nineteenth century, the northern part of Manhattan—where nearly all of the remaining watercourses were found—had what Smith refers to as "quite a suburban appearance" in some locations with "houses hereabouts . . . all surrounded by considerable plots of ground," while farmlands still dominated other areas.[13]

On May 13, 1898, Smith was bicycling around West 140th Street near the Hudson River and noticed that "Cocks are crowing, wild birds are singing in the numerous tall shade trees, and a cat and her kitten are strolling about . . . . McCann's goat, from the

[9] Smith, *Springs and Wells*, 160.
[10] Ibid.
[11] Ibid., 55.
[12] Ibid.
[13] Ibid., 76-8. It should be noted, however, that there were also various industrial factories in uptown Manhattan, as Blackmar and Rosenzweig correctly point out: "Wealthy New Yorkers who built country estates along both rivers shores in upper Manhattan were never more than a small minority of the uptown population, though their social prominence—and the prominence of their dwellings—rendered them much more visible in both contemporary and historical accounts. In 1855 at least twenty-three hundred industrial workers in the 'rural' districts toiled in sixty-four mostly small shops, including fourteen carriage- and coach-making establishments and various 'nuisance industries' (soap, wax, paint, match, chemical, and bone-boiling plants). The uptown farms and gardens were also small; only the northernmost corners of the island retained intensive agriculture, with a total of perhaps a thousand acres actively cultivated for oats, potatoes, turnips, and other crops. Uptown Manhattan was, thus, less agricultural and more industrial than standard accounts suggest." Blackmar and Rosenzweig (1992), *The Park and the People: A History of Central Park*, New York: Henry Holt and Co., 61-2.

Boulevard [Broadway], is climbing about the rocks today, and adding to the Alpine nature of the scene."[14] All of this, Smith lamented, was soon to be "driven away by the armies of street openers and . . . builders."[15] After all, the Dutch farmer Mr. Fuer had recently experienced the disorienting effects that ensued from the construction of East 78th Street: "People from all about the neighborhood were wont to come to [Mr. Fuer's well] for water. But the well went dry when . . . 78th Street was cut through the high bluff extending along the East River, leaving his castle and farm 'in the air.' Mr. Fuer has lived on and cultivated his 'sky-farm' for thirty-seven years."[16] Fuer was not the only one left "in the air" as streets and avenues were cut through the hills. Smith takes note of the fact that street grades (i.e. slopes or elevations) often did not correspond with the elevations of surrounding properties,[17] yet he implies that those plots above the street grade would eventually be leveled just as land "below the present level of the street and Avenue . . . is being rapidly filled in and built upon."[18]

Through the course of his travels, James Smith identified the major factor responsible for what we might call "The Great Transformation"[19] of the Manhattan landscape: the implementation of the grid street plan, also known as the Commissioners' Plan of 1811, which required that the pre-existing topography of Manhattan Island be leveled to create a generally flat, uniform surface upon which a grid of numerically-coded

[14] Smith, *Springs and Wells*, 78-80.
[15] Ibid., 127.
[16] Ibid., 27.
[17] For instance, Smith informs us that "141st Street, now opened, is so much above the level of the ground that it is about opposite the second story windows of the fine large, three-story white stone house on the Archibald Watt estate." Ibid., 75.
[18] Ibid., 55.
[19] The economic historian Karl Polanyi uses the phrase "The Great Transformation" to describe the politico-economic upheavals that gave rise to market liberalism. I have adapted Polanyi's phrase to refer to the environmental transformation in New York City that resulted from the development of the grid street system, which facilitated the expansion of the capitalist world market during the nineteenth century. See Polanyi (2001), *The Great Transformation: The Political and Economic Origins of Our Times*, [1944], Boston: Beacon Press.

streets and avenues could be established. Smith embarked upon his bicycle expedition at the *end* of this Great Transformation, nearly a century after the grid plan was first adopted by the Common Council (precursor to today's City Council) and sanctioned by the New York State Legislature. In fact, the original plan adopted in 1811 only extended to 155th Street, whereas by 1897, Smith is taking us to 195th Street and beyond.[20]

A year after Smith's book was published, R. H. Gallatin gave a speech to the New-York Historical Society in which he mocked the geographical knowledge of current New York City residents. "Nor does the bulk of the population today," exclaimed Gallatin, "have any conception of the geographic history or topographic history of this Island. I suppose they think that Broadway and Fifth Avenue and Central Park West were laid out by Christopher Columbus! (Laughter)."[21] Smith himself had witnessed this loss of local knowledge firsthand on his many bicycle excursions: "it was a common occurrence to meet city people who had lived for years within a few blocks of a spring, who either never knew of it or had *forgotten* its location."[22]

The pre-grid Manhattan landscape was, it seemed, on the verge of literally being swept off into some dark oblivion—both materially and conceptually—with only relics surviving in the city's parklands "on display," as it were, to inform the public about what Manhattan used to be like in some mythical time primeval. Even Smith admitted the bittersweet joy and "pathetic interest aroused by something pleasureable which will shortly cease to exist."[23] Like a dutiful Western anthropologist documenting the cultural heritage of a group bound for extinction *as a result of* Westernization, Smith offers the

[20] Smith, *Springs and Wells*, 133.
[21] Gallatin (1939), *Dedication Ceremonies, New York Historical Society Miscellaneous Speeches, March 30, 1939*, Collection of the New-York Historical Society, 10.
[22] Smith, *Springs and Wells*, xiv, emphasis added.
[23] Ibid., xiv.

world its last glimpse of a Manhattan with "all the wildness of a place far out in the country" where the water "bubble[d] up freely like champagne" before it was ultimately "obliterated" to make way for those mysterious "stone and metal hives of humanity" within which even Smith was an inhabitant.[24]

A Sketch of the Present Project: Some Questions to Consider

As is evident from Smith's narrative, the development of the grid street system had a profound impact on the environmental history of New York City.[25] Manhattan's topography was never to be the same after the "armies of street openers" marched across the island during the nineteenth century, leveling nearly everything in their path to make way for the grid. The pre-grid Manhattan landscape was no *tabula rasa*, and in addition to the leveling of hills and filling of wetlands and streams, a considerable number of buildings were demolished while the "irregularities" of meandering roads and unsystematically delineated property boundaries were "corrected" by the grid's uniformity. By superimposing abstract geometrical form upon the island, the grid, in effect, "rationalized" the landscape with the precision of Cartesian logic. This process of material rationalization changed forever the face of this all-too-human Empire City.

While some have viewed the implementation of the grid plan and the environmental history of New York City—two processes that are intimately intertwined—as a story of degradation and decline, the development of the grid has also

[24] Ibid., vi, xiii, 98, and 144.
[25] The term New York City, or the City of New York, referred only to Manhattan until the five boroughs were consolidated in 1898. Since this study is primarily concerned with the nineteenth century, or pre-consolidation period, I shall use the terms New York City and Manhattan interchangeably.

been praised as a manifestation of progress and improvement.[26] But, as environmental historian Edmund Russell rightly notes, although "we may tend to tell stories of progress *or* decline . . . life is a mixture of the two."[27] The purpose of the present study, therefore, is not merely to criticize or extol the grid plan and those landscape transformations associated with its implementation—such a polemic would hardly enhance our knowledge of the processes involved. Rather, my main goal is to analyze the "logic" and "mechanics" behind the rationalization of the Manhattan landscape while also examining resistance to such socio-spatial organization.

While there have been a number of important studies regarding the Manhattan grid published in recent years (see Chapter 2), fundamental questions concerning the rationale and significance of the grid have yet to be answered satisfactorily—some such questions have not yet even been *asked*. What, for instance, are we to make of the resemblance between the Manhattan grid, with its matrix of numerically-coded streets and avenues, and the Cartesian coordinate system (Figure 1.1)?[28] The current historical

---

[26] For narratives of the grid-as-degradation, see Winkler (1911), "Mitigating the 'Gridiron' Street Plan: Some Good Effects Achieved in New York City," *Architectural Record* **May**, 379-96; Olmsted (1971), *Civilizing American Cities: A Selection of Frederick Law Olmsted's Writings on City Landscapes*, edited by S.B. Sutton, Cambridge, Mass: MIT Press, 43-51. For narratives of the grid-as-improvement, see Randel (1864), "City of New York, north of Canal street, in 1808 to 1821," *Manual of the Common Council of New York ("Valentine's Manuals"),* Valentine. New York, 847-56; Bolton (1928), *The Path of Progress*, New York: Kalkhoff Company.

[27] Russell (1996), "'Speaking of Annihilation': Mobilizing for War against Human and Insect Enemies, 1914-1945," *Journal of American History* **82** (4), 1510. For an insightful examination of the use of narratives of progress and decline in historical inquiry, see Cronon (1992), "A Place for Stories: Nature, History, and Narrative," *Journal of American History* **78** (March), 1347-76.

[28] By "Cartesian coordinate system," I simply mean the conceptual matrix formed by the perpendicular intersection of two axes (generally an x and y axis) of quantified variables that are divided into standardized, numerical units. The length between units may be the same on each axis or they may be different, resulting in a square and rectilinear pattern, respectively. Cartesian coordinate systems, therefore, can form both square and rectangular matrices depending on the unit lengths of each axis (When applied to a three-dimensional surface, such as the system of latitude/longitude, various other shapes are possible as well). When drawn on graph paper, a matrix is formed whereby one can determine the "coordinates" (x,y) of any point within this numerically-coded grid. The Cartesian coordinate system is more than simply an x and y axis. Rather, these axes provide an origin, or baseline, for an infinite series of intersecting perpendicular lines, which together form a numerically-coded grid.

and urban planning literature does not even pose such a question. Yet, if one is to explain on a very basic level what the Manhattan grid "represents," it seems essential to me that such a question be explicitly addressed. My central premise is that the Manhattan grid is a physical representation, or "material replication," of the Cartesian coordinate system (Figure 1.2).

While historians and urban planners tend to ignore this aspect of the Manhattan grid, mathematicians and scientists often see the parallels between numerically-coded grid street systems and the Cartesian coordinate system.[29] In fact, some mathematicians even use the grid street system as an analogy to explain the Cartesian coordinate system to the general public. In his classic, *Men in Mathematics: The Lives and Achievements of the Great Mathematicians from Zeno to Poincaré* (1986 [1937]), E.T. Bell describes Descartes' coordinate system thus:

> The basic idea, like all the really great things in mathematics, is simple to the point of obviousness. Lay down any two intersecting lines on a plane. Without loss of generality we may assume that the lines are at right angles to one another. Imagine now a city laid out on the American plan, with avenues running north and south, streets east and west. The whole plan will be laid out with respect to *one* avenue and *one* street, called the *axes*, which intersect in what is called the *origin*, from which street-avenue numbers are read consecutively . . . . The avenue-number and street-number, with the necessary supplements of smaller numbers [i.e. address numbers] . . . enable us to fix definitely and uniquely the position of any *point* whatever with respect to the *axes*, by giving the *pair* of numbers which measure its *east or west* and its *north or south* from the *axes*, this pair of numbers is called the *coordinates* of the point (with respect to the axes).[30]

Compare Bell's description of the grid street system with Motz and Weaver's explanation

[29] For instance, see Bell (1986), *Men of Mathematics: The Lives and Achievements of the Great Mathematicians from Zeno to Poincaré*, [1937], New York: Simon & Schuster, 52-5; Bohm and Peat (2000), *Science, Order, and Creativity*, [1987], New York: Routledge.
[30] Bell, *Men of Mathematics*, 52-3.

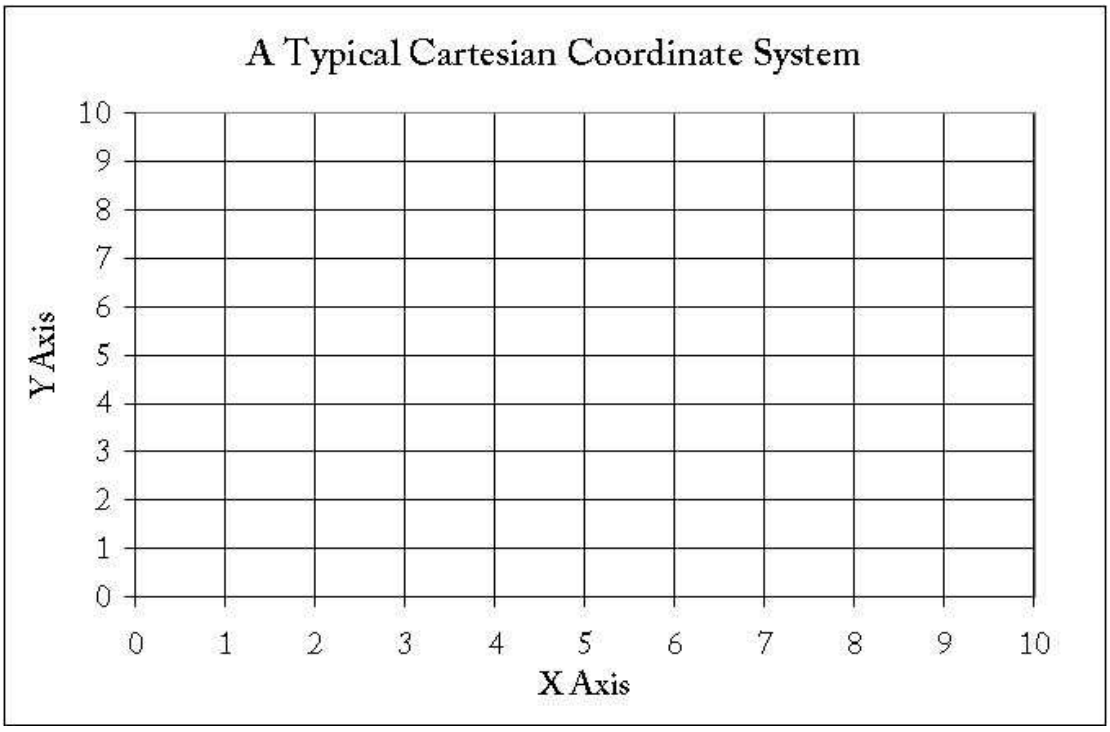


Figure 1.1: A typical Cartesian coordinate system

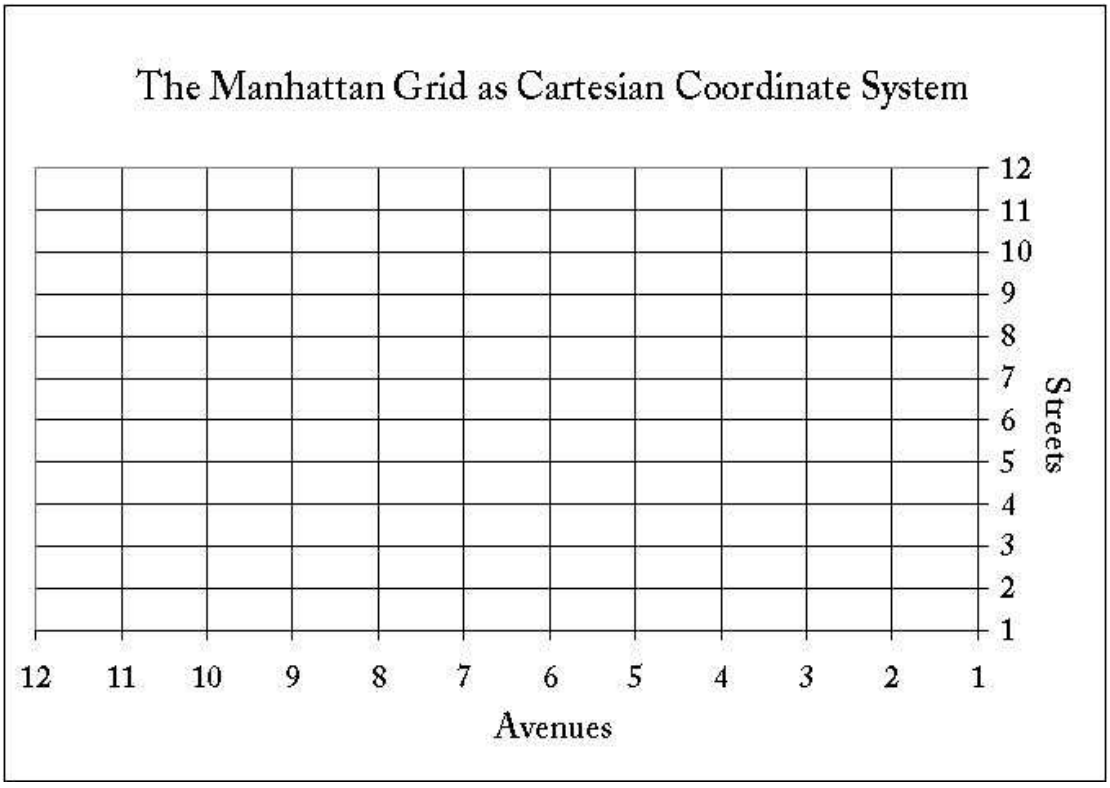


Figure 1.2: The Manhattan grid as Cartesian coordinate system

of the Cartesian coordinate system:

> [G]eometry requires a two-dimensional manifold so that describing the position of any point on this manifold requires two numbers or, put differently, two coordinates. Descartes began by laying off two mutually perpendicular lines on the plane—one horizontal and the other vertical—and defining the point 0 of intersection of these two lines as the "origin" of the coordinate system. He called the two intersecting lines the coordinate axes of his coordinate system, which, since then, has been called a "rectangular" (right angle) Cartesian coordinate system. The position of any point on the plane is specified in this kind of coordinate system by assigning two numbers to the point, one of which is its perpendicular distance, on an arbitrary scale, from one of the perpendicular axes and the other of which is its perpendicular distance from the other axis. Descartes designated the horizontal axis as the *x* axis . . . and the vertical axis as the *y* axis . . . . The position of a point in such a coordinate system is then specified by its two coordinates *x* and *y*, written as (x,y).[31]

The extraordinary similarity between numerically-coded grid street systems and the Cartesian coordinate system, therefore, has not gone unnoticed by mathematicians. While they are generally concerned with using the grid street system as a pedagogical device to describe Descartes' analytical geometry, mathematicians have not made it their task to address the fundamental question of how it is that particular landscapes (such as Manhattan Island) were converted into material replications of the Cartesian coordinate system.

This issue is not helped by the physicists Bohm and Peat's exploration of the relationship between grid street systems and the Cartesian grid:

> Some cities, such as New York, have regular grids of streets and avenues. In such cities the order of a grid fits harmoniously into the activity of walking through the city. But in a city of a more complex order, like London, such an imagined grid does not fit, and to continue its use, as a visitor from the United States may attempt to do, will lead only to confusion and frustration. In the case in which the grid pattern provides a satisfactory order for the activity of wandering through the city then it could be said to correspond to reality. But as this correspondence begins to fail, the walker will be alerted to the need for new acts of perception-communication and the creation of new orders. Clearly no one order will cover

[31] Motz and Weaver (1993), *The Story of Mathematics*, New York: Avon Books, 107.

> the whole of human experience, and as contexts change, orders must be constantly created and modified.
>
> The example of the order of the grid was not chosen by chance, for in its form, as the Cartesian grid or coordinate system, it has dominated the basic order of physical reality for the past three hundred years. In many cases the Cartesian grid worked well, in the sense that it led to a coherent activity and thus corresponds to reality fairly well.[32]

While Bohm and Peat should be commended for viewing the Manhattan grid as a Cartesian coordinate system, there seems to be a confusion here concerning the mediation between conceptual frameworks and material reality. They neglect to mention the fact that the sole reason that the imaginary Cartesian grid in people's minds "corresponds to reality" is because that very same conceptual framework had previously been inscribed into the landscape in the first place. In other words, "material reality" was converted into a physical representation of the Cartesian coordinate system, and this is the only reason that the Cartesian grid "could be said to correspond to reality."

The landscape was converted into a materialized conceptual framework, by which I essentially mean that the lens through which people—government surveyors, in particular—viewed the world was physically inscribed into the Manhattan landscape. The logic of the Manhattan grid, therefore, is unquestionably Cartesian.[33] Recognizing that

---

[32] Bohm and Peat, *Science, Order, and Creativity*, 120-1.

[33] Grid street systems have been constructed for centuries in many different cultural contexts and are not merely an "invention" of the European Enlightenment or the West alone. The grid pattern in and of itself, therefore, cannot always be characterized as "Cartesian." For a critique of ethnocentric accounts of the origins of the grid street pattern, see Kornhauser (1984), "Common Imprints on the Landscapes of Japan and America: Invention or Diffusion?," *Asian Profile* **12** (5), 465-72. The fact that the streets and avenues of the Manhattan grid plan were not only perpendicular but also given *numerical names in consecutive order* leads me to describe the Manhattan grid as "Cartesian." One of Descartes' major innovations, as is well known, was the synthesis of algebra and geometry, and the basis of this new approach was the coordinate system, which has been hailed by historians of mathematics as "perhaps the single most important theoretical construct in the evolution of theoretical physics as well as mathematics." See Motz and Weaver, *The Story of Mathematics*, 106. The marriage of algebraic characters with geometrical form, therefore, differentiates Cartesian grid street systems from their non-Cartesian counterparts, if by "Cartesian" we mean street systems designed as numerical coordinate systems. This is, of course, a rather strict definition of what it means to be classified as "Cartesian." Descartes also had a strong preference, in his own words, for "well-ordered towns that an engineer lays out on a vacant plane." See Scott (1998),

the Manhattan grid is a physical representation of the Cartesian coordinate system, however, is only the beginning. To make such a statement begs the question: what was the ultimate goal of transforming the landscape into a materialized Cartesian coordinate system? Were the Street Commissioners who designed the grid solely interested in maximizing economic utility and serving the real estate interests of their day or did they seek to enhance the government's ability to monitor its human subjects and control environmental processes? What type of politico-economic effects did the designers of the plan hope that the grid would achieve and what type of citizenry did the Street Commissioners seek to create through their project of spatial reorganization? What role did science and religion play in the decision-making process? Did a discourse on aesthetics emerge in the debate over the grid? If so, how did proponents and opponents of the grid articulate the relationship between beauty and utility? And lastly, how did the decision to utilize the grid plan relate to the general geo-political objectives of what I shall call, with good reason, the "American Empire"? These are some of the questions that I seek to answer in order to gain a better understanding of the "logic" behind the Manhattan grid.

Another important component of this study is to examine the "mechanics" of rationalizing the landscape. In other words, what techniques and procedures made it possible to project a conceptual framework onto the landscape? The passage of state laws was, of course, a prerequisite for providing a sense of legitimacy to the whole enterprise

---

Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed, New Haven: Yale University Press, 55. The term "Cartesian" is often used to describe this ethos of order and its manifestation in any landscape laid out in a "well-ordered" rectilinear fashion. While such a characterization has some merit, it obscures the fundamental element that distinguishes many modern grid street systems from their predecessors, i.e. the synthesis of algebra and rectilinear geometry which provides the symbolic order of the Cartesianized landscape.

while the actual physical transformation was largely conducted by construction crews throughout the nineteenth century. Yet, it is my contention that the process of surveying the landscape is key to understanding the mechanics of projecting conceptual frameworks onto the material world. Analyzing the surveying process, therefore, can help us understand how conceptual frameworks (ways of seeing the world) can shape material practices (ways of transforming the world). Material practice, of course, also plays a decisive role in influencing ways of seeing, as Marx never grew weary of pointing out.[34] Yet, whatever the material causes, the actual act of surveying was the principal mechanism for inscribing[35] the Cartesian coordinate system into the Manhattan landscape. I therefore examine the surveying process and its relation to the materialization of thought and the rationalization of the landscape.

One of the most fundamental, yet unstated, presumptions of the grid plan was that it would literally "obliterate" nearly everything that stood in its path—clearing away the "disorder" of the past to make way for an "improved" future. As might be expected, this was not a politically neutral project, and there were many landowners—not to mention streams, wetlands, hills, and so on—"in the way" of the grid. The third main component of this study is an exploration of resistance to the logic and development of the grid. How

[34] Marx and Engels (1970), *The German Ideology*, [1845], New York: International Publishers, 58.

[35] I use the term "inscribing" here to refer to the act of attaching labels upon, and sometimes carving those labels into, a physical entity to produce a materialized sign system. In Bruno Latour's words, an "inscription" is "A general term that refers to all the types of transformations through which *an entity becomes materialized into a sign*, an archive, a document, a piece of paper, a trace. Usually but not always inscriptions are two-dimensional, superimposable, and combinable." Latour is mainly concerned with how scientists convert material entities, such as a forest, into numerically-coded sign systems which can then be "rendered as a diagram." With the Manhattan grid, however, rather than merely being labeled, the material landscape itself was entirely refashioned and carved up into such a materialized sign system. For an illuminating examination of the process of inscription, see Latour (1999), *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass: Harvard University Press, 24-79, for the above quotes, see pages 306 and 43, emphasis added. Also, see Latour (1997), *Science in Action: How to Follow Scientists and Engineers through Society*, [1987], Cambridge, Mass: Harvard University Press, 64-70.

did opponents of the grid make their case? Were they ever successful in resisting the logic of linearity?

In sum, my main objective is to analyze the *logic* and *mechanics* of, and *resistance* to, the rationalization of the Manhattan landscape via the grid. These are the three axes that make up the "coordinate system" of the present study. Where other scholars have only superficially discussed the Street Commissioners' rationale for choosing the grid plan (see Chapter 2 and 4), I examine their thought processes in more depth using discourse analysis. While a comprehensive elucidation of the logic behind, and resistance to, the Manhattan grid is certainly not reducible to a textual analysis of a few "great men" and must take into account the myriad politico-economic forces at play (a goals which is beyond the limited scope of the present study and requires further research), a good deal concerning the politico-economic aspirations of the time *can* be gleaned from the various remarks by both the designers of the grid and their early critics,[36] which require considerable rumination and shed light on larger theoretical debates regarding modernity.

This study, therefore, is not simply a descriptive history of the Manhattan grid nor is it intended to be a polemic either for or against the grid. My intention is not to provide an all-encompassing narrative of the grid's development. Instead, I have constructed a theoretically explicit examination of the rationalization of the Manhattan landscape. Rather than brushing theoretical questions aside in an uncritical manner, the engagement

[36] For a critique of historical accounts that present "a conception of urban change as little more than the conscious design of a few individuals," see Gandy (2002), *Concrete and Clay: Reworking Nature in New York City*, Cambridge, Massachusetts: MIT Press, 6. While the development of the Manhattan grid cannot be reduced to the "single-minded genius" of the Street Commissioners who designed the plan, it would be equally foolish to suppose that their thoughts and actions had little impact on the design of Manhattan's modern landscape.

of theory is central to this study. As will become evident in subsequent chapters, the designers of the grid plan superficially fit the model of Max Weber's well-known "Protestant ethic" thesis, yet I shall argue that Michel Foucault's analysis of "disciplinary power" and Friedrich Nietzsche's notion of the "will to power" together offer a conceptual framework with greater explanatory power for understanding the process of material rationalization in nineteenth-century Manhattan.

To explore the mechanics of the surveying process, Bruno Latour's discussion of "inscription" has proved especially helpful in serving as a framework for understanding the mediation between thought and materiality. The quantitative data resulting from the cartographic surveys of the Manhattan landscape that were conducted in preparation for the grid—which have been consistently overlooked by historians and urban planners alike—also provide a means of quantifying the extent of material obliteration. In an attempt to move beyond vague characterizations of the pre-grid social landscape, I have quantified the number and percentage of pre-grid buildings that were in the middle of a proposed street or avenue of the grid plan in order to provide greater specificity to historical accounts of the impact that the grid had on pre-existing social formations.

I have sought to provide a preliminary exploration of the material and conceptual processes related to the development of the Manhattan grid by using a variety of methodological approaches. If I employ discourse analysis to examine the logic of proposing and opposing the grid, I also painstakingly use quantitative techniques to examine the material "obstacles" that would have to be "overcome" if the grid plan was to be implemented. If I attempt to provide a theoretically explicit interpretation of the

"historical data," I also recognize the importance that myth plays in the recollection of the past.

I would be the first to concede that this study is not a comprehensive examination of the grid plan. I have, however, taken a transdisciplinary approach in an attempt to enhance the depth of my analysis. To obtain such depth, I have limited my analysis largely to the initial stages of the grid's development rather than providing a continuous narrative spanning the entire period of the plan's implementation. Therefore, this study should be seen not as the definitive word, but rather as the "introductory remarks," to the larger project of constructing a transdisciplinary, theoretically rigorous historical analysis of the development of the Manhattan grid.

Answering Gallatin's Call: The Beginnings of an Environmental History of New York City

As alluded to earlier, the implementation of the grid played a key role in the environmental history of New York City. The grid transformed the Manhattan landscape—its topography, hydrology, and (human) ecology—so dramatically that Manhattan Island is now one of the most humanized environments on the face of the Earth.[37] The grid plan was, in essence, the blueprint for the making of Manhattan's modern landscape. In recent years, environmental historians have become increasingly aware of the importance of the city as a catalyst of environmental change. The new field of urban environmental history has given rise to work on both city-hinterland interaction

[37] The Dutch architect Rem Koolhaas has remarked that Manhattan represents a project whose program is "to exist in a world totally fabricated by man." Koolhaas (1994), *Delirious New York: A Retroactive Manifesto for Manhattan*, [1978], New York: Monacelli Press, 10.

and the internal socio-environmental dynamics within the city itself.[38] Focusing extensively on resource extraction, public health, and responses to pollution, relatively few of these studies examine the topographical, or landscape, transformations that have resulted from urbanization.

It would serve the environmental history community well to build upon the theme of landscape transformation addressed in Whitehill and Kennedy's classic, *Boston: A Topographical History* (2000 [1959]), in which they document the leveling of hills and filling of Boston's Back Bay. As part of a recent collection of essays on the environmental history of St. Louis, Eric Sandweiss takes a similar landscape-based approach by exploring the socio-environmental dimensions of constructing St. Louis' street system during the nineteenth century. As Sandweiss rightly suggests, the development of street systems is one of the most fundamental forces shaping urban landscapes.[39] It is for this very reason that the development of the grid is central to understanding urban environmental change in nineteenth-century Manhattan.

The environmental history of New York City, as with many other cities, is still in its infancy. During the 1980s and 1990s, however, a number of important historical studies on New York City's waterfront and urban infrastructure (drinking water system, sewers, etc.) were published.[40] One of the finest investigations of pressures and responses

---

[38] For example, see Cronon (1991), *Nature's Metropolis: Chicago and the Great West*, New York: W.W. Norton & Co.; Rosen and Tarr (1994), "The Importance of an Urban Perspective in Environmental History," *Journal of Urban History* **20** (3), 299-310.

[39] Sandweiss (1997), "Paving St. Louis's Streets: The Environmental Origins of Social Fragmentation," *Common Fields: An Environmental History of St. Louis*, Hurley. St. Louis: Missouri Historical Society Press, 90.

[40] Moehring (1981), *Public Works and the Patterns of Urban Real Estate Growth in Manhattan, 1835-1894*, New York: Arno Press; Goldman (1997), *Building New York's Sewers: Developing Mechanisms of Urban Management*, West Lafayette, Indiana: Purdue University Press; Buttenwieser (1999), *Manhattan Water-Bound: Manhattan's Waterfront from the Seventeenth Century to the Present (second edition)*,

to urbanization in Manhattan is Eugene Moehring's *Public Works and the Patterns of Urban Real Estate Growth in Manhattan* (1981), which examines nearly all of the major public works projects conducted in nineteenth-century Manhattan (including the grid) and should be required reading for anyone interested in understanding the environmental history of New York City. Equally important is Joanne Goldman's *Building New York's Sewers* (1997), which documents the rise of the "technical expert" in municipal policymaking during the nineteenth century.

As Goldman points out, the technical expert was seen as an ideally "apolitical" actor who oversaw the "construction of a technically complex public-works project [that] required decisions to be made without political influence and on the basis of 'objective' scientific and engineering principles."[41] The street commissioners and surveyors who designed and implemented the grid plan were such technical experts, and the Cartesian logic of the grid had an aura of "neutrality"[42] associated with supposedly "'objective' scientific and engineering principles." Yet, the development of the grid was not merely a technical act, despite the perceived "objectivity" and "neutrality" of its quantitative legibility. Rather, the so-called technical experts were, in fact, active participants of a political program to completely reorganize the spatial composition of the Manhattan landscape.

In his recently published book, *Concrete and Clay: Reworking Nature in New York City* (2002), geographer Matthew Gandy examines the rise and fall of technocratic logic in municipal politics by rethinking the development of New York City's water

---

[1987], Syracuse: Syracuse University Press; Koeppel (2000), *Water for Gotham: A History*, Princeton: Princeton University Press.

[41] Goldman, *Building New York's Sewers*, 64.

[42] Sennett (1990), "American Cities: the Grid Plan and the Protestant Ethic," *International Social Science Journal* **42** (3), 284.

supply system, Central Park, the design of landscaped highways, and the environmental justice struggles of the second half of the twentieth century. Gandy challenges traditional accounts of New York City's environmental history by explicitly recognizing the imperial legacy of the Empire City.[43] *Concrete and Clay* offers a provocative new perspective on the environmental history of New York City, yet the themes it covers—water, parks, public health, and trash—by no means exhaust the possible approaches to urban environmental history.

Despite the central role that the grid plan played in transforming the Manhattan landscape, environmental historians only pay lip service to its importance, instead focusing on the construction of an idealized "nature" in Central Park, the development of water and sewer systems, and public health. While Gandy is sensitive to the problematic ambiguity of Central Park as "nature," he nonetheless perpetuates this ambiguity by maintaining that "An 843-acre strip of nature cuts through the heart of Manhattan Island. This is Central Park . . ."[44] Rather than continuing to use the all-too-ambiguous word "nature" (whether in its crudest forms or in the equally problematic Marxian terminology of "first" and "second" nature), as most environmental historians are prone to do, I have consciously attempted to limit my use of this extraordinarily vague term, following the seventeenth-century chemist Robert Boyle's advice to find less ambiguous ways to express one's ideas.[45] While I am aware that the word "landscape" is clouded in a mist of

[43] Gandy, *Concrete and Clay*, 18 and 153-86.
[44] Ibid., 77.
[45] Boyle makes the following plea concerning the confusion that arises from the use of the word "nature": "I can scarce forbear to tell you that I have often looked upon it as an unhappy thing, and prejudicial both to philosophy and physic, that the word nature hath been so frequently and yet so unskilfully employed, both in books and in discourse, by all sorts of men, learned and illiterate. For the very great ambiguity of this term, and the promiscuous use men are wont to make of it without sufficiently attending to its different significations, makes many of the expressions wherein they employ it . . . to be either not intelligible or not proper or not true . . . . And I confess I could heartily wish that philosophers and other learned men (whom

ambiguity all its own,[46] I find it a more suitable term to describe the spatial processes occurring on the Earth's surface, since it can apply equally to all points along urban-to-rural gradients unlike the problematic "nature."[47]

Rather than basing the practice of environmental history on trying to incorporate an illusory "nature" into human history as environmental historian Donald Worster has advocated[48] (a goal which, by its very formulation, perpetuates the human/nature dichotomy), the examination of landscape transformation as a central theme for environmental history offers the possibility of truly transcending the human/nature dichotomy that most environmental historians continue to perpetuate, their rhetoric for reconciliation notwithstanding.[49] The environmental history of New York City need not be confined to the city's parklands, the water and sewage in its pipe systems, or the spread of deadly pathogens such as the West Nile virus. Focusing only on these elements of environmental change obscures the more fundamental historical process that

---

the rest in time would follow) would, by common (though perhaps tacit) consent, introduce some more significant and less ambiguous terms and expressions in the room of the too licentiously abused word nature and the forms of speech that depend on it, or would at least decline the use of it as much as conveniently they can." Boyle (1998), "A Free Enquiry into the Vulgarly Received Notion of Nature," *Encompassing Nature: A Sourcebook*, [1686], Torrance. Washington, DC: Counterpoint, 889. Boyle's elitist sentiments aside, his plea might save environmental historians from perpetuating the very human/nature dichotomy that they are trying to overcome. Rather than adding to the confusion, I find the age-old debate concerning the question "Are humans part of nature?" to be utterly useless, as the answer depends on which signification one uses for the word "nature." This dilemma can be resolved in much the same way that the pragmatist philosopher William James solves the "squirrel dispute" in which a lofty metaphysical dilemma is seen for what it really is, a verbal dispute that can easily be dissipated if one recognizes it as such. See James (1981), *Pragmatism*, [1907], Indianapolis: Hackett Publishing Company, 25-6.

[46] Barnes and Duncan, Eds. (1992), *Writing Worlds: Discourse, Text and Metaphor in the Representation of Landscape*, New York: Routledge, 4.

[47] In recent years, landscape ecologists have launched a new movement that goes beyond studying supposedly isolated "natural ecosystems." Instead, they seek to examine ecological processes along what they call "urban-to-rural land use gradients." For instance, see McDonnell et al. (1997), "Ecosystem processes along an urban-to-rural gradient," *Urban Ecosystems* **1**, 21-36. This innovative research on urban-to-rural gradients offers a means by which to replace the stale dichotomies of the past with the more suitable logic of gradients, continuums, and ecological heterogeneity.

[48] Worster (1990), "Transformations of the Earth: Toward an Agroecological Perspective in History," *Journal of American History* **76** (March 1990), 1089.

[49] Landscape transformation, of course, need not be the *only* theme of environmental history; yet, it must surely be a major component of the project of examining environmental change in historical perspective.

dramatically transformed the spatial configuration, and ecological dynamics, of Manhattan Island during the nineteenth century. Rather than being peripheral to the environmental history of New York City, the development of the grid should be central to any investigation claiming to examine the main themes of "environmental change" on the Island of Manhattan during the modern period, because it radically transformed the landscape and provided the spatial framework within which further environmental change occurred.

A landscape-based approach to environmental history offers a means of exploring how environmental change along urban-rural continuums was affected by human decision-making amid competing interests and conflicting ideologies in a new nation striving to master the North American continent. It opens our eyes to the power unleashed by the process of governmental officials "rationalizing the landscape" with Cartesian precision in order to provide the spatial context within which governmental regulation and capital accumulation would be possible. In other words, it is a story about the making of the "landscape of modernity."[50]

Certainly, it is true that "not all the forces at work in the world emanate from humans," as Worster notes,[51] yet to understand environmental change in nineteenth-century Manhattan, it is crucial to examine the rationalization of the landscape. Understanding the process of material rationalization requires not only the documentation of environmental transformation but also an explication of the conceptual processes related to the rationalization process. It should be stressed, however, that the material

[50] Ward and Zunz, Eds. (1992), *The Landscape of Modernity: New York City, 1900-1940*, Baltimore: Johns Hopkins University Press.
[51] Worster, "Transformations of the Earth," 1090.

landscape—with its hybrid assemblage of ecological actors (including humans)[52]—was not merely a passive object to be dominated but rather a multiplicity of active subjects pursuing their own ends as the government sought to level the terrain and carve it into a Cartesian grid.

The development of the grid was one of the central processes responsible for establishing the spatial organization of the Manhattan we know today. This study is, therefore, very much a "history of the present"[53]—an attempt to make historical sense of the environmental conditions in which we find ourselves in today's Manhattan landscape. I have sought to integrate the methods of historical analysis with those of the sciences, humanities, and philosophy by intermixing qualitative and quantitative techniques while also explicitly trying to tackle the larger theoretical questions that arise from examining the historical process. Thus, my emphasis is less on providing an exhaustive description of historical "facts" via a continuous narrative and more about extracting a fragmentary glimpse of the material and conceptual worlds that have long since been swept off into oblivion.

This study offers a preliminary examination of the relationship between the environmental history of New York City and the development of the grid street system. It should not, by any means, be seen as a definitive exposition of either. To narrow the scope of this study, I have chosen to give special emphasis to the Street Commissioners' logic and the politics of the surveying process at the expense of providing a detailed examination of the Common Council and the politics of implementing the grid plan. The

[52] Latour (1993), *We Have Never Been Modern*, [1991], translated by Catherine Porter, Cambridge, Mass: Harvard University Press, 11.
[53] Foucault (1995), *Discipline and Punish: The Birth of the Prison*, [1975], translated by Alan Sheridan, New York: Vintage Books, 31.

latter two subjects are, indeed, important and future research on the Manhattan grid should follow Moehring's lead on exploring the politics of implementation.[54] I do hope, however, that the present study will serve as a wake-up call to historians and urban planners that the platitudes which have hitherto been espoused concerning the Manhattan grid are in need of considerable revision.

If we are to understand the interconnections between conceptual frameworks and material practices that are central to the development of the Manhattan grid, environmental history cannot simply be reduced to a description of environmental change and economic transactions but must examine the intersection of thought and materiality in a theoretically rigorous manner. The pursuit of theoretical rigor, however, need not suffocate the human capacity for humor nor need the "Spirit of Gravity"[55] triumph over the poetic muse in academic scholarship. When R. H. Gallatin humorously chastised New Yorkers in 1939 for being ignorant of the "geographic" or "topographic" history of Manhattan, he was, in effect, calling for what we would now describe as an environmental history of New York City. It is high time we heeded Gallatin's call.

[54] Moehring, *Public Works*.
[55] Nietzsche (1969), *Thus Spoke Zarathustra: A Book for Everyone and No One*, [1883], New York: Penguin Books, 210-3; Nietzsche (1974), *The Gay Science*, [1887], New York: Vintage Books, 257-8.

2. THE MANHATTAN GRID REVISITED: RETHINKING THE RATIONALIZED LANDSCAPE

> *We wish to see* ourselves *translated into stone and plants, we want to take walks* in ourselves *when we stroll around these buildings and gardens.*
>
> —Nietzsche, *The Gay Science* (1974 [1887])

Rationalizing the Past: Explaining the Rise of the Manhattan Grid

While much has been said about the grid over the years, there have been surprisingly few studies that have as their primary focus the Manhattan grid and its associated social and environmental consequences. To be sure, there were a number of important studies published during the 1980s, which examine the grid from an urban planning perspective. Chief among them are Edward Spann's "The Greatest Grid: the New York Plan of 1811" (1988), Peter Marcuse's "The Grid as City Plan: New York City and Laissez-Faire Planning in the Nineteenth Century" (1987), and Rebecca Shanor's *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan* (1982). Of these, Spann provides the most thorough account of the grid's development.

Spann situates the Manhattan grid within the context of early nineteenth-century planning traditions, traces the legislative history of the plan, and examines the various difficulties and conflicts related to its implementation. He rightly argues that one of the fundamental problems with the grid was that the Street Commissioners who designed the plan "did not determine the street grades required by the imposition of the grid on Manhattan's varied and often rugged terrain."[1] As we shall see, the plan's absolute

[1] Spann (1988), "The Greatest Grid: The New York Plan of 1811," *Two Centuries of American Planning*, Schaffer. Baltimore: Johns Hopkins University Press, 22.

silence concerning street grades and proposed elevations of city blocks left many landowners uncertain as to the ultimate fate of their property. Since the future level of the ground was unknown, one must be wary when Spann asserts that:

> The landowners of Manhattan, whatever their particular resentments against this intrusion of their property, received a general guarantee of future opportunities and restraints. The public plan thus provided a stable, assured basis for private planning . . . . it above all provided them with a predictable future and a guaranteed order within which they could carry on their myriad acts of development.[2]

One of the initial goals of the grid plan was, indeed, to provide such a "stable, assured basis for private planning," yet the ad hoc manner in which topographical considerations were addressed by the Common Council during the nineteenth century had the opposite effect.[3]

Spann's overall analysis also suggests that there were competing aesthetics involved in the debate over the grid plan, yet he gives the impression that aesthetics were put on the back burner, while utilitarian demands carried the day: "The period brought a significant shift away from earlier forms of urban design, imbued with socio-political and aesthetic concerns, to simpler and more utilitarian plans intended to facilitate the rapid urban development which occurred during the nineteenth century."[4] Such a statement seems to imply that, unlike previous designs, the Manhattan grid was *not* "imbued with socio-political and aesthetic concerns," although this may not have been Spann's intention.[5] Yet, should we not concur with historian Elizabeth Blackmar in *Manhattan for*

---

[2] Ibid., 23 and 35, emphasis added.
[3] Moore (1818), *A Plain Statement, addressed to the Proprietors of Real Estate, in the City and County of New-York*, New-York: J. Eastburn and Co., 9. Also, see New York, Ed. (1832), *Report and Documents relative to the Stuyvesant Meadows, from the year 1825 to 1831, inclusive*, New-York: George Robertson.
[4] Spann, "The Greatest Grid," 11.
[5] Spann himself later remarks that "many New Yorkers found aesthetic and intellectual satisfaction in the prospect that straight streets and rectangular blocks would replace the marshes, swamps, hills, and other irregular features of the Island." Ibid., 27.

Rent (1989) when she maintains that "The grid's geometry suggested a revival of classical taste, which found beauty in symmetry and balance"?[6] Opponents of the Manhattan grid had no monopoly on aesthetic sensibility—as one might conclude from the writings of Frederick Law Olmsted or the sober retrospectives of distinguished historian I.N. Phelps Stokes.[7] That some historians and urban planners have tended to see the Manhattan grid plan as lacking aesthetic appeal reveals more about their own aesthetic temperament than about the grid plan itself.

In his article "The Grid as City Plan," Peter Marcuse challenges "conventional explanations" of the Manhattan grid, arguing that they explain "both too much and too little."[8] As one conventional explanation, Marcuse cites the prominent urban planning scholar John Reps as maintaining that the grid was chosen out of "ignorance" and a "lack of professional competence in planning."[9] As Reps himself explains, "the commissioners ignored well-known principles of civic design that would have brought variety in street vistas and resulted in focal points for sites for important buildings and uses."[10] Marcuse mentions two other traditional explanations of the Manhattan grid: that (1) the Street Commissioners used the U.S. Rectangular Survey System of parcelling out Western lands as a model, and that (2) the grid's main function was to facilitate economic growth and real estate speculation. While he elaborates little on the first point, Marcuse looks to historian Lewis Mumford as a representative of the "grid as facilitator of economic

---

[6] Blackmar (1989), *Manhattan for Rent, 1785-1850*, Ithaca: Cornell University Press, 96.
[7] For a discussion of Olmsted and Stokes' aesthetic critiques of the Manhattan grid, see Spann, "The Greatest Grid," 33.
[8] Marcuse (1987), "The Grid as City Plan: New York City and Laissez-Faire Planning in the Nineteenth Century," *Planning Perspectives* **2**, 289.
[9] Ibid.
[10] Ibid. Also, see Reps (1965), *The Making of Urban America: A History of City Planning in the United States*, Princeton: Princeton University Press, 299. Reps' view regarding the Manhattan grid is widespread in the urban planning literature. For an example of the uncritical acceptance of Reps' position, see Antoniou (1994), *Cities Then & Now*, New York: Macmillan, 138.

growth" camp. Mumford, of course, was hardly an advocate of the grid plan, since he believed that it "fitted nothing but a quick parcelling of the land, a quick conversion of farmsteads into real estate, and a quick sale . . . . land, too, now became a mere commodity, like labor: its market value expressed its only value."[11]

Marcuse takes on both Reps and Mumford by arguing that such explanations miss the point. "In the adoption and subsequently in the extension of New York City's grid . . . much more was involved than just knowledge of planning alternatives and real estate speculation," says Marcuse, "there were intelligent persons, and significant real estate interests, against as well as in favor of the use of the grid."[12] Marcuse goes even further, questioning the role of abstract city planning altogether: "abstract discussions about desirable forms of cities cloaked deeper and more mundane conflicts of interest and ideology."[13] While distancing himself from conventional explanations, Marcuse does, in fact, follow Mumford in maintaining that "the maximization of real estate values played a dominant role" in the utilization of the grid plan in New York City.[14]

Rebecca Shanor, on the other hand, is more skeptical about economic explanations of the grid. As Shanor explains, "There was nothing economical, for instance, about Twelfth Avenue, much of which in the 1811 plan lies under the Hudson River, and which was brought to the earth's surface only by extensive landfill. Nor was there anything economical about implementing the plan, which required literally moving mountains, and paying for every ton of earth and rock displaced."[15] Shanor, who is not an

---

[11] Marcuse, "The Grid as City Plan," 289. Also, see Mumford (1961), *The City in History: its Origins, its Transformations and its Prospects*, New York: Harcourt Brace Jovanovich, 421.
[12] Marcuse, "The Grid as City Plan," 289.
[13] Ibid., 306.
[14] Ibid.
[15] Shanor (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*, Columbia University, Master's thesis, 58.

admirer of the grid, criticizes the original Street Commissioners for being "apathetic authors" who simply provided a "quick solution to a difficult problem."[16] "[I]t is curious," she wonders, "that the commissioners within their generous allotted time period could not summon up a more imaginative plan for the balance of the island, or at least one that was more compatible with the island's natural topography"?[17]

Shanor is not alone in her views. Marcuse notes an entrenched bias against the Manhattan grid plan in twentieth-century urban planning literature in general. "Manhattan's gridiron plan," says Marcuse, "is generally taken to be one of worst city plans of any major city in the developed countries of the world."[18] There is an underlying assumption that the grid is something that must be "relieved" and "mitigated."[19] That the Manhattan grid became a model for other cities, argues Reps, was "a disaster whose consequences have barely been mitigated by more modern city planners."[20] The grid, we are told, is "monotonous," "procrustean," and a destroyer of "natural beauty."[21] So

---

[16] Ibid.
[17] Ibid., 59.
[18] Marcuse, "The Grid as City Plan," 287.
[19] Shanor, *New York's Paper Streets*. Also, see Winkler (1911), "Mitigating the 'Gridiron' Street Plan: Some Good Effects Achieved in New York City," *Architectural Record* **May**, 379-396.
[20] Reps, *The Making of Urban America*, 299.
[21] Winkler, "Mitigating the 'Gridiron' Street Plan," 379-80; Spann, "The Greatest Grid," 33. The word "procrustean" means generating a rigid conformity through violent and arbitrary means. It has its origins in Greek mythology, where Procrustes was a giant who, according to Edith Hamilton, placed his victims on an "iron bed . . . tying them to it and then making them the right length for it by stretching those who were too short and cutting off as much as was necessary from those who were too long." Hamilton (1969), *Mythology*, [1940], New York: Penguin Books, 150. It is with all this in mind that Manhattan grid critic Franz Winkler refers to the Commissioners who designed the grid in the singular as "Procrustes Gradgrind." For those not acquainted with the work of Charles Dickens, Mr. Thomas Gradgrind is one of the main characters in Dickens' *Hard Times*, which takes place in a mythical industrial town called "Coketown." Gradgrind was an "eminently practical" man whose mission was to instill his "system" of utilitarianism into the minds of the youthful population in general and his own children in particular. Gradgrind's goal was to educate the world by creating "minds that have been practically formed by rule and line." For, as everybody knows, "The reason is (as you know) the only faculty to which education should be addressed." Dickens opens the story with Gradgrind giving a speech to a group of young children and a school teacher as follows: "'Now, what I want is, Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else, and root out everything else. You can only form the minds of reasoning animals upon Facts; nothing else will ever be of any service to them. This is the

unaesthetic was the Commissioners' Plan of 1811 that "all the artists and art commissions of New York have never been able to get over the result of their work."[22] After all, Marcuse reminds us that the gridiron plan takes its name from a "medieval instrument of torture."[23] Not only is the plan said to be lacking in beauty, it is supposedly deficient of any qualities that might instill a sense of "national grandeur" as well. The Manhattan grid plan, according to Alan Trachtenberg, was "totally devoid of any pretension to art or beauty; it was a pure application of plane geometry. Its only intention was to subdivide the land and lay out streets . . . . the commissioners were unmoved by thoughts of

---

principle on which I bring up my own children, and this is the principle on which I bring up these children. Stick to Facts, sir!'" Dickens describes Gradgrind as "A man of realities. A man of facts and calculations. A man who proceeds upon the principle that two and two are four, and nothing over, and who is not to be talked into allowing for anything over. Thomas Gradgrind, sir—. . . . With a rule and a pair of scales, and the multiplication table always in his pocket, sir, ready to weigh and measure any parcel of human nature, and tell you exactly what it comes to. It is a mere question of figures, a case of simple arithmetic. You might hope to get some other nonsensical belief into the head of George Gradgrind, or Augustus Gradgrind, or John Gradgrind, or Joseph Gradgrind (all suppositious, non-existent persons), but into the head of Thomas Gradgrind—no, sir!" Dickens (1990), *Hard Times*, [1854], New York: W.W. Norton & Co., 7-23. Gradgrind's philosophy backfires, of course, and his own children rebel (In the end, Gradgrind eventually "sees the light," realizes his flaws and comes around). The influence that Dickens' *Hard Times* has had on academic scholarship should not be underestimated. Lewis Mumford, who inspired innumerable urban planners and social scientists (even until this very day), had read *Hard Times* and incorporated its sentiments into his own historical work. Mumford notes in *The Culture of Cities*, for instance, that "Dombey loses his wife, Gradgrind betrays his son and daughter, because these hard utilitarian rationalists overlooked the need for spontaneous joy and human understanding." And, for those who might think that Gradgrind is a mere fictional character, Mumford insists that "In a greater or less degree, every city in the Western World was stamped with the characteristics of Coketown." Mumford (1938), *The Culture of Cities*, New York: Harcourt, Brace and Company, 144-5 and 180-1. For the purposes of the present study, it is also worth noting that Mumford grew up "in a series of residences on the Upper West Side of Manhattan"—that is, within the Cartesian matrix of the Manhattan grid. Wojtowicz (1998), *Sidewalk Critic: Lewis Mumford's Writings on New York*, New York: Princeton Architectural Press, 13. Is it possible that Mumford and those who have followed are all rebellious youths fighting Old Mr. Gradgrind's desire to "weigh and measure any parcel of human nature, and tell you exactly what it comes to"? The issues raised in *Hard Times* also arise in the Hollywood film, *Dead Poets Society* (1989). This is particularly evident in the scene where the English teacher, Mr. Keating, has a student read "Understanding Poetry," by Dr. J. Evans Pritchard, in which Pritchard sets up a Cartesian rating scale (with an x and y axis) to plot the "greatness" of a poem. Keating tells his students that such Cartesian logic is "excrement" when it comes to the art of poetry and has his students rip out the pages from their books and throw them into trash bins ("Go on. Rip out the entire page. You heard me. Rip it out! Go on. Rip it out! . . . . Keep ripping, gentlemen! This is a battle. A war. And the casualties could be your hearts and souls. Armies of academics going forward, measuring poetry. No! We'll not have that here. No more Mr. J. Evans Pritchard. Now, my class, you will learn to think for yourselves again . . . ."). While the critics of the Manhattan grid would likely agree with Mr. Keating, we shall see that the Street Commissioners who designed the grid were, in fact, proponents of an aesthetic similar to that of Dr. Pritchard and, indeed, Mr. Gradgrind himself.

[22] Shackleton (1920), *The Book of New York*, Philadelphia: Penn Publishing Co., 15.

[23] Marcuse, "The Grid as City Plan," 290.

national grandeur; their motive was avowedly commercial and utilitarian."[24] Trachtenberg sees the Manhattan grid as representing a "split between aesthetics and business, between heart and mind."[25] While not a uniquely American notion, Trachtenberg argues that this supposed dichotomy between aesthetics and utility "widened into a virtual way of life in the New World," with the Manhattan grid being its prime representative.[26]

The trouble with this argument, however, is that no such separation between beauty and utility existed in the eyes of those who designed the Manhattan grid. Rather, it was precisely the utility of its strict uniformity that gave the grid its aesthetic appeal.[27] That the grid served long-term[28] economic and utilitarian ends is not in doubt, but to assert that it represents utilitarianism—and that alone—is to profoundly misunderstand the significance of the grid. Part of a larger political project to control and settle the North American continent, the grid was one of many "correctives" to the perceived disorder of post-Revolutionary America.[29] Like the U.S. Rectangular Survey System before it, the Manhattan grid was a mechanism for parceling out land in a systematic, standardized fashion.

---

[24] Trachtenberg (1964), "The Rainbow and the Grid," *American Quarterly* **16** (1), 8.
[25] Ibid., 11.
[26] Ibid.
[27] Randel (1864), "City of New York, north of Canal street, in 1808 to 1821," *Manual of the Common Council of New York ("Valentine's Manuals")*, Valentine. New York, 848. Also, see Chapter 4 of the present study.
[28] Shanor's argument against the economic utility of the grid (as discussed above) only considers its *short-run* economic impact (i.e. that the implementation of the grid was cost-intensive and placed an excessive burden on those landowners immediately affected). While Shanor does have a point, one must bear in mind that the original Street Commissioners had their eyes on the future growth of the city. In other words, their primary concern was the *long-run* economic utility for the city as a whole (including future generations), and the various landowners that were assessed for the enormous construction costs necessary to level the terrain, in effect, paid the price for future prosperity.
[29] Morris (1821), *An Inaugural Discourse, delivered before the New-York Historical Society, by the Honourable Gouverneur Morris, (president,) 4th September, 1816, Collections of the New-York Historical Society, for the Year 1821*, Collection of the New-York Historical Society. New York, 35.

In both cases, the grid was utilized to simplify, or "rationalize," the landscape in order to make it more "legible" to government officials, as well as the public at large, while also facilitating economic growth. As James Scott notes in *Seeing Like a State* (1998), "Not only did the regularity of the grid create legibility for the taxing authority, but it was a convenient and cheap way to package land and market it in homogeneous units. The grid facilitated the commoditization of land as much as the calculation of taxes and boundaries."[30] In other words, the grid—as a material rationalization of the landscape—had both political and economic functionality.

To maintain, as Trachtenberg does, that "the commissioners were unmoved by thoughts of national grandeur," thus reveals a lack of comprehension concerning the Street Commissioners' larger goals as well as the overall state-building program of which the grid was a part.[31] The designers of the Manhattan grid were hardly immune to the nationalistic fervor of their age, and while most rejected as oppressive the British imperial project, they delighted in the prospects of establishing their own uniquely American "empire."[32] Converting the landscape into a materialized grid coordinate system offered a means of rationalizing the settlement pattern and territory of this new empire in a manner conducive to governmental control.[33]

---

[30] Scott (1998), *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven: Yale University Press, 51.

[31] To be fair, when discussing the Brooklyn Bridge, Trachtenberg does recognize that a major political goal of the era was "America's campaign to master the continent." He also notes that the grid served as a "means of earning public revenue." Trachtenberg, "The Rainbow and the Grid," 5 and 9.

[32] Morris, *An Inaugural Discourse*, 37.

[33] The construction of a legible and accessible landscape was a prerequisite for governmental surveillance (e.g. Census-taking), which facilitated social control. Hannah (2000), *Governmentality and the Mastery of Territory in Nineteenth-Century America*, New York: Cambridge University Press, 224.

Materializing Thought: The Manhattan Grid as Cartesian Coordinate System

To call the Manhattan grid a "coordinate system" may sound rather odd at first—after all, Spann, Marcuse, and Shanor do not speak of the grid in such terms. Mathematicians and scientists normally think of a coordinate system as being an imaginary matrix through which to view the world (e.g. latitude/longitude) rather than an actual physical entity in its own right. Yet, the Manhattan grid—with its numerically-coded, perpendicular streets and avenues—is essentially a physical representation of the Cartesian coordinate system (Figure 1.2). From this perspective, each intersection in Manhattan north of Houston Street (where the grid begins), excluding Greenwich Village, has its own set of numerical "coordinate points" (x,y), in the form of (Avenue, Street), if we use the convention (which like all conventions, including scientific ones, has an element of arbitrariness to it) that the y axis points in an approximate north/south direction.[34] While most may not consciously think of it in such terms, these numerical coordinates are used regularly when giving directions to a particular location (as in "meet me at 3rd Avenue and 87th Street"). Within the matrix of the Manhattan grid, one can locate any point simply by knowing its Cartesian coordinates—in this case (3,87) (Figure 2.1).

There is a simple logic to the system: the numbers are in consecutive order, which enables one to gain a conceptual grasp of one's location in relation to the surrounding numerical coordinates inscribed into the landscape. In fact, an entire sub-discipline of geometry, called "taxicab geometry," has been developed to analyze the mathematics of

[34] While many grid systems have been purposely aligned with the cardinal directions, the Manhattan grid follows the axis (i.e. length) of the island instead.

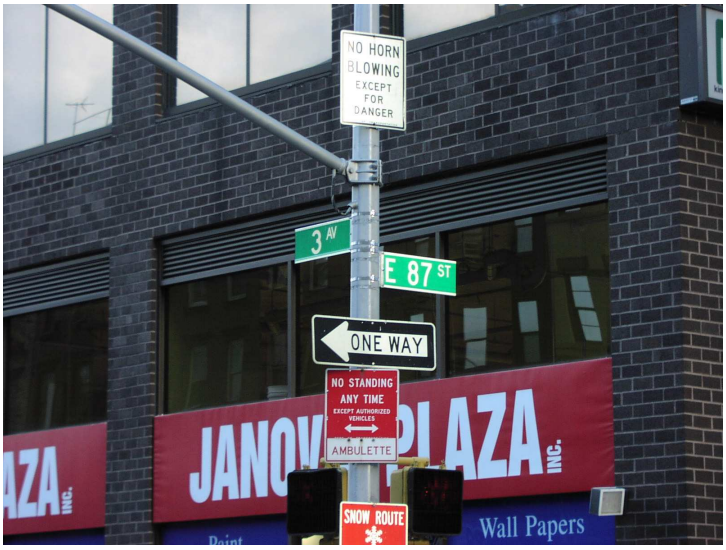


Figure 2.1: Street sign depicting the Cartesian coordinates (3,87) at the intersection of 3rd Avenue and 87th Street (photo taken by author, 2001)

such materialized coordinate systems in urban areas.[35] The development of the Manhattan grid is an example of a more general socio-political process whereby people use their epistemology to actively engage with, and transform, their object of analysis (e.g. the landscape) such that the world is literally remade to physically conform to human epistemological frameworks.[36]

The act of surveying the landscape is often the intermediary link enabling the use of epistemologies to remake the world into a physical representation of the lens through which people view the world. The actual reorganization of the landscape, however, is only made possible through a process of physical labor, which is often the result of contested political decisions and competing economic interests. In this fashion, the material world is converted into a reified epistemology as conceptual abstractions are

[35] Krause (1986), *Taxicab Geometry: An Adventure in Non-Euclidean Geometry*, [1975], New York: Dover Publications, Inc.
[36] For a discussion of this general process, see Scott, *Seeing Like a State*. Also, see Mitchell (1991), *Colonising Egypt*, [1988], Berkeley: University of California Press.

projected onto the world and thereby transform that world to make it correspond with human conceptual frameworks. In the case of the Manhattan grid, government surveyors used a cartographic tool for representing the world (a coordinate system) not merely to describe the world but rather to *transform* the landscape into a "material replication" of their conceptual framework in order to serve the needs of state power and capital accumulation while, in the process, facilitating urban growth.

In recent years, scholars from a number of disciplines have devoted considerable attention to this process of converting landscapes into materialized conceptual frameworks.[37] In his influential work, *The Production of Space* (1991 [1974]), Henri Lefebvre examines the connection between the production of places and representations of space. Lefebvre argues that people's understandings of space influence the manner in which a given culture (or the dominant class within that culture) physically constructs the human environment. When discussing the Greek polis, for instance, he suggests that "A unity was achieved . . . between the order of the world [and] the order of the city."[38] Cultural geographer James Duncan tells a similar story in his analysis of the spatial politics of landscape transformation in nineteenth-century Sri Lanka. Duncan notes that throughout Southeast Asia, "Terrestrial space was structured in the image of celestial space. Many royal cities were explicitly built to represent the cosmos in miniaturized

[37] Duncan (1990), *The City as Text: The Politics of Landscape Interpretation in the Kandyan Kingdom*, Cambridge: Cambridge University Press; Lefebvre (1991), *The Production of Space*, [1974], Cambridge, Mass: Blackwell; Mitchell, *Colonising Egypt*; Sluyter (1999), "The Making of the Myth in Postcolonial Development: Material-Conceptual Landscape Transformation in Sixteenth-Century Veracruz," *Annals of the Association of American Geographers* **89** (3), 377-401; Sluyter (2001), "Colonialism and Landscape in the Americas: Material/Conceptual Transformations and Continuing Consequences," *Annals of the Association of American Geographers* **91** (2), 410-28; Sluyter (2002), *Colonialism and Landscape: Postcolonial Theory and Applications*, New York: Rowman & Littlefield Publishers, Inc.
[38] Lefebvre, *The Production of Space*, 247.

forms."[39] Constructing places in the image of a given cosmology served to perpetuate that cosmological framework while also enhancing the legitimacy of those in power.[40]

Yet, cosmologies are not the only conceptual frameworks that have historically been inscribed into particular landscapes. In a recent set of articles on colonialism and the American landscape,[41] Andrew Sluyter shows how European categorization schemes went beyond merely reclassifying pre-colonial environments. In addition to the introduction of different ways of conceptualizing the world, colonizers physically transformed the landscape to fit their own categorization systems: "the conceptual parameters manifested in the land-grant documents and maps [of the colonizers] became self-ratifying categories, materially precipitating the very landscape they . . . described by visually validating their own conceptual parameters."[42] The same can be said of modern state-building activities in general. "The builders of the modern nation-state do not merely describe, observe, and map," argues James Scott, "they strive to shape a people and landscape that will fit their techniques of observation."[43] The emphasis here is that governmental ways of seeing ("techniques of observation") are inextricably intertwined with mechanisms of socio-environmental control.[44]

A common theme of all such theorizing is the realization that humans often project their own conceptual frameworks onto the landscape, thereby physically transforming the world (by planning a city, for instance) to make it conform to the

[39] Duncan, *The City as Text*, 48-9.
[40] Duncan explains that a king's palace was often situated at the center of a city—and thus at the center of the universe—which thereby gave the king the status of a "god on earth." Ibid., 49.
[41] Sluyter, "The Making of the Myth in Postcolonial Development," 377-401; Sluyter, "Colonialism and Landscape in the Americas," 410-28.
[42] Sluyter, "The Making of the Myth in Postcolonial Development," 392.
[43] Scott, *Seeing Like a State*, 82.
[44] This line of reasoning owes a great deal to the work of Michel Foucault. See Burchell, Gordon and Miller (1991), *The Foucault Effect: Studies in Governmentality*, Chicago: University of Chicago Press; Hannah, *Governmentality and the Mastery of Territory*. Also, see Chapter 6 of the present study.

epistemological assumptions of the dominant culture. As is evident from the work of Duncan, Scott, Sluyter and others, the conversion of landscapes into materialized conceptual frameworks—whether in Sri Lanka or New York—necessarily entails a political project of manipulating the spatial organization of socio-environmental systems for some desired end. While the establishment of "order" is generally the central goal of such projects, the material form that this takes varies greatly in different historical contexts, with landscapes being converted into material replications of religious cosmologies on the one hand and scientific coordinate systems on the other. In all cases, however, the concrete materiality of these physical transformations, in turn, reinforces the very conceptual framework that gave rise to such socio-spatial organization in the first place.

For the purposes of this study, I am primarily concerned with the materialization of a scientific conceptual framework—the Cartesian coordinate system. However, while it may be tempting to view the rationalization of the Manhattan landscape into a materialized Cartesian grid as being the result of purely secular logic and practice, I hope to demonstrate that the rationalist logic behind the Manhattan grid cannot be separated from its religious underpinnings, which fostered a disciplinary-utilitarian ethic that legitimized the emerging capitalist economy of the American Empire. The science of surveying (linear perspective) was commandeered by the prophets of empire to fulfill their self-proclaimed mission of remodeling the world to satisfy the twin goals of accumulating wealth and consolidating power—all for the larger glory of God. Because surveying principles played such a crucial role in the implementation of this "civilizing

mission" in Manhattan, it is essential to grapple with the "mechanics" of projecting scientific conceptual frameworks onto the physical landscape.

I am by no means the first to point out that scientific conceptual frameworks have been inscribed into particular landscapes. In his recent book, *Pandora's Hope* (1999), Bruno Latour follows a group of environmental scientists into the forests of Brazil and examines the manner in which they inscribe their quantitative conceptual frameworks into the material world. "After an hour in the jeep, we have arrived at the plot of land that Edileusa [a Brazilian botanist] has been charting for many years," says Latour. He goes on to note that Edileusa:

> would not be able to remember the difference between patches of the forest for very long without marking them in some way. She has therefore placed tags at regular intervals so as to cover the few hectares of her field site in a grid of Cartesian coordinates. These numbers will allow her to register the variations of growth and the emergence of species in her notebook. Each plant possesses what is called a reference, both in geometry (through the attribution of coordinates) and in the management of stock (through the affixing of specific numbers).[45]

Latour remarks that by tagging numerical labels to particular trees at regular intervals (literally nailing a piece of paper with a number written on it to a tree branch, for instance), "the land has become a proto-laboratory—a Euclidean world where all phenomena can be registered by a collection of coordinates."[46] Attaching reference numbers to particular physical entities in such a manner is one way of materializing thought, of inscribing a conceptual framework into a physical landscape.

As I shall discuss in greater detail in the next chapter, the "mechanics" (i.e. techniques or procedures) of inscribing the grid into the Manhattan landscape can be seen in much the same way as Latour describes this Brazilian forest's encounter with a group

[45] Latour (1999), *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass: Harvard University Press, 31-2.
[46] Ibid., 43.

of scientists. The main difference, however, is that when the survey teams trekked through the thickets of Manhattan with their cartographic instruments during the early nineteenth century, their goal was not simply to understand the ecology of the region. Rather, they were on a state-sponsored mission to initiate the process of completely reconfiguring the Manhattan landscape. In both cases, however, numerical sign systems were inscribed into the landscape, but in Manhattan the preliminary inscriptions that the surveyors delineated (using numerically-coded stone monuments instead of pieces of labeled paper attached to tree branches) foreshadowed their ultimate purpose: the carving up of the Manhattan landscape into a material replication of the Cartesian coordinate system and the obliteration of anything that did not conform to the linear logic of the grid. Is it any wonder then that Manhattan has been described as a "laboratory" and a "collective experiment in which the entire city became a factory of man-made experience"?[47]

[47] Koolhaas, *Delirious New York*, 9-10.

3. DESIGNING THE REASONABLE CITY: THE MECHANICS OF MATERIAL RATIONALIZATION

> *Travellers, who view what they see through the medium of preconceived notions, measure what they meet with by the standard of early education . . . find that, wherever they go, there is much to blame and much to reform . . . . Moreover, as the state of society is changed, by time and chance, the laws, too, must change. New disorders require new correctives, and when the reason of ancient ordinances no longer exists, they fall into oblivion.*
>
> —Gouverneur Morris, *An Inaugural Discourse Delivered Before the New-York Historical Society* (1821 [1816])

A Death Sentence to Disorder: Geometry as a Means of Correction

During the course of the nineteenth century, the Island of Manhattan underwent a profound metamorphosis. The rural landscape north of the present Houston Street was transformed, by century's end, into a sprawling industrial metropolis. The irregular property boundaries of old farmsteads and estates eventually gave way to the standardized blocks of the grid, while the uneven topography of the island was, for the most part, brought into line by the "leveling hand of improvement."[1] The implementation of the grid street plan, in essence, transformed Manhattan from an Island of Hills into a Cartesian Flatland.[2] Using Polanyi's phrase, I shall refer to this dynamic process of human-induced environmental change as "The Great Transformation" of the Manhattan landscape (see Chapter 1). The "stone and metal hives of humanity" would come to

[1] S.L. Mitchell (1807) as quoted in Hartog (1983), *Public Property and Private Power: The Corporation of the City of New York in American Law, 1730-1870*, Ithaca: Cornell University Press, 94.

[2] While the meaning of the Lenape word "Manna-hata" is shrouded in uncertainty, one likely candidate is "hilly island" or "island of hills." Burrows and Wallace (1999), *Gotham: A History of New York City to 1898*, New York: Oxford University Press, 15. The pre-grid landscape was indeed quite hilly, but the grid leveled much of the island, converting the Manhattan landscape into a "material replication" of the Cartesian coordinate system (see Chapter 1). However, although much of the island was leveled or flattened, there are still portions—especially in northern Manhattan—that are anything but flat. Yet, the term "Cartesian Flatland" rings true for much of the island.

dominate the island, and as a result of such dramatic change, the "traditional way of thinking about the relationships between public power and private autonomy had become impossible."[3] The state would come to play an ever-increasing role in the regulation of the physical environment.

The city's elites viewed the narrow, twisting streets of lower Manhattan with contempt for their lack of systematic logic and vulnerability to fire and disease, which were thought to result from "confined air" and "unclean" conditions in such narrow alleyways. Such criticisms were not unfounded, as yellow fever epidemics swept through the city in 1803 and 1805 causing large-scale evacuations from lower Manhattan.[4] Between 1790 and 1800, the New York City population more than doubled to over 60,000, and as the city began expanding northward, there was growing concern for "*avoiding* the frequent error of laying out *short*, *narrow*, and *crooked streets*, with *alleys* and *courts*, endangering extensive conflagrations, confined air, unclean streets, &c."[5] The protection of public health and safety, therefore, was one pressing reason for proposing that the city develop a network of broad, straight streets.

Yet, the simplification of property boundaries was also a major motivating factor for imposing a standardized geometrical order upon the island. As early as 1787—at precisely the same time that the federal government was devising the U.S. Rectangular

[3] Smith (1938), *Springs and Wells of Manhattan and the Bronx: New York City at the End of the Nineteenth Century*, New York: New-York Historical Society, xiii; Hartog (1983), *Public Property and Private Power: The Corporation of the City of New York in American Law, 1730-1870*, Ithaca: Cornell University Press, 142.
[4] Spann (1988), "The Greatest Grid: The New York Plan of 1811," *Two Centuries of American Planning*, Schaffer. Baltimore: Johns Hopkins University Press, 16.
[5] Randel (1864), "City of New York, north of Canal street, in 1808 to 1821," *Manual of the Common Council of New York ("Valentine's Manuals")*, Valentine. New York, 848, emphasis in original.

Survey System for systematically settling western lands[6]—the City of New York contracted surveyor Casimir Goerck to map its public domain, or "Common Lands," dividing them into rectangular parcels to be sold in order to pay the city's debts.[7] Goerck completed his map of the Common Lands in 1796 (Figure 3.1). At the time, much of Manhattan was a patchwork of farms and estates with irregularly shaped property boundaries that, as Edward Spann notes, "had often been laid out in reference to the meanderings of a few main roads."[8]

Dividing the Common Lands into rows and columns of rectangles, no doubt, was an attempt to establish a new order upon the land. The geometrical uniformity of this new conceptual reconfiguration of the Manhattan landscape simplified property boundaries and assured, if only in theory, that nearly all parcels of the Common Lands, once sold, would be publicly accessible. Such accessibility was essential for increasing the circulation of people and commodities across the island while also enhancing the government's ability to monitor, and tax, its subjects.[9] It was a rather simple equation: the perceived "disorder" of irregular property lines and meandering roads would be "corrected" by Goerck's rectangles.

Having conceptually converted the Common Lands into a series of rectangular units, members of the Common Council began debating the fate of the rest of the island.

---

[6] The Land Ordinance of 1785 established the federal rectangular survey system while the Northwest Ordinance of 1787 laid out a set of articles for the governing the western territory. White (1983), *A History of the Rectangular Survey System*, Washington, DC: Government Printing Office, 11-6.

[7] Shanor (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*, Columbia University, Master's thesis, 15; Spann, "The Greatest Grid," 14-6.

[8] Spann, "The Greatest Grid," 14

[9] Law historian Hendrik Hartog notes that by the early nineteenth century, the Common Council "had come to view itself as a record keeper and statistician of all aspects of city life . . . . One of the new public responsibilities of the city government was to measure change, to describe objectively the various quantifiable indicia of life in New York City, for such information was considered to be of 'public utility.'" Hartog, *Public Property and Private Power*, 144.

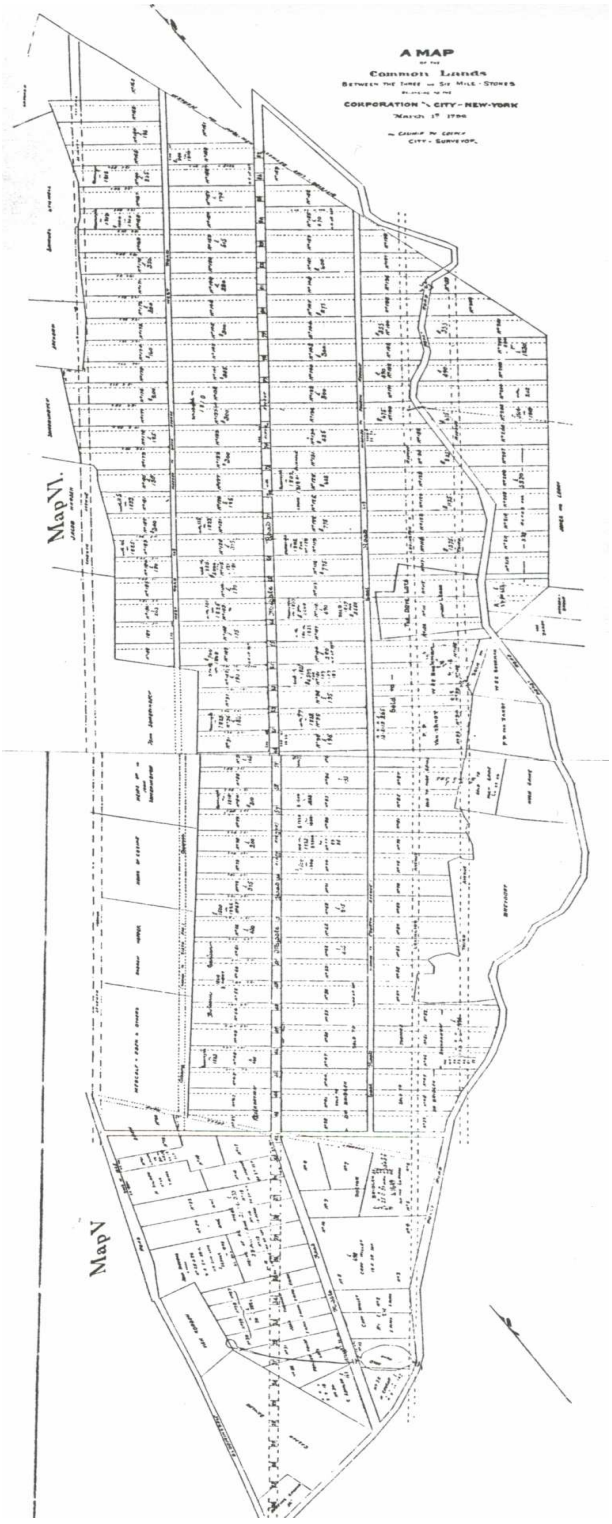


Figure 3.1: Casimir Goerck's 1796 map of the Common Lands (Source: Black, 1967 [1891])

At the edge of the city, which was still below the present Houston Street, private developers were in the process of independently dividing their properties into grid patterns, resulting in "a jumble of independently platted grids."[10] The city government sought to impose a formal order upon these independent developments through the process of *standardization*. It was conceivable that if the city were to devise a comprehensive street plan, it could completely refashion the material and conceptual fabric of the Manhattan landscape by creating a standardized grid that would cover the island. Yet, creating such a street plan divided members of the Common Council,[11] and they feared that without a state mandate any plan could easily be "disregarded or annulled by their successors."

In 1807, therefore, the Council petitioned the State Legislature to create a Commission that would devise, in their words, a street plan "in such a manner as to unite regularity and order with public convenience and benefit, and in particular to promote the health of the city."[12] Public health was, indeed, a concern prompting the city to create a systematic street system but certainly not the *only* concern. Just as important was the hope of establishing "order" and "regularity" so as to maximize "public convenience and benefit."

On April 3, 1807, the New York State Legislature passed "An Act relative to Improvements, touching the laying out of Streets and Roads in the City of New-York,

---

[10] Kostof (1991), *The City Shaped: Urban Patterns and Meanings Through History*, Boston: Bulfinch Press, 95.

[11] An oft-quoted passage from the Common Council concerning such debates explains that "the diversity of sentiments and opinions which has hitherto existed and probably will always exist among members of the Common Council, the incessant remonstrances of proprietors against plans however well devised or beneficial, wherein their individual interests do not concur, and the impossibility of completing these plans but by tedious and expensive course of law, are obstacles of a serious and perplexing nature." As quoted in Spann, "The Greatest Grid," 17.

[12] Stokes (1915-1928), *The Iconography of Manhattan Island, 1498-1909*, New York: R.H. Dodd, Vol. V, 1454. Also, see Spann, "The Greatest Grid," 17.

and for other purposes."[13] This law established a Commission to determine the future street layout of Manhattan. The three men chosen to serve as "Commissioners of streets and roads in the City of New-York"—Gouverneur Morris (1752-1816), Simeon DeWitt (1756-1834), and John Rutherford (1760-1840)—were all members of old landowning families and college educated, having gone to King's College (Columbia University), Queen's College (Rutgers University), and the College of New Jersey (Princeton University), respectively.[14] Morris and Rutherford were both former United States Senators (the wooden-legged Morris was also the final drafter of the U.S. Constitution),[15] while DeWitt had served as chief surveyor under George Washington during the Revolutionary War and was currently the Surveyor-General of New York State.

The law of 1807 gave these three men the "exclusive power to lay out streets, roads, and public squares, of such width, extent, and direction, as to them shall seem most conducive to [the] public good, and to shut up, or direct to be shut up, any streets or parts thereof which have been heretofore laid out, and not accepted by the Common Council." While the law only applied to lands above North Street (now Houston Street), the message was clear: no longer would narrow, crooked streets be tolerated on the Island of

---

[13] Bridges (1811), *Map of the City of New-York and Island of Manhattan; with Explanatory Remarks and References*, New-York: T & J Swords.

[14] Interestingly, both Morris and DeWitt each received Master's degrees. Wilson and Fiske (1921), "Rutherfurd, John," *The National Cyclopaedia of American Biography*, Vol. 2. New York: James T. White & Co., 10-1; Bedini (1999), "DeWitt, Simeon," *American National Biography*, Vol. 6. Garraty and Carnes. New York: Oxford University Press, 528-30; Mintz (1999), "Morris, Gouverneur," *American National Biography*, Vol. 15, 896-99.

[15] In 1780, while residing in Philadelphia, Morris had fallen out of a carriage and injured his leg such that it had to be amputated. According to *Appletons' Cyclopaedia of American Biography*, "To a friend who called the next day to offer consolation, and who pointed out the good effects that such a trial might produce on his character by preventing him from indulging in the pleasures and dissipations of life, he replied: 'My good sir, you argue the matter so handsomely, and point out so clearly the advantages of being without legs, that I am almost tempted to part with the other.' During the remainder of his life he wore a wooden leg . . ." Anonymous (1888b), "Morris, Lewis," *Appleton's Cyclopaedia of American Biography*, Vol. 4. Wilson and Fiske. New York: D. Appleton and Co., 414-6. Also, see D.S.M. (1934), "Morris, Gouverneur," *Dictionary of American Biography*, Vol. 7. Malone. New York: Charles Scribner's Sons, 211.

Manhattan. The Commissioners were directed to lay out "leading streets and great avenues" that were to be no less than sixty feet wide, so as to "secure a free and abundant circulation of air among said streets and public squares when the same shall be built upon."[16] They were given four years to provide a map of their plan, accompanied by survey field notes and "elucidatory remarks." The Commissioners' Plan was to be "final and conclusive," which essentially meant that any future changes would require state approval.[17]

On a map of suitable scale, the proposed streets and avenues were to be drawn "together with all such hills, valleys, inlets, and streams as may be necessary on the said maps, so as to render the same explicit and intelligible." Yet, the goal of this "intelligible" geographical survey of the island was more than simply producing a map. It was the first step in the process of materializing thought—of converting the physical world (the Manhattan landscape) into a material replication of a conceptual framework (the Cartesian coordinate system). The imaginary lines in the surveyors' minds would be given physical form as required by state law: "the said Commissioners shall erect suitable and durable monuments at the most conspicuous angles" at the "intersection" of each of the proposed streets and avenues.[18] These monuments would be harbingers of the Great Transformation and a death sentence to everything that stood in the way of "the march of modern improvement."[19]

[16] Bridges, *Map of the City of New-York*, 6-7.
[17] Ibid., 9-10.
[18] Ibid., 8-9.
[19] Bolton (1928), *The Path of Progress*, New York: Kalkhoff Company, 5.

A Blueprint for the Future: the Commissioners' Plan of 1811

In 1811, the Commissioners unveiled their plan for the island. It consisted principally of a rectilinear matrix of 12 major avenues and 155 cross streets.[20] All were numerically-coded in consecutive order, thereby announcing to the world that the Manhattan landscape—with its hills, wetlands, streams, farmlands, and estates—was to be converted into a life-size Cartesian coordinate system (Figure 3.2). The grid pattern is often compared to a checkerboard,[21] but the Manhattan grid's numerically-coded, rectilinear streets actually come closer to resembling a Cartesian coordinate system. Yet, this comparison is not merely an analogy. The modern Manhattan landscape is not *like* a Cartesian coordinate system, it *is* a Cartesian coordinate system in materialized form (see Chapter 1).

Within this Cartesian matrix, the Commissioners reserved space for a military parade, a centralized market place, a reservoir, and a number of public squares. In a wetland area to the east of 5th Avenue bounded by 106th and 109th Streets, they also set aside a rectangular parcel called the Haerlem Marsh (Figure 3.3). The exact reasons for preserving this area were not specified, but it was where one of the largest streams in Manhattan, the Haerlem Creek, flowed at the time. One possible explanation is that the Commissioners viewed the shear size of the Haerlem Creek and its surrounding wetlands

[20] In addition to the 12 major avenues depicted in the Commissioners' Plan, there were also four smaller avenues (labeled Avenue A through D) to the east of 1st Avenue that ended between 12th and 16th Streets.
[21] Reps (1961), "Thomas Jefferson's Checkerboard Towns," *Journal of the Society of Architectural Historians* **20** (3), 108-114. For a recent example related to New York City, see Gandy (2002), *Concrete and Clay: Reworking Nature in New York City*, Cambridge, Massachusetts: MIT Press, 81.

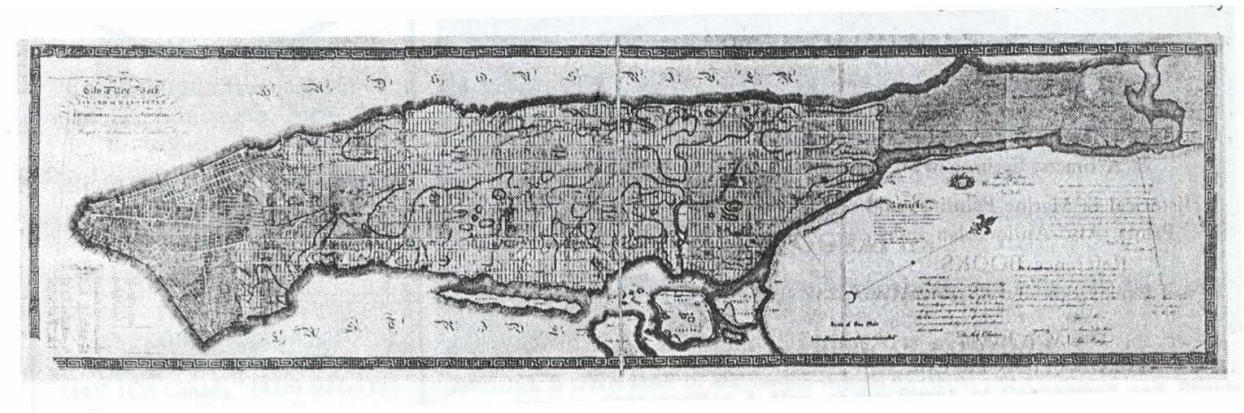


Figure 3.2: The Commissioners' Plan of 1811, surveyed by John Randel Jr., and published by William Bridges (Source: Cohen, 1988)

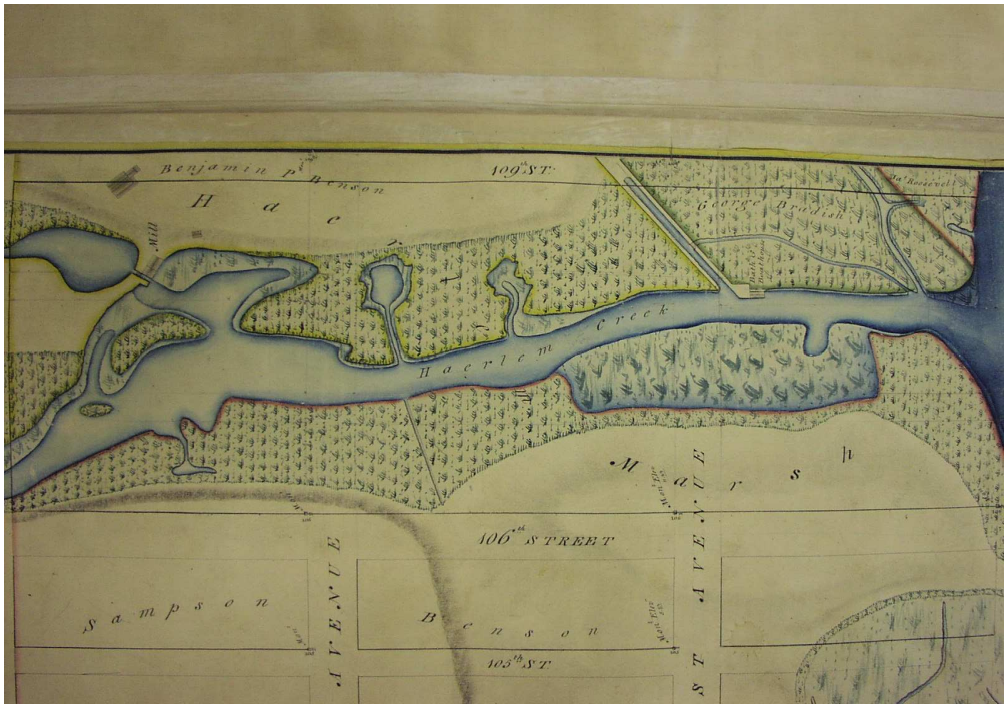


Figure 3.3: The Haerlem Marsh, as laid out on the Randel Farm Maps (Source: Randel, c. 1819)

as a formidable barrier to street construction, yet this does not seem consistent with the mentality of the rest of the plan.[22]

Whatever the reason, the Haerlem Marsh was one of the only pre-existing environmental features of the Manhattan landscape that was incorporated into the proposed street plan. The Haerlem Marsh aside, John Reps correctly notes that "the street system they established [was] totally unrelated to the contours of the land."[23] That this is "one of the outstanding defects of the commissioners' plan,"[24] however, is open to debate. After all, was it not the ultimate goal of the Common Council to establish a new order upon the Island of Manhattan, one that privileged geometrical legibility over existing socio-environmental conditions? If this was, in fact, the government's goal—which I think the evidence supports—then it does not make any sense to refer to the disregard for "the contours of the land" as a technical "defect."

Let me be clear here: it is one thing to criticize the objectives of a public works project and quite another to argue that a plan does not meet a set of *chosen* objectives. One can argue that the goal of privileging geometry over "the contours of the land" was a bad objective—which Reps, Shanor, and others argue—yet it does not follow that the grid plan failed to meet state and municipal goals of constructing a legible landscape. On the contrary, by transforming the heterogeneous Manhattan landscape into a *tabula rasa*, or blank slate, of standardized city blocks, the objective of establishing spatial order and regularity was, in fact, achieved by creating a geometrically-defined landscape of

[22] However, the Commissioners were not oblivious to the difficulties that the Manhattan topography posed. The Commissioners recognized that "It is not improbable that considerable numbers [of people] may be collected at Haerlem, before *the high hills to the southward of it shall be built upon as a City*." Bridges, *Map of the City of New-York*, 30, emphasis added.
[23] Reps (1965), *The Making of Urban America: A History of City Planning in the United States*, Princeton: Princeton University Press, 298.
[24] Ibid.

legibility *par excellence*. Spann notes that "the Commissioners . . . were not engaged in the utopian task of imposing ideal forms on empty space," because there were landowners in the area under consideration.[25] While it is true that the pre-grid landscape was not an "empty space," this is not the main point to consider. More important is the fact that the grid plan sought to convert this diverse Manhattan landscape into a *tabula rasa*, thereby erasing everything that stood in its way. In other words, the grid actually *created* "empty space" by obliterating socio-environmental heterogeneity in order to perform "the utopian task of imposing ideal forms on empty space."[26]

However, to battle out the politics of proper objectives under the pretext of discussing technical "defects," as Reps does, is to mask the political nature of the issue at hand by reducing it to a mere matter of technical competency (i.e. that the grid was chosen merely from a "lack of professional competence in planning"). This is a classic example of how experts—in this case twentieth-century urban planners—conceal their own political positions by investing them with an aura of scientific authority, as if science could somehow tell us what we *ought* to value.[27] The same charge can be made against the grid itself, however. The grid plan's quantitative Cartesian logic gave it the appearance of being an "objective" basis for spatially organizing the Manhattan landscape using "scientific and engineering principles." Imposing such "objective" principles upon the world, however, was a process of intense power struggle.

---

[25] Spann, "The Greatest Grid," 18.

[26] The obliteration of existing landscapes and the imposition of a new order upon the world is a key aspect of modern "development" projects in general. See Berman (1988), *All That Is Solid Melts Into Air*, [1982], New York: Penguin Books.

[27] Max Weber's comment on a passage from Tolstoy is most appropriate here: "Tolstoi has given the simplest answer, with the words: 'Science is meaningless because it gives no answer to our question, the only question important for us: "What shall we do and how shall we live?"' That science does not give an answer to this is indisputable." Gerth and Mills, Eds. (1958), *From Max Weber: Essays in Sociology*, New York: Oxford University Press, 143.

The Mechanics of Materializing Thought: The Politics of Inscribing the Cartesian Coordinate System into the Manhattan Landscape

Merely envisioning the possibility of nearly obliterating the environmental conditions in Manhattan and constructing a relatively flat surface carved into a numerically-coded grid formation required, if not audacity, at least a bit of imagination.[28] Yet, how would such imaginings become anything more than daydreams in the Street Commissioners' minds? How would the Commissioners' thoughts become materialized? At the intersection between the cross-streets of imagination and the avenues of actuality stood John Randel Jr. (c. 1780-1865),[29] chief surveyor of the Manhattan grid plan. We must therefore examine Randel's actions if we are to understand the *mediation* between thought and material practice.

Described as "an eminent mathematician, and a most skilful practical surveyor," the Commissioners hired Randel to survey the Island of Manhattan, and his work eventually led to the production of a set of maps of the Commissioners' Plan.[30] Within a year after the law of 1807 was passed, Randel began "the Herculean task of surveying Manhattan Island," an undertaking he would not finish until 1821.[31] Although Randel

---

[28] Traditional wisdom, as espoused by many urban planners, has it that the Manhattan grid was an "unimaginative" plan. I find this perspective to be utterly unsatisfactory. It took imagination, I argue, to even *consider* the possibility that Manhattan could be leveled and flattened beyond recognition. It required the capacity to imagine *what might be* rather than limiting oneself to *what is*. If envisioning a complete reconfiguration of a landscape does not entail an act of imagination, what does? Whether or not one views the grid with pleasure or disdain, it certainly required the ability to tap into what Street Commissioner Simeon DeWitt calls "the mysterious, unfathomable repositories of *possible things*." DeWitt (1813), *The Elements of Perspective*, Albany: H.C. Southwick, ix. In the next chapter, I discuss the issue of imagination in more detail.

[29] Conklin (1997), "Kingsbridge, An Early Quarrying District on Manhattan Island," *Mineralogical Record* **28**, 457-73.

[30] Carey (1825), *Exhibit of the shocking oppression and injustice suffered for sixteen months by John Randel, Jun., Esq.*, Philadelphia, 7. For reproductions of these various maps, see Cohen and Augustyn (1997), *Manhattan in Maps, 1527-1995*, New York: Rizzoli International Publications, Inc., 100-11.

[31] Cohen and Augustyn, *Manhattan in Maps*, 102-4.

later described certain areas of pre-grid Manhattan as being "impassible without the aid of an axe," he did not categorize the pre-grid landscape as a "wilderness," as a number of twentieth-century scholars have done.[32] Instead, Randel recalls "performing field work . . . in the suburbs of the city" where there were "country residences . . . with court yards and lawns of trees and shrubs in front of them."[33]

If he speaks of rugged hills, Randel reminds us that these hills existed not in some idealized primeval state but served the wealthy as "country residences." If Randel speaks of salt meadows, he also reminds us that through these marshlands were ditches and "well-beaten" paths (Figure 3.4).[34] The grid, in other words, was not inscribed into a virgin wilderness but rather superimposed upon a pre-existing social order of property relations and small-scale environmental manipulation (Figure 3.5). When seen in contrast to the concreteness of the modern Manhattan landscape, to be sure, pre-grid Manhattan does appear to have an element of "wildness."[35] Yet, we should be cautious not to idealize the pre-grid landscape, for in doing so we run the risk of ignoring the social relations that were unquestionably embedded within that landscape. This point is crucial if we are to understand the power struggles that Randel and the Commissioners engaged in as they inscribed the Cartesian coordinate system into the Manhattan landscape.

---

[32] Randel, "City of New York, north of Canal street, in 1808 to 1821," 850. For examples of twentieth century interpretations of the pre-grid landscape as "wilderness," see Trachtenberg (1964), "The Rainbow and the Grid," *American Quarterly* **16** (1), 3-19; Shanor, *New York's Paper Streets*, 6; Cohen (1988), "'Civic Folly': The Man Who Measured Manhattan," *AB Bookman's Weekly*, 2511-15; Cohen and Augustyn, *Manhattan in Maps*, 102.

[33] Randel, "City of New York, north of Canal street, in 1808 to 1821," 847-9.

[34] Ibid., 847.

[35] Yet, when compared to the rest of the city, even Central Park (a deliberate human construction) seems "wild" to urban dwellers. See Gardner (1988), *Urban Wilderness: Nature in New York City*, New York: Earth Environmental Group. To someone who has lived their entire life in rural America, however, Central Park would likely appear an extremely manicured, and domesticated, landscape. In this sense, "wildness" is, indeed, relative to one's point of reference. See Nash (1982), *Wilderness and the American Mind*, [1967], New Haven: Yale University Press, 1.

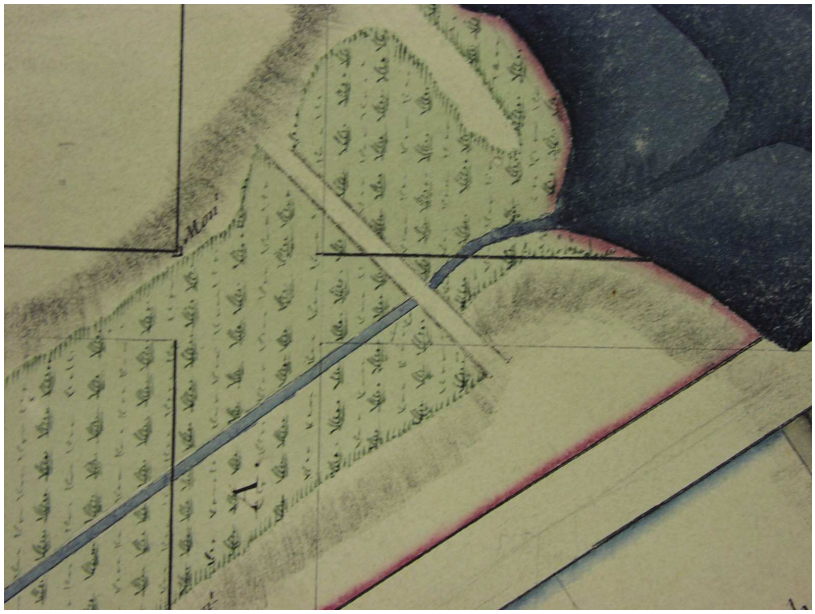


Figure 3.4: A "well-beaten" path through marshlands near the then-imaginary Avenue A and 15th Street (Source: Randel, c. 1819)

Figure 3.5: The complexity of the pre-grid landscape between the then-imaginary blocks of 125th through 133rd Streets and 9th through 12th Avenues of the Commissioners' Plan (Source: Randel, c. 1819)

Randel himself was certainly aware of the social impact of his surveying, as he was arrested numerous times for trespassing:

> Col. Richard Varick, who was *Mayor* of the city of New York for the *twelve years* from 1789 to 1801, always became *bail* for my appearance at Court when, in the absence of the Commissioners, I was arrested by the Sheriff, on numerous suits instituted against me as agent of the Commissioners, for trespass and damage committed by my workmen, in passing over grounds, cutting off branches of trees, &c., to make surveys under instructions from the Commissioners.[36]

In the minutes of the Common Council one finds the following reference to such an instance of Randel's encounter with the law:

> A petition of John Randall [sic] one of the surveyors employed by the Commissioners for laying out Streets and roads, praying reimbursement of damages & costs recovered against him by John Mills, in an action of trespass for entering on his grounds in the service of said commissioners was received and referred to Alderman Mesier Mr Jones & Mr Hawes . . . . The amount of damages & costs recovered against said Randell [sic] in the suit against him by John Mills is $153.59.[37]

Jones and Hawes recommended that Randel be reimbursed for his expenses and the measure was accepted by the Common Council. This was not an isolated incident, however, as Randel notes that there were "numerous suits" brought against him in a similar manner.

Legend has it that "at the sight of men approaching with their maps and measuring instruments, dogs were unleashed, and neighboring families banded together in driving the men off the property."[38] Writing in 1896, historian Martha Lamb goes so far as to suggest that "On one occasion, while drawing the line of an avenue directly through the kitchen of an estimable old woman, who had sold vegetables for a living upwards of twenty years, they [the surveyors] were pelted with cabbages and artichokes

[36] Randel, "City of New York, north of Canal street, in 1808 to 1821," 848.
[37] Common Council of the City of New York (1810-1812), *Minutes of the Common Council (Vol. 6)*, New York: City of New York, 315 and 330.
[38] Shanor, *New York's Paper Streets*, 18.

until they were compelled to retreat in the exact reverse of good order."[39] That the surveyors could have invaded the kitchen of an old woman may seem far fetched, yet it is not improbable given the fact that the law of 1807 gave them the authority to do so: "it shall and may be lawful to and for the said Commissioners, and for all persons acting under their authority, to enter, in the day time, into and upon any lands, tenements or hereditaments which they shall deem necessary to be surveyed, used or converted for laying out, opening, and forming of any street or road as aforesaid."[40]

Despite the privileges bestowed upon the Commissioners and survey teams by the law of 1807, conflicts with local landowners became such a hindrance to their surveying project that, as Randel notes,

> In consequence of those suits, the Commissioners reported to the Corporation [of the City of New York] the impracticability of their completing the duties of their appointment unless protected from such vexatious interruptions; whereupon the Corporation obtained from the [State] Legislature an Act, passed 24th March, 1809, authorizing the Commissioners, and all persons under them, to enter upon grounds to be surveyed, and to "*cut down trees, and do other damage;*" and allowing a specified time thereafter within which to compensate the owners for such damage.[41]

As such measures illustrate, the act of surveying the landscape was an inherently political enterprise, no matter how many "maps and measuring instruments" the surveyors carried along with them *and* no matter how much trigonometry they used to measure the Manhattan landscape. Randel and his surveyors were agents of a political program to completely reconfigure the Island of Manhattan, as these "vexatious" landowners knew all too well.

---

[39] Lamb (1896), *The History of the City of New York (Vol. 3)*, New York: A.S. Barnes and Co., 572. Also, see Shanor, *New York's Paper Streets,* 18.
[40] Bridges, *Map of the City of New-York,* 8.
[41] Randel, "City of New York, north of Canal street, in 1808 to 1821," 848-9. For an extract from "An Act respecting Streets in the City of New-York," Passed March 24, 1809, see Bridges, *Map of the City of New-York.*

Between 1811 and 1821, the Common Council paid John Randel a total of $32,484.98 for supplies and equipment to perform his duties with regard to the surveying of Manhattan Island.[42] The Common Council had great interest in obtaining maps of the island. As the Finance Committee noted in 1820, "it has been customary to present each person on his becoming a member of the Common Council, with a Map of the City; in order that he may possess the information required in the discharge of his public duties."[43] Randel's work was held in high esteem, and he was praised as "an artist and correct delineator."[44] The "correct delineation" of the various properties existing in pre-grid Manhattan was a crucial component of the project to transform the landscape. As Cohen and Augustyn note, "Accurate surveying information for these farms was essential for a city that had a plan to construct streets on the very land occupied by these farms."[45]

Yet, Randel's assignment went well beyond merely drawing maps of the island. Of the total sum allocated to his surveys, Randel used approximately 40% of the funds for the purpose of placing "monumental Stones" at each of the then-imaginary intersections of the streets and avenues of the future grid.[46] This included the setting of 1,549 marble monuments and 98 iron bolts. Inscribed into each monument were its Cartesian coordinates within the matrix of the Manhattan grid—that is, written on each monument was both the number of the street and avenue that were to intersect at that

[42] Common Council of the City of New York (1820-1821), *Minutes of the Common Council (Vol. 11)*, New York: City of New York, 449.
[43] Ibid., 299.
[44] Common Council of the City of New York (1818-1820), *Minutes of the Common Council (Vol. 10)*, New York: City of New York, 249.
[45] Cohen and Augustyn, *Manhattan in Maps*, 110.
[46] For a complete account of the financial support provided for Randel's surveys by the Common Council, see Common Council of the City of New York (1820-1821), *Minutes of the Common Council (Vol. 11)*, New York: City of New York, 449.

point under the proposed Plan of 1811.[47] It is here—with Randel and his numerically-coded stone monuments—that we can observe the "mechanics" of materializing thought at work.

Before monuments were bolted into the landscape, all of Randel's maps of gridded streets and avenues were nothing more than daydreams and hypothetical imaginings. But, by inscribing monuments with their coordinate points within the matrix of the future grid, and then fastening these monuments into the actual landscape, John Randel Jr. partook in the *proto-materialization* of the Cartesian coordinate system in Manhattan. At this stage, we do not yet have the full-fledged "material replication" of the Cartesian coordinate system that we know today. It took decades of hard labor by construction crews to fully carve the Cartesian coordinate system into the landscape; Randel's initial monuments merely marked, or labeled, the landscape with numerically-coded inscriptions. It is at this initial stage of materialization, however, that the mediation between conceptual frameworks and the material world is most evident.

Let us take a slight detour for a moment into the Brazilian forests with science studies scholar Bruno Latour once again so that we may better come to grips with the inscription process (see Chapter 2). Recall that Latour follows scientists on an expedition into the forests of Brazil and notices that, among other things, they tag numerically-coded labels to tree branches at regular intervals to mark out the terrain. Standing in front of one of these tree branches, Latour makes the following observation: "I thought I was deep in

[47] Cohen and Augustyn remark that "Between 1811 and 1821, Randel and his determined crew placed a three-foot nine-inch-long white marble marker engraved with the street's number at each intersection. Where rocks blocked the way, half-foot iron bolts were affixed to them." Cohen and Augustyn, *Manhattan in Maps*, 104. While previous scholars have only noted that the "street's number" was inscribed on each monument, Randel himself informs the readers of his 1811 map that both the street *and* avenue numbers were inscribed on his monuments.

the forest, but the implication of this sign, '234' [inscribed on a label attached to a tree branch], is that we are *in a laboratory*, albeit a minimalist one, traced by the grid of coordinates. The forest, divided into squares, has already lent itself to the collection of information on paper that likewise takes a quadrilateral form."[48]

Without these numerical inscriptions attached to tree branches, the scientists would be utterly lost when trying to retrace their steps both out "in the field" as well as back at their "centres of calculation."[49] "If I were to tear down these tree tags," says Latour, "or if I were to mix them up, Edileusa would panic like those giant ants whose paths I disturb by slowly passing my finger across their chemical freeways."[50] Tree tags offered a mechanism by which to gain conceptual control over the landscape: "thanks to inscriptions, we are able to oversee and control a situation in which we are submerged, we become superior to that which is greater than us."[51]

Through the inscription process, the material landscape is encoded with a sign system intended to be read in the *same* language as whomever has done the inscribing.[52] After a landscape has been encoded with such inscriptions, the map and the territory become commensurable. Road maps, for instance, are only useful if compared with the road signs posted in the real world. In other words, the physical world often has to be marked with inscriptions in the same language as the map if the map is to make any

---

[48] Latour (1999), *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass: Harvard University Press, 31-2.
[49] Latour (1997), *Science in Action: How to Follow Scientists and Engineers through Society*, [1987], Cambridge, Mass: Harvard University Press, 215-57.
[50] Latour, *Pandora's Hope*, 32.
[51] Ibid., 65.
[52] This is true not only for scientific inscriptions but also for other conceptual frameworks (such as religious cosmologies) that are inscribed into a material landscape. See Duncan (1990), *The City as Text: The Politics of Landscape Interpretation in the Kandyan Kingdom*, Cambridge: Cambridge University Press.

sense. As Latour notes, if the material inscriptions are taken away, so too is the power of the map:

> we most often *compare* the readings on the map with the road *signs* written in the *same* language. The outside world is fit for an application of the map only when all its relevant features have themselves been written and marked by beacons, landmarks, boards, arrows, street names, and so on. The easiest proof of this is to try to navigate with a very good map along an unmarked coast, or in a country where all the road boards have been torn off (as happened to the Russians invading Czechoslovakia in 1968). The chance is that you will soon be wrecked and lost. When the out-thereness is really encountered, when things out there are seen for the *first* time, this is the end of science, since the essential cause of scientific superiority has vanished.[53]

We see precisely such a relationship between Randel's markers, his maps, and the Cartesian coordinate system. The names of the streets and avenues on his maps, and their corresponding monuments, were written in the "same language" as the surveyor's quantitative conceptual framework. By encoding inscriptions of the Cartesian coordinate system into the landscape, Randel and his "men . . . with their maps and measuring instruments" converted the Manhattan landscape into "a proto-laboratory—a Euclidean world where all phenomena can be registered by a collection of coordinates."[54]

If Randel and his stone monuments can be compared to Latour's environmental scientists and their tree tags, this means that Randel's network was just as vulnerable to an act of sabotage as was Edileusa's matrix of inscriptions. Whereas Latour apparently did not indulge his fancy by actually tearing down or mixing up Edileusa's tree tags, Randel was less fortunate. Whether out of calculated malice or sheer amusement, Randel found that someone had tampered with the setting of his stone monuments, and he therefore had to remeasure a significant portion of the island. In 1817, the Common

[53] Latour, *Science in Action*, 254.
[54] Latour, *Pandora's Hope*, 43.

Council compensated Randel for "Remeasuring One hundred and sixty thousand feet to replace pegs destroyed by persons unknown to him before the Monuments were set."[55]

Let us suppose for a moment that such actions were taken by angry landowners as a form of resistance to the grid.[56] Were these "deviants" opponents of Science and Rationality? After all, they did disrupt the surveying, or "correct delineation," of Manhattan Island. They, therefore, must not have been "a friend of Science," as was Street Commissioner Simeon DeWitt.[57] Yet, why would anyone oppose Science and its municipal representative, the technical expert? Just as today's technical experts attempt to reduce political questions to technical calculations, when the technical expert first emerged as "a new player in the political arena" of municipal policymaking during the nineteenth century, he (and it most always was a man, hence the gendered language) often claimed to make decisions "on the basis of 'objective' scientific and engineering principles."[58]

To charge a technical expert with "political engineering" was paramount to questioning his intellectual integrity and scientific acumen. For instance, John B. Jervis, who served as engineer for the construction of both the Erie Canal and the Croton Aqueduct, "categorically den[ied] that he was a 'political engineer,' and affirm[ed] that his decisions had always been determined by technical and fiscal constraints rather than politics."[59] If surveyors and engineers based their decisions not on politics but rather on "objective" principles, then they could portray themselves as merely following the

[55] Common Council of the City of New York (1817-1818), *Minutes of the Common Council (Vol. 9)*, New York: City of New York, 132.
[56] Such an assumption seems reasonable given the various other "vexatious interruptions" that Randel encountered with irate landowners.
[57] Anonymous (1835), "Obituary," *American Journal of Science and Art* **27**, 395.
[58] Goldman (1997), *Building New York's Sewers: Developing Mechanisms of Urban Management*, West Lafayette, Indiana: Purdue University Press, 53 and 64.
[59] Goldman, *Building New York's Sewers*, 64.

dictates of scientific law, which provided a sense of legitimacy to the decision-making process.

Since the grid's street names were based on the vocabulary of science (mathematics), it had the appearance of being a "rational" plan (see Chapter 4), yet surely even Randel must have recognized that his encoded monuments were not "neutral" markers for a scientific analysis. Rather, they symbolized governmental control and the imposition of a new order upon the Island of Manhattan. Randel was a "technical expert" *par excellence*, and he conducted his surveying with the utmost scientific precision. Yet, to the landowners who fought against him, all the technicalities in the world did not mask the reality that he was an agent of a political project that, in their view, infringed on their property rights.

The battles between property owner and surveyor vividly demonstrate that the governmental science of the technical expert—based on "scientific and engineering principles"—was inherently political. Only when the technical experts are seen as being "beyond politics" do their calculations and inscriptions appear "neutral" to the unwary public. In any situation where technical experts are involved, however, a number of questions should always be asked: What are the political goals and objectives *presupposed* by the technical experts? Who benefits from those goals and who suffers? What types of power structures are legitimizing their techniques of analysis? That Randel was engaged in a political enterprise is clearly evident in the fact that the resistance he encountered from landowners led to the passage of further state legislation and cost the city at least an additional $4,000.[60] Surely there must have been a logic, or "rationality," behind such resistance to Randel and his team of technical experts. I explore the

[60] Common Council of the City of New York, *Minutes of the Common Council (Vol. 9)*, 132.

"rationality of deviance" in greater detail in Chapter 5, but first, I will take a closer look at the reasoning behind the grid itself.

4. THE REASONING BEHIND THE RATIONALIZATION OF THE LANDSCAPE

The Mason's Sieve Myth and the Treacherous Search for the Origins of the Manhattan Grid

It has become a tradition among historians to recall a myth popularized by Frederick Law Olmsted and James Croes for why the Commissioners chose the grid plan. As Olmsted and Croes explained in 1877,

> There seems to be good authority for the story that the system of 1807 was hit upon by the chance occurrence of a mason's sieve near a map of the ground to be laid out. It was taken up and placed upon the map, and the question being asked, "what do you want better than that?" no one was able to answer. This may not be the whole story of the plan, but the result is the same as if it were.[1]

Another rendition of this "creation myth" was given by a man named Randall Comfort in an address to the New-York Historical Society in 1901. The story, it seems, speaks across generations:

> In one of his many writings, the late Colonel Waring tells a most interesting story about early New York City, that happened way back in 1807. It seems in that year, the Street Commissioners were sorely perplexed in agreeing on a plan of laying out the city north of Fourteenth Street. The whole three of them chanced to be standing near a gravel-screen, alongside of a sand-bank, and they were totally at sea in discussing the the [sic] many ways of procedure. At last a brilliant idea ocurred [sic] to one, and by way of illustration he stooped down and drew in the sand an outline map of Manhattan Island, roughly sketching in the existing streets. Just at that moment the sun shone suddenly out from behind a passing cloud, throwing across the improvised map the shadow of the gravel-screen.
>
> "There you are!" cried the Commissioner in triumph, "That's my idea exactly."

[1] Olmsted (1971), *Civilizing American Cities: A Selection of Frederick Law Olmsted's Writings on City Landscapes*, edited by S.B. Sutton, Cambridge, Mass: MIT Press, 45.

> And that very gravel-screen, or gridiron plan, of laying out the city's streets, has been faithfully followed on Manhattan Island, regardless of topographical difficulties, until this very day.[2]

As with all good creation myths, there is a "moral" to this story of the Manhattan grid's origins. One gets the sense that there is a sort of arbitrariness and, especially in Olmsted and Croes' version, a lack of imagination in the grid plan.

These sentiments have resonated well with twentieth-century historians, urban planners, and other scholars.[3] Yet, in Comfort's rendition, far more than Olmsted and Croes', there is also a feeling of drama, excitement, illuminated intellects, destiny. Comfort's Commissioners are no "apathetic authors" but rather engaged participants walking "alongside of a sand-bank" and contemplating the future of Manhattan with philosophical zeal. While the details of this interpretation of the Commissioners' actions are pure fiction, I think it captures the Commissioners' passions—which I shall elaborate on below—much more than Shanor's indictment of them as being "apathetic authors" or Trachtenberg's remark that "the commissioners were unmoved by thoughts of national grandeur." Whatever conclusions we may draw from this mythical tale of the Manhattan grid's origins, the fact that it has been passed down from generation to generation

---

[2] Comfort (1901), *Colonial Homes in the Bronx: A Paper delivered before the New York Historical Society, November 6, 1901*, Collection of the New-York Historical Society, Box 2, # 10, 1. The original piece that Comfort refers to was written by Geo. Everett Hill and Geo. E. Waring, Jr. in 1897 and goes as follows: "It is said that while examining the ground one fine day, when fleecy clouds were flying across the sky, they [the Street Commissioners] stopped at noon to discuss the problem near a bank where some workmen had been screening gravel. In illustration of his ideas, one of them—the story does not say which one—began to trace upon the ground with a stick a rough map of the island. Just as he had finished the outline, and was about to sketch in his proposed system of streets, the sun flashed forth from behind a passing cloud and threw across the skeleton map the shadow of the gravel-screen. "There is the plan!" exclaimed another; and forthwith it was adopted. For all time the shadow of that gravel-screen will cover the Island of Manhattan from First Street to [the] Harlem River. Whether or not the plan adopted in 1811 really originated in this manner, it is certain that its absolute disregard of the natural topography of the land, and the blind way in which its provisions have been carried out, have resulted in serious sanitary and financial loss." Hill and Waring (1969), "Old Wells and Watercourses of the Island of Manhattan," *Historic New York: The Half Moon Papers*, [1897], I. Goodwin, Royce and Putnam. Long Island: Ira J. Friedman, Inc., 240-1.

[3] For instance, see Cohen (1988), "'Civic Folly': The Man Who Measured Manhattan," *AB Bookman's Weekly*, 2512. Also, see Chapter 2 of the present study.

suggests that myth is just as important as "fact" in satisfying the desire for explaining the origins of the Manhattan grid. Fact, however, is often more perplexing than fiction.

When historians really want to get at the "root cause" of the grid plan, they turn to a document called the *Commissioners' Remarks*, which is part of a compilation of laws and references concerning the grid plan that was published in 1811 by the architect and City Surveyor William Bridges.[4] While there is more to the logic of the Manhattan grid than is stated in the *Remarks*, it does offer a general window into the reasoning behind the Manhattan grid. Utility and convenience are the main themes of the *Commissioners' Remarks*. The Commissioners inform us that "one of the first objects which claimed their attention . . . [was] whether they should confine themselves to rectilinear and rectangular streets, or whether they should adopt some of those supposed improvements, by circles, ovals, and stars, which certainly embellish a plan, whatever may be their effects as to convenience and utility." Economic utility and convenience were given top priority. After all, since "the price of land is so uncommonly great, it seemed proper to admit the principles of economy to greater influence than might, under circumstances of a different kind, have consisted with the dictates of prudence and the sense of duty."[5]

Streets and avenues at right angles to one another would result in a landscape of economic efficiency. The Commissioners "could not but bear in mind that a city is to be composed principally of the habitations of men, and that strait sided, and right angled houses are the most cheap to build, and the most convenient to live in." The Commissioners add that "The effects of these plain and simple reflections was decisive." What more could a historian in search of the grid's origins ask for than the

[4] Bridges (1811), *Map of the City of New-York and Island of Manhattan; with Explanatory Remarks and References*, New-York: T & J Swords, 23-38.
[5] Ibid., 24-6.

Commissioners' comment that "If it should be asked, why was the present plan adopted in preference to any other? the answer is, because, after taking all circumstances into consideration, it appeared to be the best; or, in other and more proper terms, attended with the least inconvenience"?[6] So, there we have it, pure and simple: the Manhattan grid was a product of economic utility and expediency.

This is, at least, the conclusion we must inevitably draw if we take the *Remarks* at face value. Yet, have we not yet learned that there is more to the past than what is written in formal documents such as the *Commissioners' Remarks*? Have we not yet learned the lesson from the "shopkeeper" in Marx and Engels' *The German Ideology*? "Whilst in ordinary life every shopkeeper," they note, "is very well able to distinguish between what somebody professes to be and what he really is, our historians have not yet won even this trivial insight. They take every epoch at its word and believe that everything it says and imagines about itself is true."[7] The Street Commissioners themselves were hardly this naïve, as one of them admitted in 1813 that he was "Aware of the false estimate we are prone to make of our own productions."[8] Surely there is more to the logic and reasoning behind the grid than is stated in the *Commissioners' Remarks*. But, how are we to go about navigating through the logic of the grid without the roadmap of the Commissioners' pre-packaged answers to our fundamental questions?

[6] Ibid., 25.
[7] Marx and Engels (1970), *The German Ideology*, [1845], New York: International Publishers, 67.
[8] DeWitt (1813), *The Elements of Perspective*, Albany: H.C. Southwick, iv.

Beyond the *Commissioners' Remarks*: "the mysterious, unfathomable repositories of *possible things*" and "the boundless field of improvement before us"

As has already been noted, Casimir Goerck's map of the Common Lands set a precedent of rectangularity in Manhattan as early as 1796 (see Chapter 3). The Commissioners essentially expanded on Goerck's map as well as a subsequent map by Goerck and surveyor-architect Joseph Mangin. As Shanor mentions, "The East, Middle and West Roads on Goerck's 1796 map became Fourth, Fifth and Sixth Avenues on that of the commissioners'; the projected grid on the Goerck-Mangin plan was adopted virtually block for block north of East 12th Street on the 1811 map" (Figure 3.1).[9] Given this fact, one might be tempted to conclude with Shanor that the Commissioners suffered from a lack of imagination.

Such a conclusion, however, is premature. This method of searching for the "origins" of the Manhattan grid by looking for precedents, while important, only takes us so far.[10] It does not explain why the Commissioners changed the names of the roads on Goerck's map into ordinal numbers. And, it does not fully explain how the Commissioners themselves viewed the rationalization of the landscape. Were the Commissioners really "apathetic authors" and "unmoved by thoughts of national grandeur"? Is it really true that "Of artistic effect there was not a suggestion; the thought of such a thing probably never entered the heads of the planners. Their ideas were narrow

[9] Shanor (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*, Columbia University, Master's thesis, 15.

[10] Speaking of the search for the origins of the U.S. Rectangular Survey System through the establishment of precedents, William Pattison remarks, "the issue of origins is likely to be more entertaining than instructive." Pattison (1964), *Beginnings of the American Rectangular Land Survey System, 1784-1800*, [1957], Chicago: University of Chicago Press, 64.

and provincial"?[11] Were the Commissioners solely interested in utilitarian expediency, as one might conclude from the *Commissioners' Remarks*?

The answer to all of these questions, I shall argue throughout the remainder of this chapter, is no. The Street Commissioners who designed the grid plan were, indeed, motivated by utilitarian aims. Yet, the goal of this chapter is to demonstrate that the Commissioners' utilitarianism was deeply influenced not only by their faith in reason and science but also by their belief that the Christian doctrine of self-renunciation should serve as a model for the conduct of civil affairs, and social life, in general. This required the establishment of disciplinary rules of self-conduct that fostered productive employment and the suppression of idleness, lust, passion, and caprice. The Commissioners had little faith in the "multitudes" and felt that if reason was to be followed and order secured, it would have to be forced upon the population.

As we shall see, the grid plan was one way to instill a sense of disciplinary order into the general population by forcing people to take "the course which reason indicates" via the material rationalization of the landscape. All of this was to secure a prosperous future not just for New York, but also for the American "empire" in general.[12] The accumulation of wealth in the pursuit of empire, however, was but a means to the end of religious salvation in the eyes of the Commissioners. It is important to keep this in mind as one examines the Commissioners' utilitarian logic, else one may be led astray in thinking that their reasoning was simply a form of Enlightenment secularism.

---

[11] Flagg (1904), "The Plan of New York, and How to Improve It," *Scribner's Magazine* **36** (August 1904), 253-6.

[12] Morris (1821), *An Inaugural Discourse, delivered before the New-York Historical Society, by the Honourable Gouverneur Morris, (president,) 4th September, 1816, Collections of the New-York Historical Society, for the Year 1821*, Collection of the New-York Historical Society. New York, 37.

Contrary to traditional wisdom, I also argue that there was, indeed, an aesthetic to the Manhattan grid. Far from utility and beauty being mutually exclusive, the Commissioners—Simeon DeWitt in particular—advocated a classical aesthetic that emphasized symmetry, order, and proportion, all of which were consistent with the utilitarian objectives of the grid. To make the above arguments, it has been essential to move beyond the *Commissioners' Remarks* and instead to take a closer look at a number of other texts written by the Commissioners,[13] not to take their words at face value, but rather to tap into the Commissioners' thought processes in order to understand the logic they used to explain their actions and the changing world—or more accurately, the world they themselves were changing—around them.

Since these texts do not explicitly mention the grid plan, one must approach them with caution. However, it does not require too large a "leap" to assume that the goals expressed also pertain to the grid. In fact, there are times in which it is patently obvious that Simeon DeWitt implicitly refers to his work on the grid plan, as I will demonstrate. By moving beyond the *Commissioners' Remarks*, I hope to expand the horizon of the historian's current conceptualization of the Manhattan grid as merely an artifact of economic logic. What follows is an attempt to reconstruct the multifaceted nineteenth-century spectacles through which the Street Commissioners themselves viewed the world.

Gouverneur Morris, Simeon DeWitt, and John Rutherford lived through the Revolutionary War and were all deeply aware of the profound socio-political

[13] It should be noted that the arguments that follow are mainly based on a critical examination of texts written by Morris and DeWitt. I have found considerably less written by Rutherford, but this may simply be a result of a lack of comprehensiveness on my part. Therefore, when I make generalizations about "the Street Commissioners," one should be aware that such conclusions may not always apply to Rutherford.

transformations that had swept through their land during the last quarter of the eighteenth century. The early nineteenth century marked the beginning of the "internal improvement period" in U.S. history, and all three Street Commissioners were actively involved in numerous "improvement" projects during this period.[14] Morris had advocated the construction of the Erie Canal for some time, and both he and DeWitt were engaged in its development while serving as Street Commissioners for the City of New York. Rutherford helped resolve a number of territorial disputes between states, resulting in the adjustment of the boundary between New Jersey and New York as well as "setting the line between those states and Pennsylvania."[15] The Street Commissioners, in other words, were deeply committed to laying the foundation of the new nation.

Their actions both as Street Commissioners and in other affairs were not simply tailored to satisfy the interests of their day. The grid would literally take years to implement and would actually be quite costly for those property owners who had to pay for its construction. Rather, their vision was of a glorious future for posterity. While serving as president of the New-York Historical Society in 1816, Morris expressed his hopes for the future in his *Inaugural Discourse*, a mere three months prior to his death. "Oh God! that a long and late posterity," says Morris, "enjoying freedom in the bosom of peace, may look, with grateful exultation, at *the day-dawn of our empire*."[16] Whereas many in twenty-first century America do not consciously think of themselves as being part of an "empire," Morris did not hesitate from comparing the United States, which he

[14] Trachtenberg (1964), "The Rainbow and the Grid," *American Quarterly* **16** (1), 5.
[15] Wilson and Fiske (1921), "Rutherfurd, John," *The National Cyclopaedia of American Biography*, Vol. 2. New York: James T. White & Co., 10.
[16] Morris, *An Inaugural Discourse*, 37.

helped found, to the Roman Empire.[17] Here was an American Empire in the making, and the grid would serve as the basis for building the Empire City in the Empire State.[18]

For Morris, the destiny of the American Empire was not to be achieved by acquiescing to the narrow interests of the fleeting present. Rather, a vision of a glorious future and a commitment to serving the long-term goals of empire were required. As Morris explains, "Men sore with present suffering have not temper to reflect on remote consequence. In the maddening moment, they are deaf even to the voice of a prophet."[19] Morris, on the contrary, was absorbed in the contemplation of the future and viewed the myopic vision of his fellow citizens as potentially leading to ruin: "Oh man! how short thy sight. To pierce the cloud which overhangs futurity, how feeble."[20] The term "futurity," so rarely used today, was common currency for Morris' contemporaries who saw before them a prosperous future for their descendents.[21]

The only question was, as Morris puts it, what should serve as "the great columns which are to support the fabric of our wealth and power?"[22] For Morris, the answer was clear. "Am I mistaken in concluding," he rhetorically asks us,

---

[17] Ibid.

[18] According to *Valentine's Manual*, George Washington was one of the first to refer to New York as the "Empire City." *Valentine's Manual* praises such imperial terminology as follows: "it will be a pleasure to read in Washington's own language his description of our city which already he foresees as the 'seat of Empire.'" It is within this climate of opinion that Morris speaks of "the day-dawn of our empire." Brown, Ed. (1917), *Valentine's Manual of the City of New York for 1916-7*, New York: Valentine Company, 7.

[19] Morris, *An Inaugural Discourse*, 31.

[20] Ibid., 37.

[21] A dictionary published in New York in the year 1807 defines the word "futurity" as "1. Time to come; events to come. 2. Event to come.—3. The state of being to be; futurition." Anonymous (1807), "Futurity," *The New and Complete American Encyclopaedia: or, Universal Dictionary of Arts and Sciences*, Vol. 3. New-York: John Low. The 1989 edition of the Oxford English Dictionary offers various other meanings of this term: "What is future . . . . What will exist or happen in the future; future events as a whole. Also †those that will live in the future, posterity . . . . Also, existence after death." Simpson and Weiner (1989), "Futurity," *Oxford English Dictionary (2nd Ed.)*, Vol. VI. Oxford: Clarendon Press.

[22] Morris (1814), *A Discourse delivered before the New-York Historical Society, at their Anniversary Meeting, 6th December, 1812, Collections of the New-York Historical Society, for the Year 1814*, Collection of the New-York Historical Society. New York, 148.

> . . . . that we should encourage husbandry, commerce, and useful arts, as the great columns which are to support the fabric of our wealth and power? That we should promote order, industry, science, and religion, not only as the guardians of social happiness, but as the outworks to the citadel of our liberty? And, finally, that we should, as the best means of effecting those objects, so arrange our concerns, as that the management of public affairs be entrusted to men of wisdom, firmness, and integrity?[23]

Science, in particular, would serve as a "guardian of social happiness" by helping to convert the "dreary wilderness" of America into a land of plenty.[24] Referring to Robert Fulton's development of a functioning steamboat in 1807, Morris declares that "It was here [in New York City] that American genius, seizing the arm of European science, bent to the purpose of our favourite parent art the wildest and most devouring element . . . . *bow with grateful reverence to the inventive spirit of this western world*."[25] The practical application of science would provide a means of mastering the American continent.

Street Commissioner Simeon DeWitt concurred. In his treatise on surveying, *The Elements of Perspective* (1813), DeWitt declares, "The Americans are an *inventive people;* perhaps more so than any other existing."[26] It was not so much that Americans had "any superiority of intellect," but rather that their circumstances were "more favorable."[27] In particular, DeWitt argues that the ease with which "the means of comfortable subsistence may be procured" enables Americans to contemplate the "improvements" that are to come. For, it "leaves leisure to the mind to wander through the mysterious, unfathomable repositories of *possible things;* to the boundless field of improvement before us."[28] The logic of "improvement" requires a vision of endless

[23] Ibid.
[24] Morris, *An Inaugural Discourse*, 38.
[25] Ibid., 40, emphasis added.
[26] DeWitt, *The Elements of Perspective*, ix.
[27] Ibid.
[28] Ibid.

possibilities, the imagining of *what might be* rather than limiting oneself to *what is*. It also reveals a dissatisfaction with "what is." As Nietzsche rightly suggests, "Improvements are invented only by those who can feel that something is not good."[29]

This goes a long way towards explaining why the Commissioners actively chose to disregard "the contours of the land." Their goal was not to contrive a street plan that would accommodate the current socio-environmental conditions of Manhattan Island. Just the opposite, they let their minds "wander through the mysterious, unfathomable repositories of *possible things*," and imagined the city of the future, unencumbered by the limitations of the past. As Marshall Berman convincingly argues, this type of thought and action is a hallmark of the modern world in general,[30] and Morris and DeWitt incorporated the logic of endless "improvement" into many facets of their pubic lives. Morris notes that while the future was full of potential, so much work was yet to be done: "Other paths remain to be trodden, other fields to be cultivated, other regions to be explored. The fertile earth is not yet wholly peopled. The raging ocean is not yet quite subdued."[31] Science, above all, would be an instrument to control an unruly world, and the progress of "internal improvements" would be the gospel of the day.

Reasoning as a Means of Discipline: "a cheerful submission to that *extent* of discipline which is held necessary for rearing them to maturity"

Greatness awaited the American Empire, but Morris understood that if such a future was to become reality, government would have to accommodate to the rapid

[29] Nietzsche (1974), *The Gay Science*, [1887], New York: Vintage Books, 214.
[30] Berman (1988), *All That Is Solid Melts Into Air*, [1982], New York: Penguin Books.
[31] Morris, *An Inaugural Discourse*, 39.

changes occurring in American society. The disorders of post-Revolutionary America would have to be corrected: "as the state of society is changed, by time and chance, the laws, too, must change. *New disorders require new correctives*, and when the reason of ancient ordinances no longer exists, they fall into oblivion."[32] Here was the recognition of a world in constant flux, and government would have to keep pace with the changing scene if order was to be maintained.

What Morris fails to acknowledge, however, is that government policy was not merely a reaction to the changing "state of society" but was also an active agent in shaping society and its individual human subjects.[33] "New disorders require new correctives"—this is the language not of democracy but of *discipline*. What exactly was it, in the eyes of the Commissioners, that required such disciplinary measures? If Morris was one of the "fathers" of the U.S. Constitution, then surely he must have been a friend of democracy?

Morris was no friend of democracy and during the Constitutional Convention of 1787, he "favored a strong, centralized government in the hands of the rich and the well-born. He would have a president elected for life, with power to appoint a Senate of life members."[34] Morris eventually compromised on these points, but it shows nonetheless that he had little faith in ordinary citizens and felt that centralized authority was necessary to maintain a disciplined population. While Morris was a firm believer in reason and science, he questioned the "assumed principle" so cherished by his fellow Enlightenment

[32] Ibid., 35, emphasis added.
[33] Hannah (2000), *Governmentality and the Mastery of Territory in Nineteenth-Century America*, New York: Cambridge University Press. Also, see Burchell, Gordon and Miller (1991), *The Foucault Effect: Studies in Governmentality*, Chicago: University of Chicago Press.
[34] D.S.M. (1934), "Morris, Gouverneur," *Dictionary of American Biography*, Vol. 7. Malone. New York: Charles Scribner's Sons, 211.

comrades that "man is a rational creature."[35] Rather, he insists on asking, "But is that assumption just? or, rather, does not History show, and experience prove, that he is swayed from *the course which reason indicates*, by passion, by indolence, and even by caprice?"[36] Here was a perceived struggle between reason and passion, and if reason was to triumph, the population would have to be *taught* to obey its dictates.

To take "the course which reason indicates" required discipline. As DeWitt explains, "The discipline of young persons is nothing more than compelling them to do what they *ought* to do, and *must* do, to escape a comparatively ignominious life, but what they are naturally unwilling to do, and by proper means to impress on them the habit of doing it. This in the operation may not be pleasant to the patient, but the habit once induced will become the source of his greatest enjoyments."[37] There must be a firm commitment to extinguish "improper propensities, a rigid observance of rules, a radical extermination of evil habits, a scrupulous improvement of time, an unwavering perseverance, and a judicious exercise of a well disciplined reason in the selection of means for the attainment of the objects to be achieved."[38]

DeWitt recognized that it was, indeed, true that "nothing can appear more romantic than a project for effecting a *material alteration* in long established national habits."[39] But, there was still hope because human nature was "pliable" and the world could be molded like clay to fit the form which "reason indicates." The key was to accustom people to new material conditions that fostered disciplined behavior from the

[35] Morris, *An Inaugural Discourse*, 28.
[36] Ibid., 28, emphasis added.
[37] DeWitt (1819), *Considerations of the Necessity of Establishing an Agricultural College, and having more of the Children of Wealthy Citizens Educated for the Profession of Farming*, Albany: Websters and Skinners, 7.
[38] Ibid., 13.
[39] Ibid., 38-9, emphasis added.

get-go. “With adults it is impossible,” says DeWitt, “but by commencing with infancy in its earliest stages, it is not absolutely impracticable, for the human being as come from the hands of the Creator, is composed of such *pliable materials that it can be moulded into any shape, which time will harden and render unalterable*.”[40] But, given the endless possibilities of “improvement,” what exactly would this “course which reason indicates” lead to and how would it serve as a disciplinary “corrective” to the disorders to be overcome? More importantly for our purposes, how did all this relate to establishment of the grid in Manhattan?

The Manhattan grid, I have argued, is a Cartesian coordinate system in materialized form (see Chapter 1). But what did converting the landscape into a Cartesian grid mean in terms of constructing a disciplined society? Let us turn to DeWitt again for guidance. As I have indicated, while serving as one of the Street Commissioners, DeWitt was also the Surveyor-General of New York State. He was a trained surveyor and well acquainted with the practical implications of his techniques. He also agreed with Morris that science was crucial for serving as a “guardian of social happiness.” What did the science of surveying have to offer to the pursuit of disciplinary self-control and using “reason” as a guide for human action? “It opens a path,” DeWitt maintains, “into which strong allurements invite the reasoning faculties. It is therefore well calculated to lead them [the youth] into a cheerful submission to that *extent* of discipline which is held necessary for rearing them to maturity; and this consideration alone gives it a stamp of value that entitles it to more than common regard.”[41]

[40] Ibid., 39, emphasis added.
[41] DeWitt, *The Elements of Perspective*, viii-ix.

DeWitt, no doubt, felt this to be true from personal experience: "If I have any one thing more than others to regret, in my recollections of the past it is, that stronger injunctions have not been inforced . . . and a course of more scrupulous and assiduous performance of duties have not been assumed."[42] Thinking like a surveyor would not only help instill discipline into the youthful population, it would also be a source of inspiration for DeWitt himself as Street Commissioner. The benefits of thinking like a surveyor were clear: "It creates habits of forming clear and distinct ideas of complex objects, with the relative bearings of all their parts, whether such objects have been presented to the eye, or be only creatures of the mind, and changed to every shape and position, in order to ascertain which will best answer a meditated purpose" (Figure 4.1).[43] The ability to view the world through the surveyor's conceptual lens enhanced the "reasoning faculties" such that one could "best answer a meditated purpose."

If we are to live by reason and suppress all caprice, we must follow the rules of surveying to achieve the "improvements" which we seek. Why? "The imagination becomes so far improved by it," DeWitt informs us, "that the models it forms are as complete as those made of material substances. But its most useful office is to give substance and visibility to those aerial shapes" (Figure 4.2).[44] But, what do these imaginary models have to do with remaking the material world? The answer: everything. This system of thought, or way of seeing, offers benefits of immense proportion: "The productions of the creative mind grow under the pencil till they result in wonderful systems, endowed with powers to produce effects of incalculable benefit to man."[45] There

[42] DeWitt, *Considerations of the Necessity of Establishing an Agricultural College,* 8.
[43] DeWitt, *The Elements of Perspective,* ix.
[44] Ibid.
[45] Ibid., ix-x.

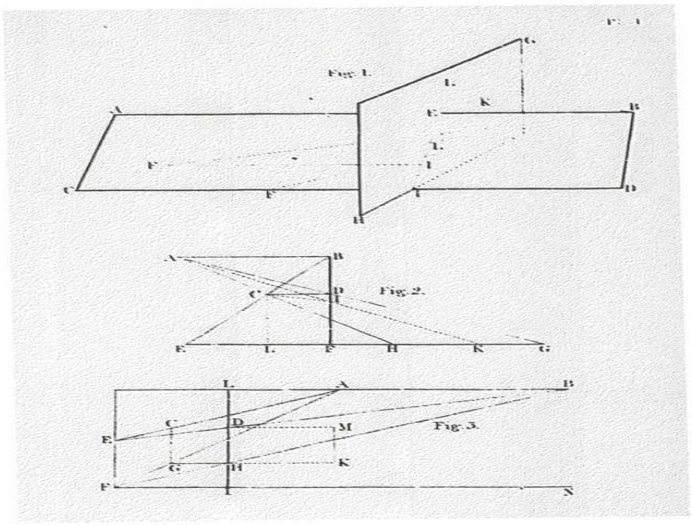


Figure 4.1: DeWitt's demonstration of the simplicity of rectilinear geometrical form, creating the habit of "forming clear and distinct ideas of complex objects" (Source: DeWitt, 1813)

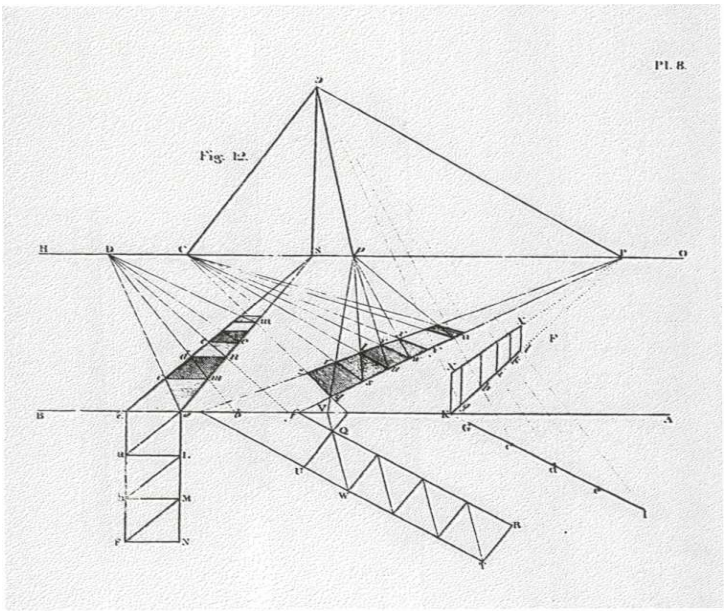


Figure 4.2: DeWitt's illustration of the means by which to "give substance and visibility to those aerial shapes" produced through the lens of Cartesian linear perspective (Source: DeWitt, 1813)

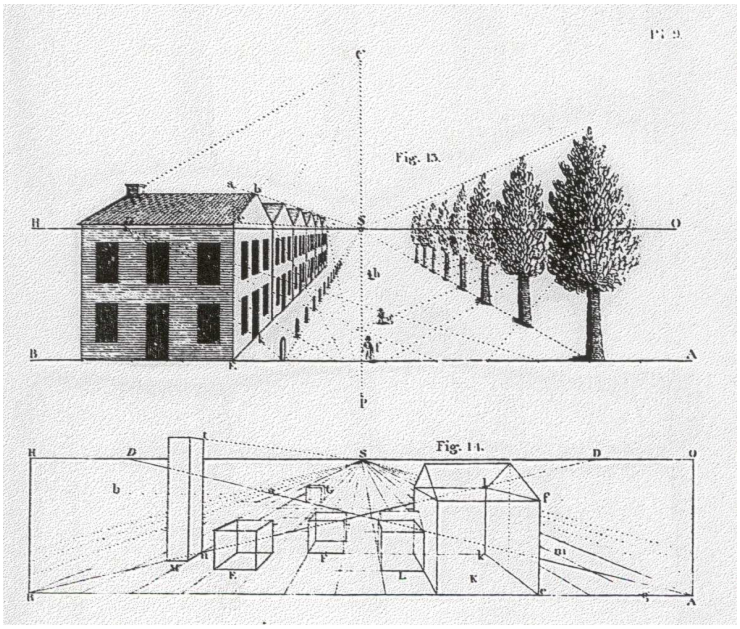


Figure 4.3: DeWitt's "wonderful system" materialized, a hypothetical utilization of surveying principles to remodel the world (Source: DeWitt, 1813)

is a profound connection here between thought and action. Through the use of surveying principles, people can produce "incalculable benefit to man" by imposing these "wonderful systems" of thought onto the material world (Figure 4.3).

But, what is the secret of such systems? What gives them such powers to "meliorate the condition of man"?[46] Answer: they make visible our reasoning processes. "[T]he aid of algebraic characters," says DeWitt, ". . . keep[s] the whole process of his [the surveyor's] reasoning continually before his eyes, and render[s] his progress to the conclusion practicable and easy."[47] By visualizing thought through "algebraic characters," our reasoning processes become "intelligible."[48] This has profound implications for an explanation of the Manhattan grid. After all, the grid—with its

[46] Morris, *An Inaugural Discourse*, 40.
[47] DeWitt, *The Elements of Perspective*, x.
[48] Ibid.

numerically-coded streets and avenues—was one of DeWitt's materialized "wonderful systems" that was composed of "algebraic characters" that literally recreates "the whole process of . . . reasoning continually before [our] eyes"! To navigate through the Cartesian grid which is Manhattan requires a constant reevaluation of one's physical position within the material matrix of numerical coordinate points that define the landscape. If one is to get around in the city, in other words, one is forced to submit to the Cartesian logic of the numerically-coded grid.

What better way to "teach" the general population how to take "the course which reason indicates" than to convert the landscape itself into a material replication of a scientific conceptual framework? If people are forced to use their "reasoning faculties" to get around in the world (or at least in Manhattan), then perhaps this may even result in "a cheerful submission to that *extent* of discipline which is held necessary for rearing them to maturity." And what was Enlightenment other than, in Kant's famous words, "*man's emergence from his self-incurred immaturity*"?[49]

Reasoning was a means of discipline, yet it was also an attempt to lift people above their "animal instincts" (Morris' "passion" and "caprice") to a higher plane where enlightened reason ruled supreme. Such a transition, however, would have to be forced upon the people because, as DeWitt explains,

> we behold multitudes who can scarcely find any thing to pursue to which they are not impelled by stimulants possessed in common with the brutal race. Habits suffered to acquire a spontaneous growth, the criminal neglect of early discipline in the proper duties of life, cruel indulgencies of a depraved propensity to idleness, and a want of attention to the cultivation of those inlets of rational delight, so bounteously provided, for animating and cheering us on the journey of

[49] Kant (1996), "An Answer to the Question: What is Enlightenment?," *From Modernism to Postmodernism: An Anthology*, [1784], Cahoone. Oxford: Blackwell Publishers, 51.

> life, bring on, with an accelerated speed, that fatal apathy, which, to the miserable sufferer, blasts all the beauties of creation.[50]

I will come back to DeWitt's notion of "the beauties of creation" in a moment. For now, it should be noted that if the "multitudes" were to rise to a "dignified elevation above the level of a mere animal,"[51] some type of order would have to be imposed to curtail the process of "spontaneous growth" and to eliminate the "propensity to idleness" so common given the "neglect of early discipline in the proper duties of life."

The Religious Foundations of the Rationalist Enterprise: "the flaming sword of paradise" and "the moral orbit of empire"

Thus far, I have emphasized the modernist aspects of Morris and DeWitt's thought (reason, improvement, etc.), but one would totally misunderstand their rationalist enterprise if one were to conclude that their vision of a rationalized world—and the grid street system as a means to that end—was wholly secular. While part of the Enlightenment tradition, Morris and DeWitt were both devout Christians. If the accumulation of wealth and the consolidation of power were their chief objectives for the American Empire, all of this was for a larger purpose. In the final analysis, wealth and power were not enough. All worldly goods were secondary to the larger glory of God. For, as Morris insists, "There must be something more to hope than pleasure, wealth, and power. Something more to fear than poverty and pain. Something after death more terrible than death. There must be religion."[52]

---

[50] DeWitt, *The Elements of Perspective*, xvii.
[51] Ibid., xviii.
[52] Morris, *An Inaugural Discourse*, 31-2.

Morris believed that while human initiative was essential, all history was the workings of a divine Providence. To understand God's divine plan, one needed only to acquaint oneself with the "Sacred History" of the Bible, which Morris believed held the key to understanding all historical events: "The reflection and experience of many years have led me to consider the holy writings, not only as most authentic and instructive in themselves, but as *the clue to all other history* . . . . It is the clue which leads through the intricacies of universal history. It is the principle of all sound political science."[53] All nations who ignored the holy writings were bound for ruin:

> Those nations are doomed to death who bury, in the corruption of criminal desire, the awful sense of an existing God, cast off the consoling hope of immortality, and seek refuge from despair in the dreariness of annihilation. Terrible, irrevocable doom! loudly pronounced, frequently repeated, strongly exemplified in the sacred writings, and fully confirmed by the long record of time.[54]

Morris saw no contradiction between his commitment to the "improvements" of science and his religious belief. Recall that both science *and* religion were among his list of "guardians of social happiness."

The fate of the American Empire as guided by reason and science was subject to the same divine laws that ruled the universe. It was the burden of the American people to obey the dictates of divine law if their salvation was to be assured:

> Let mankind enjoy at last the consolatory spectacle of thy throne, built by industry on the basis of peace and sheltered under the wings of justice. May it be secured by a pious obedience to that divine will, which prescribes *the moral orbit of empire* with the same precision that his wisdom and power have displayed, in whirling millions of planets round millions of suns through the vastness of infinite space.[55]

[53] Ibid., 30, emphasis added.
[54] Ibid., 34.
[55] Ibid., 40, emphasis added.

All the worldly efforts of industry—which was "sheltered under the wings of justice"—were to culminate in the "final event" of Judgment Day: "Let them [posterity] learn . . . for such we trust will be the final event, that when the altars of idolatrous lust had been overturned . . . those of JEHOVAH [will be] restored."[56]

What were we to do to prepare for this "final event"? According to Morris and DeWitt, we must renounce our animal lust, passions, and caprice, for such idle pleasures detract from the path of reason and wisdom of God. We must work upon the "improvement" of our lot in this world, as required of us by the dictates of divine wisdom:

> It is the destiny of man, fixed unalterably in the councils of eternal wisdom, that HE MUST BE EMPLOYED; he must have some object of pursuit or be miserable; and it is a wise provision in the laws of nature, that he has innumerable wants to coerce him into the road of happiness, and, like the flaming sword of paradise, drive him to fields where he must labor or die; where corporeal toil or mental energy only can save him from the wretchedness of his doom.—[57]

All the benefits of material improvement, according to DeWitt, are for the glory of the Almighty: "To contemplate the wonderful works of the Creator, the MAGNALIA DEI, is the chief purpose of our creation, and therefore are virtue and happiness so closely connected with it."[58] Given the blessing bestowed upon us, "When we contemplate the illimitable field which a beneficent Providence has opened for the activity of man, and the delightful incentives that press us through all its avenues, it seems incredible that any one should be found to loiter on its confines in inglorious indolence."[59]

---

[56] Ibid., 36.
[57] DeWitt, *The Elements of Perspective*, xviii.
[58] Ibid., xv.
[59] Ibid., xvii.

Yet, such indolence was precisely what DeWitt saw in his fellow Americans (recall DeWitt's "multitudes who can scarcely find any thing to pursue to which they are not impelled by stimulants possessed in common with the brutal race"). It is now possible to understand why DeWitt felt so strongly about the necessity of discipline. DeWitt saw the luxuries and "customs of cities" as "fostering idleness and dissipation," and he believed that "frugality, temperance and economy" were the only means by which to deal with such debauchery.[60]

The irony of the pursuit of wealth and power was that, according to DeWitt, these very objectives—if pursued for their own sake—threatened the entire enterprise of religious salvation and social order. The religious ethic of disciplined self-renunciation and self-control would have to be brought into the sphere of civil affairs to remedy such evils through a complete rationalization of human conduct. Permit me to quote at length a passage by DeWitt that I have already alluded to, but which can now be seen in a different light:

> They [the aristocratic youth] expect to glide smoothly down stream on the credit of a family name, or a family's riches, or possibly on the reputation of a superior genius, without the necessity of combatting contrary winds and currents into a port where accumulations of wealth and honor await them. Miserable dreams! fatal delusions! No: young men must have it impressed on them, as an undeniable self-evident proposition,[61] that they must work and work hard both in qualifying themselves for the business of their profession, whatever that may be, and in conducting it afterwards, if they have any ambition to be seen in the ranks of honorable men; and that all their powers must be strenuously, systematically and perseveringly exerted, if they aim at any thing like superiority.
>
> By the infallible oracles of divine inspiration we are taught, that no man can obtain a good character as a christian, unless he denies himself, takes up his cross—cuts off a right hand, or pulls out an eye, if necessary for his advancement to perfection—Figurative expressions denoting the extremes of self-denial,

[60] DeWitt, *Considerations of the Necessity of Establishing an Agricultural College*, 35.

[61] Note here how a "self-evident proposition" has to be forced upon a population. If people are to become enlightened, the dictates of reason would have to be "impressed on them," for otherwise "they are naturally unwilling to" follow the "course which reason indicates."

> fortitude and voluntary suffering. *The same doctrine may, with a qualified propriety, be addressed to those who aim at distinction in any of the professions of civil life*. Whatever may be the genius or natural power, there must be the *labor improbus*, hard labor, strong exertions, struggles against improper propensities, a rigid observance of rules, a radical extermination of evil habits, a scrupulous improvement of time, an unwavering perseverance, and a judicious exercise of a well disciplined reason in the selection of means for the attainment of the objects to be achieved.[62]

For anyone acquainted with the history of social thought, DeWitt's words will immediately bring to mind Max Weber's *The Protestant Ethic and the Spirit of Capitalism* (2000 [1930]).

Weber essentially argues that Protestant asceticism was the foundation from which the modern capitalist ethic of methodical conduct was born. This so-called "Protestant ethic," according to Weber, "strode into the market-place of life, slammed the door of the monastery behind it, and undertook to penetrate just that daily routine of life with its methodicalness, to fashion it into a life in the world, but neither of nor for this world."[63] What was this ethic responding to? Weber's answer: "The real moral objection is to relaxation in the security of possession, the enjoyment of wealth with the consequences of idleness and the temptations of the flesh, above all of distraction from the pursuits of a righteous life."[64] What ideal was to replace such debauchery? "It had developed," says Weber, "a systematic method of rational conduct with the purpose of overcoming the *status naturæ*, to free man from the power of irrational impulses and his dependence on the world and on nature . . . . the most urgent task [was] the destruction of

[62] DeWitt, *Considerations of the Necessity of Establishing an Agricultural College*, 12-3, emphasis added except the term "labor improbus," which is italicized in the original.
[63] Weber (2000), *The Protestant Ethic and the Spirit of Capitalism*, [1930], New York: Routledge, 154.
[64] Ibid., 157.

spontaneous, impulsive enjoyment, the most important means was to bring order into the conduct of its adherents."[65]

Weber's classic example of this disciplinary-utilitarian ethos is that which Benjamin Franklin proscribed,[66] and it should come as no surprise that there was a direct linkage between Franklin's advocacy of self-imposed discipline and DeWitt's own disciplinary obsession. "Let the biographies of eminent men be consulted," DeWitt notes, "and it will be seen, that, superadded to the ordinary severities of their instructors or masters, their distinction is to be chiefly ascribed to *self-imposed* severities, deliberately adopted and perseveringly observed, till they have riveted the habits that gave the complexion of their fortunes and determined their destinies."[67] In particular, says DeWitt, "Without such self-imposed discipline, Franklin would not have risen above the standing of an ordinary printer. Washington, whose name is encircled with a halo of glory unparalleled among mortals, would have been confounded with the common planters of Virginia, had he not, from early life, subjected himself to a uniform series of labors and sufferings, both of body and mind."[68] While his assessment of Franklin and Washington's "destinies" may be an oversimplified, retrospective rationalization of their achievements, the historical accuracy of DeWitt's remarks is less important than the fact that he uses them as role models for his *own* disciplinary project.

One key aspect of this disciplinary order, for Weber, was the "rational organization of our social environment."[69] A rationalized landscape was a prerequisite for

---

[65] Ibid., 118-9.
[66] One of Franklin's maxims cited by Weber is the following: "'He that loses five shillings, not only loses that sum, but all the advantages that might be made by turning it in dealing, which by the time that a young man becomes old, will amount to a considerable sum of money.'" Ibid., 50.
[67] DeWitt, *Considerations of the Necessity of Establishing an Agricultural College*, 10.
[68] Ibid.
[69] Weber, *The Protestant Ethic*, 109.

the simplification of state affairs and the rationalization of economic conduct.[70] With respect to the Manhattan grid, the latter has received a disproportionate amount of attention by scholars who tend to base their claims largely on the *Commissioners' Remarks*. It is true that the Commissioners were inspired by a utilitarian ethos, yet to ignore their larger goals for the American Empire and their belief that wealth and power were only means to the end of religious salvation is to miss, perhaps, the most fundamental aspect of their reasoning. Rationalizing the landscape would instill into the youthful population the discipline necessary for achieving the worldly goals of obtaining wealth and power, while such "improvements" would bring America one step closer to "the boundless Perfections of the Deity."[71]

Before continuing, I would like to clear up a few potential misunderstandings. I am not arguing that the development of the entire capitalist system was solely the result of a "Protestant ethic" nor am I suggesting that all nineteenth-century Protestants adhered to the same principles as Gouverneur Morris or Simeon DeWitt. My argument, thus far, is simply that the Commissioners confronted the existing politico-economic conditions of the early nineteenth century (and the perceived idleness fostered by the "customs of cities") through a utilitarianism (DeWitt's ethic of "frugality, temperance and economy") that was seen as being consistent with the Christian doctrine of self-renunciation and self-denial. DeWitt, in particular, explicitly advocated that the Christian doctrine of self-renunciation be brought into the sphere of civil affairs through this disciplinary-utilitarian ethic.

[70] Hannah, *Governmentality and the Mastery of Territory*, 224.
[71] Morris (1771), *Oration on Love*, Columbia University, MS Collection, "Morris, G. Papers, 1768-1816," Reel 3, Copy 1, 2.

These ideas, of course, did not occur in a vacuum. The Commissioners recognized that it was their duty to lay the political and economic foundations of empire; hence, the "material practices" (i.e. capitalism) of the emerging American Empire influenced their reasoning to a considerable degree. However, as I have already mentioned, Morris and DeWitt viewed the acquisition of such worldly goods as serving the larger glory of God. Capital accumulation, and the creation of a disciplined population to serve such capitalist ends, was a major motivating factor for utilizing DeWitt's surveying principles to design the grid and likely influenced their interpretation of Christian revelation. Yet, reducing the Street Commissioners' actions to merely acquiescing to "real estate interests"—and nothing more[72]—is to completely misunderstand their overall project as well as its *continuing* consequences.

The Aesthetics of Harmonious Proportion: The Union of Beauty and Utility in the Art of Design

To argue that there was more to the Commissioners' reasoning than economic logic may at first strike some with suspicion, but to maintain that the grid plan satisfied the Commissioners' aesthetic sensibilities is bound to make a number of contemporary historians and urban planners cringe.[73] There is a longstanding tradition, going back at least to Olmsted, to view the Manhattan grid plan as being intrinsically unaesthetic

[72] For instance, see Augustyn and Cohen (1995), "Maps in the Making of Manhattan," *Magazine Antiques* **(Sept. 1995)**, 345. For a particularly uncritical acceptance of the thesis that the Manhattan grid was nothing more than "a biased aid to speculation" that resulted in "a most unattractive place to visit," see Zerlang (2002), "Urban Life as Entertainment: New York and Copenhagen in the Mid-nineteenth Century," *The Urban Lifeworld: Formation, Perception, Representation*, Madsen and Plunz. New York: Routledge, 319. Obviously, real estate speculation played a large role in the *implementation* of the grid, yet to reduce the Commissioners' rationale to an economic calculus is to lose sight of their disciplinary project and their imperial vision of futurity.

[73] In particular, see Trachtenberg, "The Rainbow and the Grid," 3-19; Shanor, *New York's Paper Streets*.

because it served utilitarian ends (see Chapter 2). This viewpoint was well expressed at the end of the nineteenth century in *Harper's Magazine*:

> The magnificent opportunity which was given to the Commissioners to create a beautiful city simply was wasted and thrown away . . . they clapped down a ruler and completed their Bœotian programme by creating a city in which all was right angles and straight lines . . . . Excepting in the layout of the city upon so large a scale—in which there was a touch of uncommon sense that *bordered upon imagination*—common sense of the plainest sort was the dominant characteristic of the Commissioners' plan. Thinking only of utility and economy, they solved their problem—which admitted of so magnificent a solution—in the simplest and dullest way.[74]

For those not acquainted with the myths of ancient Greek historical geography, Bœotia (as in the Commissioners' supposed "Bœotian programme") was a Greek region to the north of Attica that was supposedly "noted for its moist, thick atmosphere, and the dullness and stupidity of its inhabitants."[75]

To such late-nineteenth century critics, the simple grid of "right angles and straight lines" suggested not only the dullness and stupidity of the Commissioners' Plan but also its complete lack of aesthetic considerations ("The magnificent opportunity which was given to the Commissioners to create a beautiful city simply was wasted and thrown away"). A similar position is maintained by contemporary scholars Rebecca Shanor and Alan Trachtenberg (see Chapter 2). Also, recall another critic's comment that "Of artistic effect there was not a suggestion; the thought of such a thing probably never entered the heads of the planners. Their ideas were narrow and provincial."[76]

What is so fascinating here is how critics—often of a Romantic, Olmstedian persuasion—universalize their own aesthetic of the "picturesque" and assume (without

---

[74] Harper's Magazine (1991), *New York: A Collection from Harper's Magazine*, New York: Gallery Books, 216-8, emphasis added. Also, see Short (2001), *Representing the Republic: Mapping the United States, 1600-1900*, London: Reaktion Books, 84.
[75] Anonymous (2002), Boeotian. Website. <<http://www.dictionary.com>>. accessed on 1/9/2002.
[76] Flagg, "The Plan of New York," 253-6.

even consulting the evidence) that it is the *only* standard by which to judge the beauty of a city. That the Commissioners—or anyone, for that matter—could have viewed the grid as aesthetically pleasing is considered preposterous. According to such accounts, there is a strict dichotomy between beauty and utility, and the Commissioners, so the argument goes, chose utility. It is this assumption of the incompatibility of aesthetics and utility which enables critics to maintain that "their plan fell so far short of what might have been accomplished by men of genius governed by artistic taste."[77] But, this begs the question: who has the power to define "true" artistic taste? While the critics are entitled to their own aesthetic sensibilities (which I shall examine the historico-geographical roots of in the following chapter), the time has come to view the Commissioners on their *own terms,* rather than subjecting them to an aesthetic that they themselves—as well as many of their contemporaries—did not hold.

"It must be obvious to all," exclaimed the Street Commissioners' contemporary and New York City native, Gulian Verplanck, in an address to the American Academy of Fine Arts in 1824, "that the arts of design have a direct and positive utility . . . to many of the most important pursuits of civilized life."[78] Verplanck believed that beauty and utility were intimately bound together in the "arts of design." That beauty and utility are mutually exclusive, for Verplanck, is absurd. Rather, it is in the simplicity of symmetrical proportion that beauty and utility converge:

> that quick sensibility to the beauties of form and proportion, that relish for purity of design and simplicity of execution, which result from a familiarity with works of taste, have a still wider, and (though less distinctly perceptible in their operation) scarcely a less practical influence, upon most of the arts of civilization, upon commerce and manufactures . . . . it [i.e. architecture] brings together in very

[77] Harper's Magazine, *New York: A Collection from Harper's Magazine*, 218.
[78] Verplanck (1824), *Address, delivered before the American Academy of Fine Arts,* Columbia University, Avery Library Rare Books Collection. New York, 6.

> singular yet most harmonious union, the rigid and exact rules of mathematics, and the undefinable and unexpressible, but not less certain, laws of sentiment and taste; in its history, it is throughout interwoven with that of the progress of society, of national character, and of genius; in its practice, it contributes at every moment to private happiness and public grandeur.[79]

The fusion of "taste" and "the rigid and exact rules of mathematics" would result in a "harmonious union" of sentiment and practicality. In Verplanck's eyes, beauty and utility are inseparable. "Good taste," says Verplanck,

> is always the parent of utility. While in works of public dignity it attains the grandest results by the simplest means . . . . Without assenting in full to that metaphysical theory, which resolves all beauty into the perception of utility, still, though use be not the efficient cause, it is the inseparable companion of true taste, and the same faculty which regulated the proportions of the column, or the composition of the frieze, presides with equal care over the minutest arrangement, which can conduce to personal convenience or pleasure.[80]

Utility, Simplicity, Good Taste, Proportion, Convenience: all of these were interwoven in an aesthetic that took pleasure in attaining "the grandest results by the simplest means."

In the remainder of this chapter, I argue that there was a "utilitarian aesthetic," similar to Verplanck's, at work in the reasoning behind the Manhattan grid plan. My aim is to show how the Street Commissioners, Simeon DeWitt in particular, did not separate utilitarian goals and aesthetic sensibilities—as critics have charged—but rather articulated a classical aesthetic of harmonious proportion and mathematical exactitude that was compatible with the utilitarian objectives, and scientific mechanics, of converting the Manhattan landscape into a materialized Cartesian coordinate system.

I have already shown how Simeon DeWitt advocated the science of surveying as a systematic means of reordering the world. I will now look a little deeper into DeWitt's *aesthetic* interpretation of the science of surveying. For DeWitt, the surveyor's

[79] Ibid., 6 and 21.
[80] Ibid., 19-20.

perspective offers clarity of mind and leads to an appreciation of "those simple, plain, complete well selected and well arranged objects most proper to make deep, lively and agreeable impressions on the mind."[81] Those who are "in total ignorance of the beauties and powers of its language [i.e. mathematics]" will never know the classical beauties of symmetry and never experience "that relish for the harmonies of proportion."[82]

DeWitt argues that the elements of perspective, or surveying, instill an aesthetic that lifts one up from one's animal passions to the sphere of universal harmony. "Perspective drawing," says DeWitt,

> especially that of Landscape, gives him who is made familiar with its principles and practices a new and deeper interest in THE APPEARANCE OF THINGS. By it he becomes habituated to discriminating views of their beauties, and thus they acquire a superior power of ministering to his pleasures. In the aspect of nature, where others see nothing to affect them, but look "with brute, unconscious gaze," he sees the distinct myriads of parts, wonderfully formed and put together by infinite wisdom to constitute a whole, perfect in all the varieties of proportion, shape, color, and purpose, and his sensations are absorbed and dissolve in the harmony that reigns universally among them. Delight streams into his soul from every quarter to which he turns the contemplative eye.[83]

DeWitt's aesthetic of harmonious proportion permeates his view not only of comprehending landscapes, it is the standard by which he judges *all* types of art, including poetry and prose. As DeWitt maintains,

> He who cannot mould and group his ideas in distinct vivid images, and pencil them on his fancy with the skill of a [realist] painter, must never dream of chaplets about his temples for exploits in the field of POETRY. This art [the science of surveying] is therefore important also in that department of genius. And even in prose-rhetorick, making pretensions to merit, how often do we meet with metaphorical images of monstrous shapes and the most incongruous composition! As such must ever be disgusting to a correct critical taste, they could never be admitted into the productions of *one acquainted with the rules of*

[81] DeWitt, *The Elements of Perspective,* xiii.
[82] Ibid., xiv.
[83] Ibid., xix.

> *symmetry*, and that chaste, harmonious arrangement of imagery, which perspective [drawing] familiarizes to the mind.[84]

DeWitt, no doubt, considered himself to be "one acquainted with the rules of symmetry," and given that the grid plan was one of his "productions," it is not unreasonable to assume that he viewed it as obeying the "rules of symmetry" and therefore satisfying a "correct critical taste." It is also worth noting that just like his critics, DeWitt universalizes his own aesthetic and would likely agree with Verplanck's belief in the existence of objective "laws of sentiment and taste."

Given DeWitt's disciplinary propensities, one might at first be surprised to find him advocating any type of amusement whatsoever. Yet, DeWitt understood that amusement was a necessary element of life. He insisted, however, that it be of a "rational" sort. Proper doses of so-called "rational amusement" would reinvigorate people for the hard labor demanded of them by the modern world. "Amusements must be had," DeWitt exclaims,

> —by the busy to relieve them from the lassitude of toil, and re-invigorate them for labor—by the idle, to fill up the dreadful vacuities of time: And wo! to that man who is not furnished with harmless resources from which to draw the supply . . . . His malignant destiny drives him to the fraternity of gamblers, the resorts of drunkards, or the haunts of more infamous gratifications, as refuges from the intolerable dreariness of a vacant life. An acquaintance with one source of diversion for his mind, such as is here recommended, might save him from ruin.[85]

No idle amusements would suffice, however. DeWitt could not understand how so many people, especially those of "the lovelier part of the human race" (i.e. women), could:

> sacrifice the best of their time, or so much of it as can be spared from other noxious recreations, to THE DEMON OF ROMANCE, [and] have their delicate, susceptible minds irremediably poisoned by that pestiferous trash, which, under the denomination of *Novels*, is poured upon the world; and, by indiscriminately and incessantly swallowing those deleterious opiates, have their judgments

[84] Ibid., xii-xiii, emphasis added.
[85] Ibid., xvi.

> deranged, and their mental appetites so utterly vitiated, as to revolt from the natural aliment of rational souls?[86]

To combat the "pestiferous trash" produced by a Romanticism tailored to the instincts, DeWitt offers a "rational" alternative based on the principles of surveying: "Besides serving those purposes of *practical utility*, Perspective drawing, as a minister of RATIONAL AMUSEMENT, holds a high station in the graduations of merit; and may almost dispute precedency with the poetic muse."[87]

If people, women in particular, have not grown accustomed to appreciating such "rational" art, it is only because "They have had no guide to direct their partialities to substantial improvements . . . . They have had no friend to bend their habits to employments worthy of the rank they hold in the scale of being."[88] Our rank in the "scale of being," however, is not set in stone. By using our intellect, we may "improve" our senses and experience the bliss of "beauty" and "perfection." As is often the case, when one hears words such as "improvement" or "perfection," one should take note of the Platonic-Christian world of discourse that one is likely about to enter. "[T]he government of the universe," DeWitt informs us,

> is conducted by means most wisely adapted to their ends, and as every thing with the Almighty is infinite, there can be no assignable limits to the number of these [i.e. human senses]. Objects of which we can now have no conception, and new senses to perceive them, may therefore be reserved for a more exalted stage of existence. We know that here the sum of happiness we are capable of attaining, depends materially on the number and *perfection of our senses*, and among these, *those belonging to the soul, by which we perceive harmony and beauty, are of primary consequence*; But in some individuals these senses shew but the glimmerings of existence, although capable of being elicited, cultivated and refined, till they have power to transport almost beyond the enjoyments allotted to this infant state of being. And thus by education may the human soul be improved in its capacity for happiness here, in a manner resembling that by which it is

[86] Ibid.
[87] Ibid., xv-xvi.
[88] Ibid., xvii.

> prepared for the higher regions of bliss . . . . Does it [i.e. the science of surveying] not resemble the creation of a new sense, by which man mounts one step higher in his approaches to the rank of superior intelligences?[89]

By enhancing our senses, science would serve as an instrument to bring us one step closer to "the higher regions of bliss."

Make no mistake: there was power in this way of seeing the world, and those who neglected it faced irrevocable doom. DeWitt makes sure that we understand this point: "if in such employments and in the contemplation of such objects, their gentle spirits rise in aspirations to that wonderful POWER, from whom all things have emanated, the all beneficent Provider of such ineffable delights, they will feel themselves elevated to a region of pure intellectual enjoyments, far above that in which the untutored and less favored part of their species are doomed to waste their existence."[90] DeWitt's ultimate goal, then, was to break free from our animal instincts and to enter the realm of Platonic existence—a worldly Heaven, if you will—of "pure intellectual enjoyments."

As far as DeWitt was concerned, if people would not pursue the aesthetics of harmonious proportion willingly, then they must be forced to do so—it must be "impressed on them." If only the "multitudes" could see the world as the surveyor does, then they might "see the light" shining into Plato's cave,[91] as it were, and be "saved" from the doom of their existence. But, how could DeWitt successfully proselytize the "multitudes"? Certainly not everyone would read his treatise on surveying, that was to be expected. In fact, DeWitt's writings were targeted specifically at the upper class elites and their children who would likely attend college. His disciplinary project and the utilization of surveying principles as a pedagogical tool, therefore, emerged as a

[89] Ibid., xxi-xxii, emphasis added.
[90] Ibid., xxiii.
[91] Warmington and Rouse, Eds. (1984), *Great Dialogues of Plato,* New York: Penguin Group, 312-320.

mechanism for disciplining not the "multitudes," but rather the elites such that they would be able to use their "reasoning faculties" to maintain their power and "superiority."[92] Yet, while DeWitt's treatises on surveying and the establishment of an agricultural college for the training of "the Children of Wealthy Citizens" were only for a select few of the ruling class, the strategies developed to discipline the elites were employed to create a disciplined population in general by using the "rules of surveying" to construct a rationalized landscape in order to train the "multitudes" to take "the course which reason indicates."[93]

Besides book learning, what other way could people be trained to think like a surveyor? If not everyone would read DeWitt's treatise on linear perspective, reorganizing the landscape such that it would be impossible *not* to see the world in any other way but through the lens of symmetrical rectangularity offered a potential solution. Carving the landscape into a symmetrical grid, and encoding it with numerical inscriptions as street names, was one way to train people to think "rationally" by insisting that they live in a life-size Cartesian coordinate system. By what superior means could Enlightenment be brought to the masses?

[92] DeWitt, *Considerations of the Necessity of Establishing an Agricultural College*, 12.
[93] Foucault describes a very similar process with respect to production of sexual norms, see Foucault (1990), *The History of Sexuality: An Introduction, Volume 1*, [1978], New York: Vintage Books, 122.

5. THE RATIONALITY OF DEVIANCE

This march of progress is as relentless as a modern army, levelling all before it.

—Frederick Brückbauer, *The Kirk on Rutgers Farm* (1919)

The Price of Progress: "the devouring of the old country residence by the overgrown monster of the City"

The implementation of the grid plan resulted in a complete reordering of the socio-environmental conditions of Manhattan Island above the present Houston Street. This "Great Transformation," as I have called it using Polanyi's phrase, was a process in which the landscape was effectively "rationalized," in the sense that the island's surface was generally reduced to a two-dimensional plane upon which a mathematical order was imposed. The physical force unleashed during this process has been compared to a military operation, with the aggressors being "the armies of street openers and . . . builders."[1] This military analogy, of course, presupposes a victim—or at least an enemy—upon which the aggressors ultimately have their way in spite of any resistance they may encounter. While such an analogy has its limits, it also has its virtues. It reminds us that the process of material rationalization often requires a form of violent force, whether this consists of the leveling of hills or the demolition of houses. It also reminds us that both the "aggressor" and the "victim" are entangled in a web of power

[1] Smith (1938), *Springs and Wells of Manhattan and the Bronx: New York City at the End of the Nineteenth Century*, New York: New-York Historical Society, 127.

relations, which potentially leaves open the possibility that the "victim" may become the "master."[2]

In the previous chapter, I examined the world through the eyes of the Street Commissioners who designed the grid—the "generals" of the "armies of street openers," if you will—and showed how they saw their disciplinary-utilitarian project as serving the long-term politico-economic goals of the American Empire and the will of their Christian God. Now that we have thought as the "aggressor" (the disciplinarian), it would seem appropriate to view the world through the eyes of the "victim" (the patient), since the writing of history all-too-often comes only from the pen of the "victor."[3] The question then arises: who was the victim, if indeed there was one? One could say that the immediate victims were the hills leveled and wetlands and streams filled as the landscape was molded like clay to take the shape which "reason indicates."

All topographical features that stood in the "path of progress"[4] were to be obliterated (Figure 5.1). "Springs and rivulets impeded progress and were finally choked into subordination to the laws, and buried without ceremony," wrote historian Martha Lamb in the late nineteenth century.[5] Whether or not the environment was truly "conquered," however, is open for interpretation. As Hill and Waring noted in 1897, "eventually the brooks and meadows, and the hills which bounded them, alike disappeared. Occasional complaints of wet cellars, and a high death rate from pulmonary

---

[2] In his characteristically unsympathetic yet brilliant manner, Nietzsche notes that those in a subservient power relation often "long for domination, calling it 'freedom.'" Nietzsche (1989), *Beyond Good and Evil: Prelude to a Philosophy of the Future*, [1886], New York: Vintage Books, 153. Also, see Nietzsche (1969), *Thus Spoke Zarathustra: A Book for Everyone and No One*, [1883], New York: Penguin Books, 137.

[3] Blaut (1993), *The Colonizer's Model of the World: Geographical Diffusionism and Eurocentric History*, New York: Guilford Press; Blaut (2000), *Eight Eurocentric Historians: The Colonizer's Model of the World, Volume 2*, New York: Guilford Press.

[4] Bolton (1928), *The Path of Progress*, New York: Kalkhoff Company.

[5] Lamb (1896), *The History of the City of New York (Vol. 3)*, New York: A.S. Barnes and Co., 570.

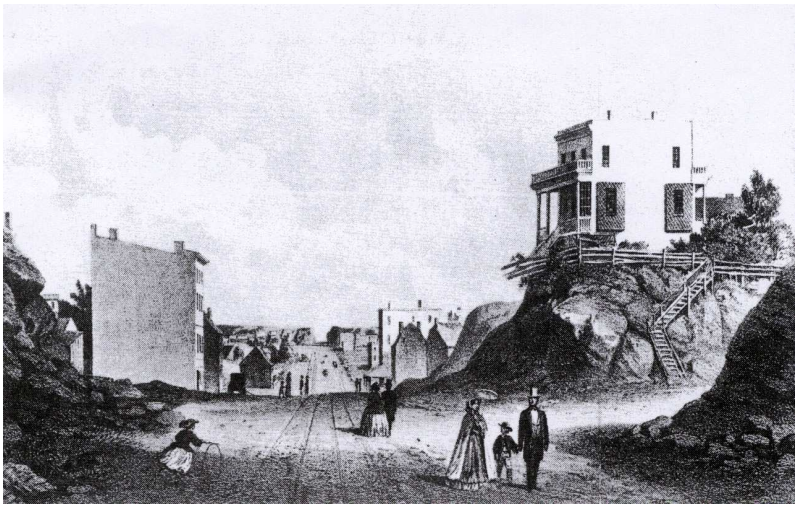


Figure 5.1: Making way for the "path of progress," looking north up 2nd Avenue from 42nd Street in 1860 (Source: Spann, 1988)

and diarrheal diseases, alone remain to recall the original conditions."[6] The ghosts of buried streams, it seems, still have the ability to affect the world of the living, for better or for worse.[7] While such non-human actors (and their associated hybrids)[8] can surely claim to have been *de facto* victims[9] of the onslaught of the grid, their human brethren were the only ones given *de jure* status by the courts and the political machines of the nineteenth century. It is to this latter group of victims that I shall now turn to examine

[6] Hill and Waring (1969), "Old Wells and Watercourses of the Island of Manhattan," *Historic New York: The Half Moon Papers*, [1897], I. Goodwin, Royce and Putnam. Long Island: Ira J. Friedman, Inc., 224.

[7] Hill and Waring note that many wetlands in Manhattan "were filled in as they lay, and upon them were constructed houses up whose walls the foul dampness continually crept, and whose cellars were veritable lairs of disease and death." What they do not point out is the fact that the lower classes were disproportionately impacted by such living conditions. These same hydrological conditions, however, actually benefited a number of trees: "The little stream [called Ash Brook near the "foot of East Twenty-fifth Street"] was crowded out of existence many years ago, but some of the oaks that once shaded its banks remained to watch over its grave, and are still standing,—or at least were standing, a short time ago." Ibid., 242.

[8] Latour (1993), *We Have Never Been Modern*, [1991], translated by Catherine Porter, Cambridge, Mass: Harvard University Press, 11.

[9] This is not to deny that these "victims" were also active agents, with their own mechanisms of resistance to the "armies of street openers," whether physical or biological.

"the rationality of deviance," or in other words, the reasoning behind the resistance to the rectilinear, Cartesian logic of the Manhattan grid.

The pre-grid landscape, north of what is now Houston Street, was a patchwork of farms and "country residences," and many landed property owners of the day built their mansions on the hilltops of Manhattan's rugged terrain in order to secure a "picturesque" view of the world below.[10] A good number of these "suburban villas," as they were sometimes called,[11] served the well-to-do as summer retreats from the bustle of the city, much as the homes in the Hamptons on Long Island do today. According to *Valentine's Manual*, during the 1830s,

> the entire upper portion of the [island], above Fourteenth street, was very sparsely populated, much of it being under cultivation as farms and market gardens, while a large portion, particularly above Twenty-eighth street, was in use by private residences, having large gardens attached in a high state of cultivation—the proprietors residing therein only during the summer months, using exclusively private conveyances to their places of business in the lower part of the city, and residing "down town," as it was termed, during the winter months of the year.[12]

It was in these "suburban villas" where those with wealth, or connections, "repaired for quiet country living."[13]

In comparison to the built-up "down town" area, the rest of the island seemed to offer a "picturesque" alternative of rural-suburban simplicity. "This place is, to me, entirely country," remarked the nineteenth-century American author and *New York Daily*

---

[10] For examples of such country residences on hilltops in Manhattan, see Randel (1864), "City of New York, north of Canal street, in 1808 to 1821," *Manual of the Common Council of New York ("Valentine's Manuals")*, Valentine. New York, 847; Lamb, *The History of the City of New York (Vol. 3)*, 569; Brown, Ed. (1923), *Valentine's Manual of Old New York: No. 7, New Series 1923*, New York: Valentine's Manual, Inc., 276-80; Brown, Ed. (1924), *Valentine's Manual of Old New York for 1924*, New York: Museum of the City of New York, 57-8; Brown, Ed. (1925), *Valentine's Manual of Old New York for 1925*, New York: Museum of the City of New York, 134, 140-2, 244; Delaney (1965), *New York's Turtle Bay Old & New*, Barre, Mass: Barre Publishers, 4 and 9; Hill and Waring, "Old Wells and Watercourses of the Island of Manhattan," 230-1.

[11] Brown, Ed., *Valentine's Manual of Old New York for 1925*, 244.

[12] Ibid.

[13] Delaney, *New York's Turtle Bay*, 11.

Tribune literary critic, Margaret Fuller, referring to land near Turtle Bay (now home of the United Nations Building), "and all around is so bold and free. It is two miles or more from the thickly settled parts of New York."[14] She then takes us on a short journey through this landscape, and life-world, of the past:

> Stopping on the Harlem Road, you enter a lane nearly a quarter of a mile long, and going by a small brook and pond that locks in the place, and ascending a slightly rising ground, get sight of the house, which, old fashioned and of mellow tint, fronts on a flower garden filled with shrubs, large vines and trim box borders. Passing through a wide hall you come out on a piazza stretching the whole length of the house, where one can walk in all weathers; and thence by a step or two, on a lawn with picturesque masses of rocks, shrubs and trees overlooking the East River . . . . The beauty here seen by moonlight is truly transporting.[15]

Here we encounter a landscape of consumption—strictly distinct from the place of production, "down town"—and a Romantic aesthetic of the picturesque that takes pleasure in "a flower garden," "shrubs," "a lawn," the "moonlight," and "picturesque masses of rocks." This, of course, was the same aesthetic that later produced Central Park and now permeates much environmental thinking in the suburbs of the so-called "civilized world."

But, let us not get ahead of ourselves. Fuller's description of the Turtle Bay region is but one example of how suburban residents "consumed" the Manhattan landscape during the nineteenth century. Fuller's suburban aesthetic was part of the larger Romantic movement whose representatives included her "good friends" Ralph Waldo Emerson, Nathaniel Hawthorne, and Edgar Allen Poe.[16] Both Hawthorne and Poe unquestionably shared Fuller's sentiments concerning the benefits of suburban living in

[14] Ibid.
[15] Ibid., 11-2.
[16] Ibid., 10-5.

nineteenth-century Manhattan and mocked the armies of street openers for despoiling the picturesque Manhattan landscape.

While Hawthorne's critique was made at a distance, Poe actually lived in the Turtle Bay region for a brief period and also resided in a house on the Brennan Farm on the West Side near Broadway (then called Bloomingdale Road) between what is now 83rd Street and 85th Street.[17] When Poe took up residence near Turtle Bay in 1846, his wife was "desperately ill" and Poe himself was "on the verge of a complete breakdown," according to one scholar.[18] The refreshing country air and picturesque views offered an ideal place for their convalescence (Figure 5.2). Poe was known to frequently go swimming and row-boating in Turtle Bay and the East River. "When I was a little girl," reminisces one of Poe's neighbors, Sarah Miller,

> we lived in a house facing Turtle Bay, on the East River, near the present 47th Street. Among our nearest neighbors was a charming family . . . consisting of Mr. Poe, his wife, Virginia, and his mother-in-law, Mrs. Clemm . . . . [Poe] would . . . run over every little while to ask my father to lend him our row-boat, and then he would enjoy himself pulling at the oars over to the little islands just south of Blackwell's Island for his afternoon swim.[19]

Poe himself describes one such journey as follows: "A day or two since I procured a light stiff [i.e. a boat], and with the aid of a pair of *sculls* (as they here term short oars, or paddles) made my way around Blackwell's Island, on *a voyage of discovery and exploration*. The chief interest of the adventure lay in the scenery of the Manhattan shore,

[17] Brown, Ed., *Valentine's Manual of Old New York: No. 7, New Series 1923*, 10-5; Delaney, *New York's Turtle Bay*, 276.
[18] Ibid., 12.
[19] Ibid.

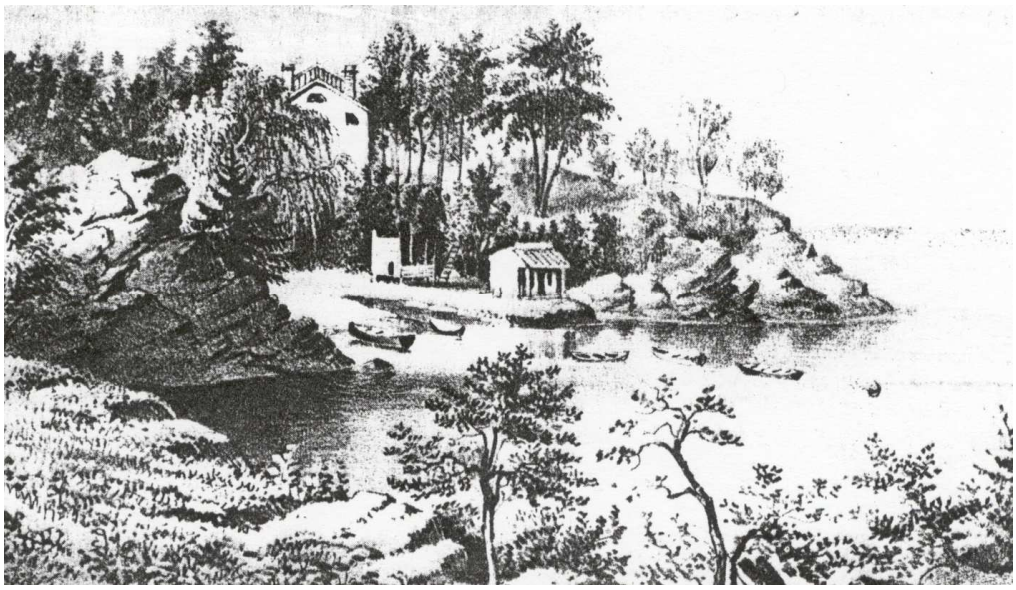


Figure 5.2: An idealized view of Turtle Bay, where Edgar Allen Poe frequently went swimming and boating in the 1840s (Source: Brown, 1924)

Figure 5.3: Mount Tom, an "immense rock" near 84th Street and Riverside Drive where Poe "would sit silently for hours gazing out upon the Hudson" (Source: Brown, 1923)

which is here particularly picturesque."[20] Sarah's brother likewise recalls Poe's recreational excursions: "We had five acres of ground beautifully laid out with shade and fruit trees in great variety on the river front known as 'Turtle Bay' affording a fine opportunity for boating, fishing, bathing and swimming. All of these Poe enjoyed exceedingly. I may add he was a great swimmer and I well remember some of his antics in the water."[21]

Before moving to Turtle Bay, Poe spent his summers residing in a house on the Brennan Farm "upon a rocky knoll" between the years of 1844 and 1845.[22] It was later noted that during this time, "It was Poe's custom to wander away from the (Brennan) house in pleasant weather to 'Mount Tom' an immense rock which may still be seen in Riverside Park, where he would sit silently for hours gazing out upon the Hudson" (Figure 5.3).[23] While "gazing out upon" the world below, Poe was both partaking in, and reinforcing, the emerging Romantic aesthetic known for seeking the "sublime" while looking out upon the world from the vantage point of "an immense rock." It seems fair to suggest that Poe made such excursions to calm his mind and rejuvenate him for life in the bustling city.[24] According to those who knew him, Poe's taciturn disposition also led him to seek the woods: "he was a shy, solitary, taciturn sort of man, fond of rambling down in

[20] Spannuth, Ed. (1929), *Doings of Gotham: Poe's Contributions to The Columbia Spy*, Pottsville, Penn: Jacob E. Spannuth publisher, 40, emphasis added.
[21] Delaney, *New York's Turtle Bay*, 13-4.
[22] Brown, Ed., *Valentine's Manual of Old New York: No. 7, New Series 1923*, 276.
[23] Ibid., 279.
[24] Poe seems to have been particularly sensitive to the excessive noises of the city: "The street-cries, and other nuisances to the same effect, are particularly disagreeable here. Immense charcoal-waggons infest the most frequented thorough-fares, and give forth a din which I can liken to nothing earthly (unless, perhaps, a gong), from some metallic, triangular contrivance within the bowels of the 'infernal machine' . . . . the amount of general annoyances wrought by street-noises is incalculable; and this matter is worthy our very serious attention . . . . Are we never to have done with these unmeaning round stones?—than which a more ingenious contrivance for driving men mad through sheer noise, was undoubtedly never invented. It is difficult to foresee what mode of street-pavement will come, finally, into vogue; but we should have *some* change, and that forthwith, or we must have new and more plentiful remedies for headache." As quoted in Spannuth, Ed., *Doings of Gotham*, 60-1.

the woods, between the house and the river, and sitting for hours upon a certain stump on the edge of the bank of the river."[25]

I mention all of this not to give a detailed account of Poe's biography but rather to provide a brief sketch of the personal historico-geographical context from which Poe launched his literary attack on the Manhattan grid. In his letters to the *Columbian Spy*, Poe recollects his journeys through Manhattan, praising its "picturesque" and "sublime" qualities while criticizing the effects which the development of the grid plan entailed. "I have been roaming far and wide over this island of Mannahatta," Poe wrote in 1844. He goes on to add that "Some portions of its interior have a certain air of rocky sterility which may impress some imaginations as simply *dreary*—to me it conveys the sublime. Trees are few; but some of the shrubbery is exceedingly picturesque."[26] The pre-grid landscape was so aesthetically pleasing that Poe informs us that he encountered "some of the most picturesque sites for villas to be found within the limits of Christendom."[27] Here was a suburban playground *par excellence*—a place with "the most picturesque sites for villas."

Yet, unlike a picture which captures a glimpse of a moment and holds it steady until it fades, Poe's picturesque landscape was in the midst of tremendous flux, which he lamented on a number of occasions. Much like James Smith some fifty years later (see Chapter 1), Poe foresaw the oblivion that awaited Manhattan's rugged topography and suburban villas:

> In fact, these magnificent places are doomed. The spirit of Improvement has withered them with its acrid breath. Streets are already "mapped" through them, and they are no longer suburban residences, but "town-lots." In some thirty years

[25] Brown, Ed., *Valentine's Manual of Old New York: No. 7, New Series 1923*, 279.
[26] Spannuth, Ed., *Doings of Gotham*, 25.
[27] Ibid.

> every noble cliff will be a pier, and the whole island will be densely desecrated by buildings of brick, with portentous *facades* of brown-stone.[28]

What is especially interesting about Poe's critique is that while he laments the "spirit of Improvement," he sees the development of the grid as somehow being inevitable ("these magnificent places are doomed"). This response, no doubt, leads to a form of cynical resignation to the inevitable rather than active resistance to the powers that be.

For instance, while instructing would-be Romantics on the sublimity of the views from various summits in Manhattan, Poe remarks that he "could not look on the magnificent cliffs, and stately trees, which at every moment met my view, without *a sigh for their inevitable doom—inevitable and swift*. In twenty years, or thirty at farthest, we shall see here nothing more romantic than shipping, warehouses, and wharves."[29] This "sigh" is the sigh of resignation. We encountered this same sentiment on Smith's bicycle excursion in his "pathetic interest aroused by something pleasureable which will shortly cease to exist" (see Chapter 1). This logic reflects a teleological metaphysics of inevitability (i.e. "fate" or "destiny") which leads one to relinquish all hope in the prospect of effective resistance. This is precisely the effect that the "aggressors" (in this case capitalists, real estate developers, government disciplinarians, etc.) long for: it is the white flag raised at the end of a battle. Resignation, in other words, feeds the fire of inevitability.

---

[28] Ibid., 25-6.

[29] Poe's instructions to would-be Romantics are as follows: "When you visit Gotham, you should ride out the Fifth Avenue, as far as the distributing reservoir, near Forty-third Street, I believe. The prospect from the walk around the reservoir is particularly beautiful. You can see, from this elevation, the north reservoir at Yorkville; the whole city to the Battery; with a large portion of the harbor, and long reaches of the Hudson and East rivers. Perhaps even a finer view, however, is to be obtained from the summit of the white, light-house-looking shot-tower which stands on the East river, at Fifty-fifth Street, or thereabouts." Ibid., 40-1, emphasis added. One can only wonder how many people took Poe's advice and "re-discovered" the picturesque views from these cliffs before they were leveled.

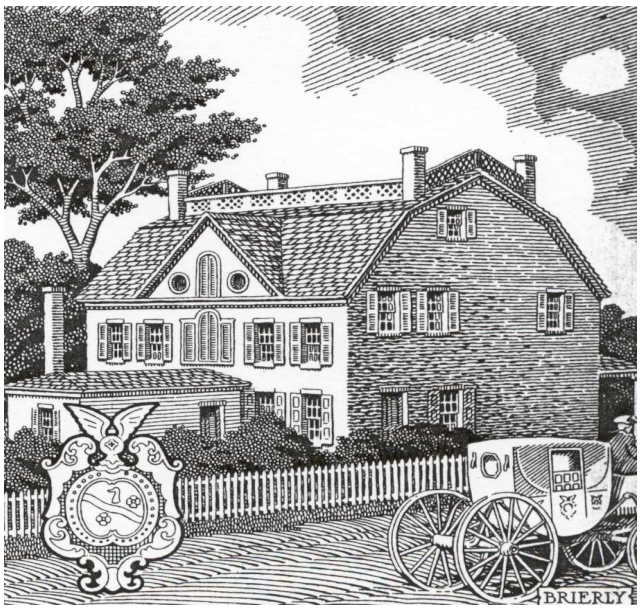


Figure 5.4: A retrospective reproduction of the Beekman House (Mount Pleasant) before it was demolished to make way for the grid (Source: Brierly, 1953)

In the decades that followed Poe's "sigh," many of the mansions that were "in the way" of a street or avenue were, in fact, demolished or removed to a different location. The historical record is replete with examples of such destruction.[30] One such case was the destruction of the Beekman House (also known as Mount Pleasant), which stood near what is now the intersection of 51st Street and 1st Avenue and was originally erected by James Beekman during the eighteenth century (Figure 5.4). "For over a hundred years," notes Edmund Delaney, "*Mount Pleasant* stood as one of the great and historic mansions of New York."[31] In any event, the house was eventually demolished in 1874, but this was only after it had been *moved* to 50th Street when 51st Street was finally opened through 1st

[30] Lamb, *The History of the City of New York (Vol. 3)*, 569 and 574; Brown, Ed., *Valentine's Manual of Old New York: No. 7, New Series 1923*, 276-80; Delaney, *New York's Turtle Bay*, 1-17; Hill and Waring, "Old Wells and Watercourses of the Island of Manhattan," 244.
[31] Delaney, *New York's Turtle Bay*, 4.

Avenue. Nathaniel Hawthorne was aware of the "fate" of Mount Pleasant and makes the following remarks in his *American Notebook*:

> A sketch—the devouring of the old country residence by the overgrown monster of the City. For instance, Mr. Beekman's ancestral residence was originally several miles from the city of New York; but the pavements kept creeping nearer and nearer; till now the house is removed, and a street runs directly through what was once its hall.[32]

Fourteen years after the Beekman House was demolished, Poe's old residence at the Brennan House met a similar fate with the opening of West 84th Street.[33] The tide of urbanization, it seemed, was a force that could not be reckoned with—it spelled the "inevitable doom" of Manhattan's suburban villas as "the old country residence" was literally "devoured" by the "overgrown monster of the City."

Quantifying Obliteration: The Pre-Grid Landscape as Obstacle Course

When the Street Commissioners unveiled their Plan of 1811, it was obvious to anyone who examined the plan that its implementation would entail the demolition of a number of houses and other buildings then existing. But, when surveyor John Randel Jr. completed his Farm Maps nearly a decade later,[34] these detailed maps (92 in all) revealed the full extent of the future devastation. During the summer of 2001, I did what no one, to my knowledge, has done before: I went through the Randel Farm Maps (held at the Manhattan Borough President's Topographical Office) and recorded the percentage of

[32] Ibid., 14.
[33] Brown, Ed., *Valentine's Manual of Old New York: No. 7, New Series 1923*, 280.
[34] This was also the time period in which Randel set his grid of stone monuments across the island (see Chapter 2). For a reproduction of one of these maps and general commentary on the Randel Farm Maps, see Cohen and Augustyn (1997), *Manhattan in Maps, 1527-1995*, New York: Rizzoli International Publications, Inc., 110-1. Randel's Field Notes are held at the New-York Historical Society. It is worth noting that, according to historian I.N. Phelps Stokes, "There is a legend that Mrs. Randel, wife of the author [John Randel], drew the [Randel Farm] maps in their final form." Stokes (1915-1928), *The Iconography of Manhattan Island, 1498-1909*, New York: R.H. Dodd, Vol. III, 532.

pre-existing buildings that were "in the way" (i.e. literally in the middle) of a street or avenue of the proposed grid plan.[35] The numbers are truly astounding (Table 5.1 and 5.2).

Of the 1,865 pre-existing buildings standing north of the present Houston Street (excluding Greenwich Village), nearly 40% were in the middle of a street or avenue of the grid plan and were thereby "destined" to be demolished.[36] Proposing the grid plan, in other words, amounted to saying: "Two out of every five buildings must go! Many more will also perish in due time, for oblivion awaits them all." This is precisely what Poe meant when he said that "Streets are already 'mapped' through them, and they are no longer suburban residences, but 'town-lots.'"

Randel labeled one hundred and eighty (or approximately 10%) of the buildings *by type* (e.g. "dwelling house," "barn," "cider mill," "hen house," etc.) (Figure 5.5). A potential clue as to why Randel did not feel the need to list all buildings by type may be found in the fact that nearly all of the labeled buildings are at the northern section of the island. It is quite possible that members of the Common Council perceived this northern area as being more "remote," and, hence, in need of more explicit "intelligibility" than the region just on the outskirts of the city limits.

[35] In other words, I counted the total number of pre-existing buildings (x) above North Street (now Houston Street), then counted the number of these buildings (y) that were in the middle of a proposed street or avenue, and finally proceeded to calculate the percentage of pre-existing buildings (z) upon which streets and avenues of the grid plan were superimposed [$z = (y / x) * 100$]. In cases where two maps overlapped (i.e. one building was shown on two maps), I made a point to count each building shown only once. It should also be noted that there were some cases in which it was unclear whether a structure was one large building or several smaller buildings in close proximity. In such cases, if there was no visible separation between them, I counted it as only one structure (which admittedly was somewhat of an arbitrary decision), so as not to overestimate the number of pre-grid buildings above North Street.

[36] The exact figure is 38.7%, or 721 buildings. See Table 5.1.

Table 5.1:
Pre-grid Manhattan Building Statistics (general) Compiled from the Randel Farm Maps

Total Number of Pre-Existing Buildings above North Street (now Houston Street) in Manhattan (c. 1819)	1,865
Total Number of Pre-Existing Buildings upon which Streets and Avenues of the Grid Plan were Superimposed	721
Percentage (%) of Pre-Existing Buildings upon which Streets and Avenues of Grid Plan were Superimposed	38.7

Table 5.2:
Pre-grid Manhattan Building Statistics (by type) Compiled from the Randel Farm Maps
(Note: Data only for labeled buildings; not all buildings were labeled.)

Building Type	Total Number of Buildings	Number of Pre-Existing Buildings upon which Streets and Avenues of Grid Plan were Superimposed	Percentage (%) of Pre-Existing Buildings upon which Streets and Avenues of Grid Plan were Superimposed
Ash Houses	2	1	50.0
Banks	1	0	0.0
Barns	33	21	63.6
Bath Houses	1	1	100.0
Blacksmith's Shops	2	0	0.0
Boat Houses	2	2	100.0
Churches/Parsonages	7	2	28.6
Cider Mills	2	1	50.0
Dairy/Milk Houses	3	0	0.0
Dwelling Houses	65	29	44.6
Fishermen's Houses	6	4	66.7
Flour Mills	1	0	0.0
Granaries	2	1	50.0
Hen Houses	2	2	100.0
Hospitals	1	1	100.0
Ice Houses	5	2	40.0
Lime Houses/Kilns	2	1	50.0
Military Buildings/Forts	14	13	92.9
Mills (type unspecified)	1	1	100.0
Mills for Sawing Marble	2	0	0.0
Root Cellars	1	0	0.0
Root Houses	1	1	100.0
School Houses/Academies	2	0	0.0
Sheds	7	6	85.7
Stables	10	3	30.0
Stores	1	1	100.0
Towers	2	1	50.0
Vaults	1	1	100.0
Welling Houses	1	1	100.0

In any case, Table 5.2 provides a breakdown of all the buildings that were labeled in both numbers and percentages.[37] As Table 5.2 demonstrates, 64% of all barns stood in "the path of progress" and would have to be demolished, while 86% of all sheds would meet a similar fate. If only 29% of the churches and parsonages were to be obliterated, this was compensated by setting 117th Street straight through the middle of New York Hospital (Figure 5.6)! As these figures show, the grid plan was rather undiscriminating in its choice of "victims." These percentages, however, only represent the immediate "victims" (i.e. those with buildings directly in the middle of a street or avenue), but as the plan went into effect, many more buildings would be swept off into oblivion as the ground *in between* the streets and avenues was flattened by "the leveling hand of improvement."

Nineteenth-century historian Martha Lamb describes these activities as a "jubilee of destruction," and she also uses the military analogy discussed at the beginning of this chapter:

> All that was romantic in scenery and prepossessing in cultivated grounds immediately above Canal Street was quickly doomed. The city was on the march, and every form of hill and dale and pleasant valley must be sacrificed . . . . The enemy, with its armor of pickaxes, stood back appalled at the strong, firm, bold front which the Bayard Hill [where the Bayard mansion stood between Grand Street and Broome Street] presented. It [i.e. the hill and the mansion] seemed invincible. But the assault was finally made, the citadel yielded, and the inhabitants fled. As for the real-estate owners, they were solaced by the rise of property. Fortunes grew while dwellings, stables, flower-gardens, fruit-orchards, grassy lawns, summer-houses, lovers' walks, and finely shaded private avenues tumbled promiscuously into the mass of worthless ruins—and *posterity was enriched* . . . . Numerous farmers and mechanics of small means had purchased plots of land in various places, laid out and cultivated gardens, and erected comfortable dwellings. When they discovered that the city was about to run streets wherever it pleased, regardless of individual proprietorship, and

[37] Since not all of the buildings were labeled, the estimates by type should be taken with a grain of salt, because it is not possible to extrapolate beyond the population of labeled buildings (n = 180) to make generalizations for the entire set of buildings above North Street (n = 1,865).

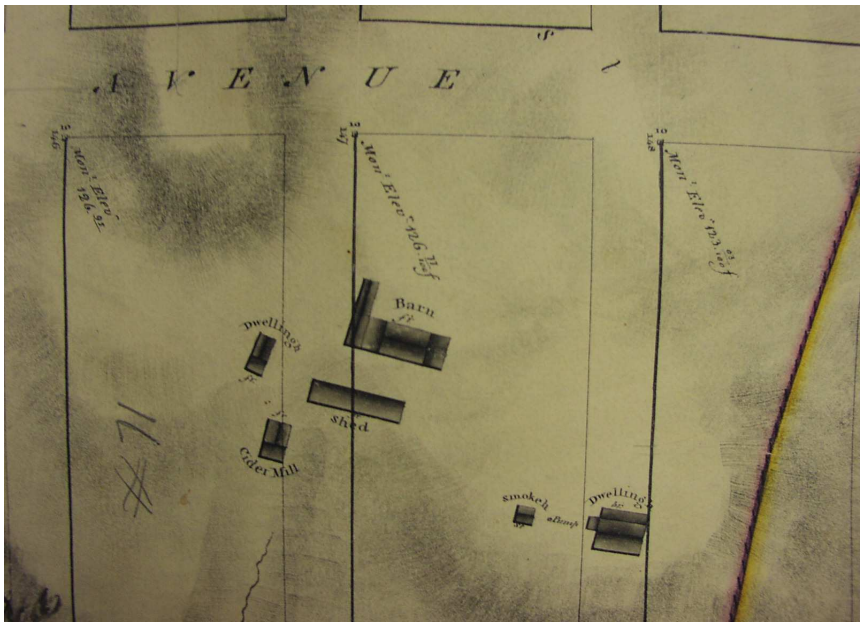


Figure 5.5: Randel's labeled buildings in the middle of 147th and 148th Streets between 9th and 10th Avenues of the proposed grid plan (Source: Randel, c. 1819)

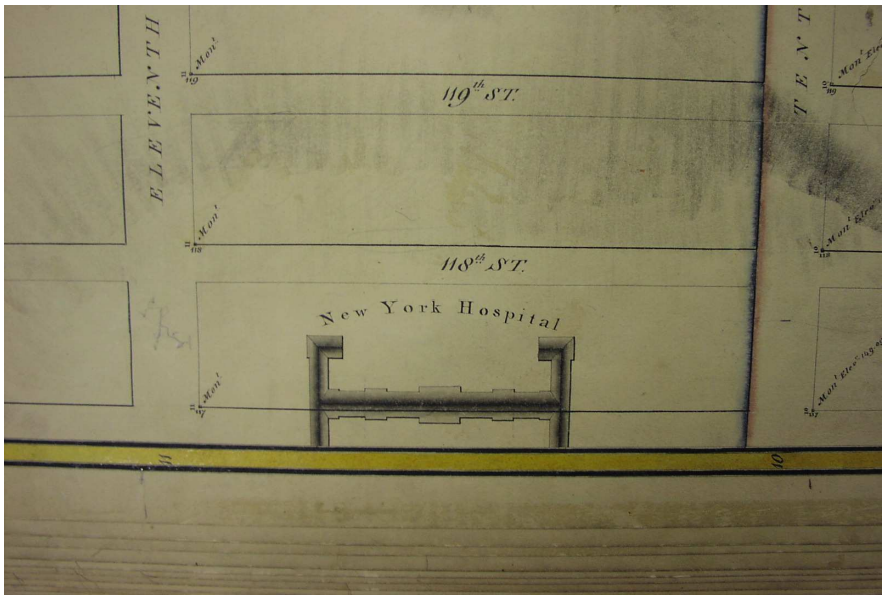


Figure 5.6: New York Hospital in the middle of 117th Street of the Commissioners' Plan (Source: Randel, c. 1819)

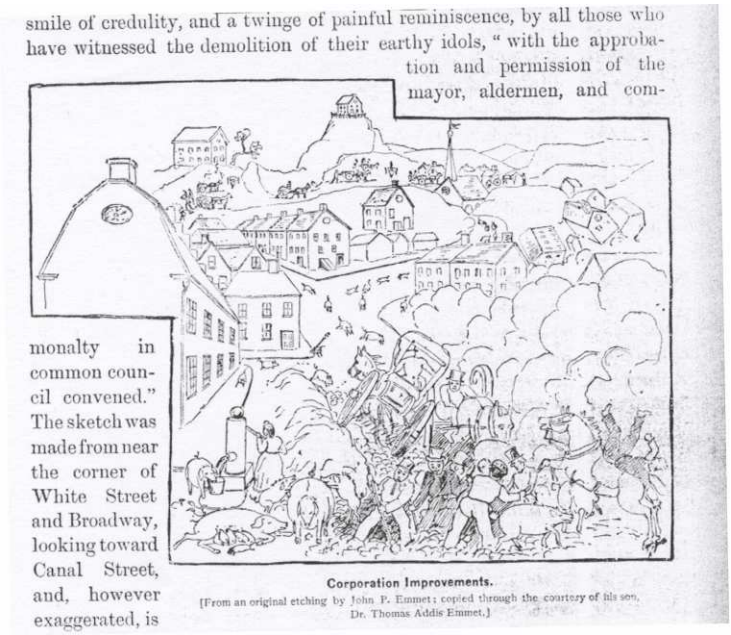
> that their houses and lots were in danger of being invaded and cut in two, or *swept off the face of the earth altogether*, they esteemed themselves wronged and outraged. At the approach of engineers, with their measuring instruments, maps, and chain-bearers, dogs were brought into service, and whole families sometimes united in driving them out of their lots, as if they were common vagrants.[38]

Lamb also notes a "humorous etching" by John P. Emmet, a chemistry professor at the University of Virginia at the time, depicting "the condition of Bayard's house during the jubilee of destruction, which he [Emmet] designates as 'corporation improvements,' [and] will be regarded with a smile of credulity, and a twinge of painful reminiscence, by all those who have witnessed the demolition of their earthly idols, 'with the approbation and permission of the mayor, aldermen, and commonalty in common council convened'" (Figure 5.7).[39]

As noted in Chapter 3, during his surveying expedition, John Randel was arrested at the request of a landowner named John Mills for trespass and damage to property. Based on Randel's own depiction of a house in the middle of 6th Avenue, between 9th Street and 10th Street, on Mills' property, one can perhaps understand why Mills, and numerous other landowners, took action against Randel (Figure 5.8). The grid obeyed its own internal logic of Cartesian rectangularity, not the mere conditions existing on the ground. Rather than being a "defect," this complete lack of accommodation to existing conditions was actually its greatest *virtue* for those who were mesmerized by the logic of "improvement." The consequence of such a logic was rather predictable: in addition to the suburban villas, small-scale landowners—with their hen houses and granaries—would also have to make way for "the boundless field of improvement before us."[40]

---

[38] Lamb, *The History of the City of New York (Vol. 3)*, 569-72, emphasis added.
[39] Ibid., 570.
[40] DeWitt (1813), *The Elements of Perspective*, Albany: H.C. Southwick, ix.



smile of credulity, and a twinge of painful reminiscence, by all those who have witnessed the demolition of their earthy idols, "with the approbation and permission of the mayor, aldermen, and commonalty in common council convened." The sketch was made from near the corner of White Street and Broadway, looking toward Canal Street, and, however exaggerated, is

Corporation Improvements.

[From an original etching by John P. Emmet; copied through the courtesy of his son, Dr. Thomas Addis Emmet.]

Figure 5.7: "Corporation Improvements" and the chaos that unfolded as buildings "tumbled promiscuously into the mass of worthless ruins" (Source: Lamb, 1896)

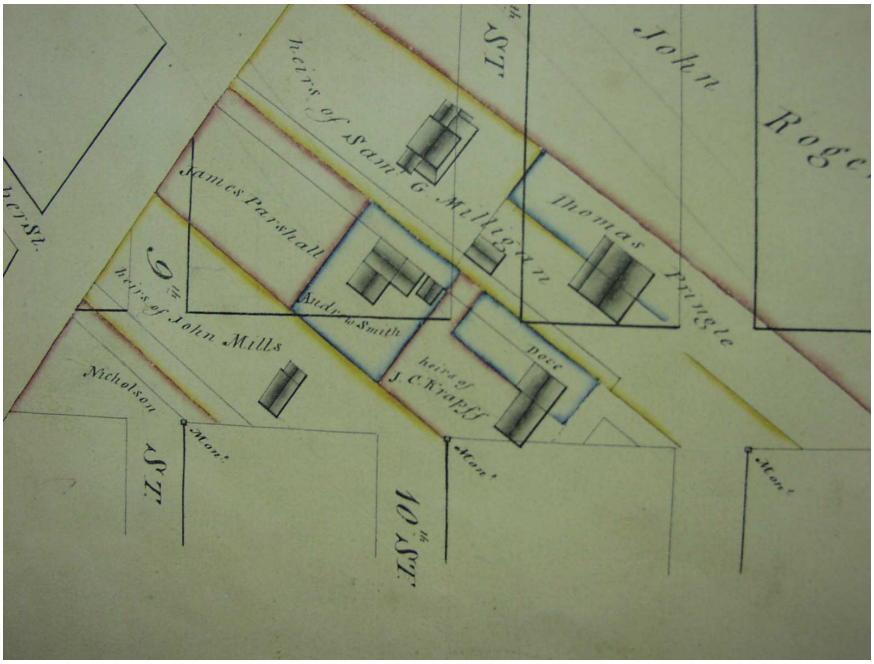


Figure 5.8: The Mills and neighbors' houses in the middle of 6th Avenue (Source: Randel, c. 1819)

A Reasonably Plain Statement: "Are we to be reduced to a perfect uniformity?"

To finance the implementation of the grid plan, the city used what Blackmar calls the "benefits assessment system."[41] According to this system, landowners whose property was adjacent to a street or avenue that was to be opened were "assessed," or taxed, for much of the costs of construction, because it was assumed that "whatever the larger public advantages, proprietors immediately gained from the enhanced convenience, rents, and land values that accompanied new traffic and development."[42] In cases where the government recognized that "damages" resulted from the taking of property for public purposes, the landowner was compensated, but this did not necessarily relieve them from being assessed for the assumed "benefits" that they would obtain from such construction. This system of assessment antagonized many landowners and even led some community members during the 1840s to organize what they called the Anti-Assessment Committee, which published the *New York Municipal Gazette* to vent their anger over the manner in which the grid plan was implemented. Moehring provides us with an account of the struggles that unfolded as the grid plan was implemented during the nineteenth century, and the details of the implementation process—while beyond the scope of the present study—offer fertile ground for future research.[43]

Hence, not everyone acquiesced to the "inevitability" of the development of the grid without a fight. Perhaps the most articulate critique of the Commissioners' Plan

[41] Blackmar (1989), *Manhattan for Rent, 1785-1850*, Ithaca: Cornell University Press, 159.
[42] Ibid.
[43] Moehring (1981), *Public Works and the Patterns of Urban Real Estate Growth in Manhattan, 1835-1894*, New York: Arno Press, 52-82. Also, see Marcuse (1987), "The Grid as City Plan: New York City and Laissez-Faire Planning in the Nineteenth Century," *Planning Perspectives* **2**, 287-310.

came from the landowner and scholar Clement Clarke Moore (1779-1863).[44] Moore graduated from Columbia College in 1798 as class valedictorian and later became a professor of "biblical learning" as well as "oriental and Greek literature" at the General Theological Seminary, which he helped found.[45] In 1813, he inherited land just above Greenwich Village on the West Side in the area that his grandfather, Captain Thomas Clarke, named Chelsea (Figure 5.9).[46] As a young man, Moore lived "down town" but used the Chelsea estate as a "summer home."[47]

When Moore published his critique of the grid plan, *A Plain Statement, addressed to the Proprietors of Real Estate, in the City and County of New-York* (1818), he was essentially calling to arms his fellow landowners. The city had just opened 9th Avenue straight through his property, and Moore's *Plain Statement* was a political manifesto against the "oppressions" suffered by "owners and occupants of real estate" as a result of the implementation of the grid plan as well as a bitter attack on the increasing power of the technical expert in municipal policymaking.[48]

There are numerous facets to Moore's argument, many of which have been overlooked by previous scholars.[49] The two major points that the current literature

---

[44] Moore is best known for his Christmas poem, "A Visit from St. Nicholas," whose opening lines are "T'was the night before Christmas when all through the house not a creature was stirring, not even a mouse." While there has been some debate as to whether Moore actually wrote this poem, Moore himself published it in his collection of *Poems* in 1844. In the Preface, he writes to his children, "I here present you with a volume of verses, *written by me* at different periods of my life . . . . I flatter myself that you will be pleased to have as true a picture as possible of your father's mind, upon which you and your children may look when I shall be removed from this world." Moore (1844), *Poems*, New York: Bartlett & Welford, v-vi, emphasis added. There is every reason, therefore, to believe that Moore was the author of "A Visit from St. Nicholas."

[45] Anonymous (1888a), "Moore, Benjamin," *Appleton's Cyclopaedia of American Biography*, Vol. 4. Wilson and Fiske. New York: D. Appleton and Co., 378; Marks (1999), "Moore, Clement Clarke," *American National Biography*, Vol. 15. Garraty and Carnes. New York: Oxford University Press, 743-4.

[46] Patterson (1935), *Old Chelsea and Saint Peter's Church: The Centennial History of a New York Parish*, New York: Friebele Press, 4-11.

[47] Ibid., 11.

[48] Moore (1818), *A Plain Statement, addressed to the Proprietors of Real Estate, in the City and County of New-York*, New-York: J. Eastburn and Co.

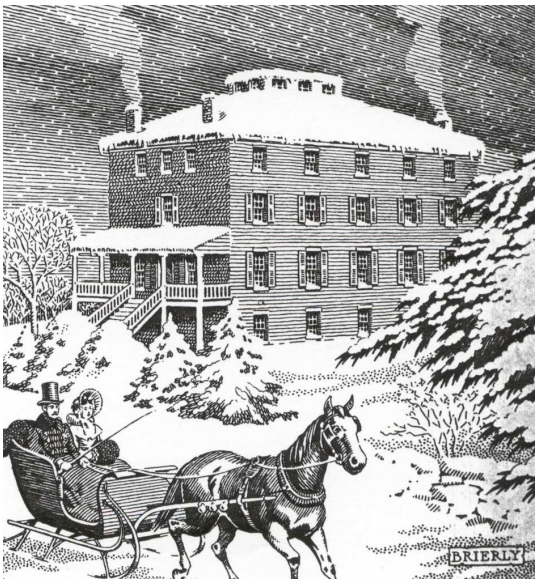


Figure 5.9: A retrospective reproduction of Clement C. Moore's mansion near 9th Avenue and 23rd Street in Chelsea (Source: Brierly, 1953)

highlights are Moore's belief that (1) street construction benefited the propertyless who obtained jobs from the endless continuation of public works projects at the expense of property owners who had to pay for such projects, and that (2) the grid plan destroyed the "beauty" of the island by leveling its topography. The first point is definitely part of Moore's argument, but the second requires qualification.

There is no question that the leveling of Manhattan's topography offended Moore's aesthetic sensibilities. "The great principle which appears to govern these plans," says Moore,

> is, to reduce the surface of the earth as nearly as possible to a dead level. The natural inequalities of the ground are destroyed, and the existing water-courses disregarded. And, in defiance of all the outcries which are raised, and the remonstrances which are offered, our public authorities seem unwilling to depart

[49] For instance, see Shanor (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*, Columbia University, 19; Hartog (1983), *Public Property and Private Power: The Corporation of the City of New York in American Law, 1730-1870*, Ithaca: Cornell University Press, 162; Blackmar, *Manhattan for Rent*, 162-3; Burrows and Wallace (1999), *Gotham: A History of New York City to 1898*, New York: Oxford University Press, 447-8.

> from their levelling propensities, but proceed to cut up and tear down the face of the earth without the least remorse, and, apparently, with no higher notions of beauty and elegance than straight lines and flat surfaces placed at angles with the horizon . . . . The effects, upon private property, of these changes in the surface of the ground, are manifest. Some lots, with the buildings upon them, are raised into the air; some are depressed below the surface of the earth; while some few remain unchanged. Thus this equalizing system acts most unequally in its operation . . . . That most of the great changes wrought by the corporation in the surface of our city, are detrimental to its beauty, and not necessary to its cleanliness and convenience, is the opinion of many persons of taste and experience. The levelling of some of the beautiful eminences which adorned the suburbs a few years ago, has been the subject of regret to strangers as well as to our own citizens . . . . They [the Street Commissioners] think, perhaps, that the *appearance* of the ground would be so improved by their straight-lined plan, that it ought to be preferred. But there is little doubt, in the minds of people of taste, that the preserving of the natural inequalities in the ground, when not too great and too abrupt, is one of the greatest beauties that can be attained.[50]

While Moore uses the language that we often encounter when one aesthetic becomes universalized (i.e. the belief that there exists a privileged "people of taste" whose aesthetics are universal), he recognizes that those who designed the grid viewed their "straight-lined plan" as aesthetically pleasing.

He even admits that some of the critics of the grid viewed its uniformity as beautiful. "The writer is aware," Moore informs us,

> that a diversity of sentiments exists, on some points, among those who, in the main, think the measures of our corporation grievously oppressive, and unnecessarily destructive of property, both public and private. Some persons who dislike the assessments for the digging and filling of streets, still *think the beauty of the city improved by its being reduced to a uniform flat surface*. Tastes, it is true, are various; but it may be observed to such persons, that they already have ample room *to gratify their love for plane surfaces* . . . . It is, therefore, but fair that the taste of other people should likewise be gratified. We do not, however, wish to undo what has already been done; but to preserve what has not already been destroyed.[51]

Here we see the recognition of a struggle between *competing aesthetics*, rather than a universalized (Romantic) aesthetic that is being violated in the pursuit of profit or utility.

[50] Moore, *A Plain Statement*, 23-4 and 35-6.
[51] Ibid., 54, emphasis added.

In other words, Moore recognized that there were people like DeWitt and Verplanck who truly believed in a classical aesthetic of symmetry (see Chapter 4), yet he did not share their sentiments and vigorously fought against them.

Moore was not necessarily seeking to proselytize the DeWitts of the world, he merely wished that his own aesthetic would not be completely overridden by what John Randel Jr. calls the aesthetic of "beautiful uniformity."[52] These competing aesthetics, of course, were manifestations of deeper underlying politico-economic interests. Yet, the fact that the politics of landscape transformation were articulated in a discourse on aesthetics is worth noting. Using the language of aesthetics was a convenient way of de-politicizing one's own politico-economic agenda,[53] much like the reliance on science (and the technical experts) was a means of reducing a political problem to a mere technical calculation.

The effectiveness of such de-politicization, no doubt, is what makes Moore so persuasive when he makes statements such as the following:

> The changes wrought in the face of this island by the present mode of levelling and filling, and thus reducing it to a flat surface, are lamented by persons of taste, as destructive to the greatest beauties of which our city is susceptible. Although our corporation may be so devoted to this system, that they cannot think any beauty to exist without it, they might, at least in some instances, yield to the taste of others. But, to judge from appearances, they seem resolved to spare nothing that bears the semblance of a rising ground; nothing is to be left unmolested which does not coincide with the street-commissioner's plummet and level. These are men, as has been well observed, who would have cut down the seven hills of Rome, on which are erected her triumphant monuments of beauty and magnificence, and have thrown them into the Tyber or the Pomptine marshes.[54]

[52] Randel, "City of New York, north of Canal street, in 1808 to 1821," 848.
[53] Duncan and Duncan (2001), "The Aestheticization of the Politics of Landscape Preservation," *Annals of the Association of American Geographers* **91** (2), 387-409.
[54] Moore, *A Plain Statement*, 49-50.

While Moore compares Manhattan's hills to those of ancient Rome, the Street Commissioners also used Roman history as an analogy for the "destiny" of New York City and the American Empire (see Chapter 4). Both proponents and opponents of the grid, therefore, sought to appropriate the history of Roman antiquity to bolster their political positions. The Commissioners, no doubt, could have appreciated Moore's reference to Roman history, yet they would have likely responded by maintaining that the "triumphant monuments" of the American Empire had yet to be built and that the grid would pave the way for American "beauty and magnificence." Monumental history,[55] therefore, can be used to serve competing political agendas by providing a sense of legitimacy to the battle cries of warring armies on the battlefield of life.

Given Moore's positionality, can one blame him for fighting against the "armies of street openers" and "the street-commissioner's plummet and level"? If the city succeeded in reducing the island to a flat surface, this would have spelled the "doom" of the conveniences so cherished by those with summer homes above the present Houston Street. If the technical experts held a monopoly on "scientific truth" (after all, they were the ones with the maps and measuring instruments), then would not an aesthetic argument be the only other means by which to de-politicize one's political program?

Not exactly. An even more effective strategy was to pull the wool out from over the public's eyes and show the "technical expert" for who he really was: a political engineer. Moore does so with style and a touch of biblical irony:

> To a person unacquainted with the abject dependence of the landowners in this island upon the will of the corporation, it would be quite ridiculous to hear these gentlemen talk in this manner of cutting and carving the property of others. But, it is, in truth, a thing not to be thought of with calmness, that the owners of real

[55] Nietzsche (1980), *On the Advantages and Disadvantages of History for Life*, [1874], Indianapolis: Hackett Publishing Company, Inc., 14.

> property in this city are so much at the mercy of a few men, that the street-commissioner may stand on an eminence in the centre of the island, stretch out his hand, like Moses over the Red Sea; command all within the reach of his eye to be overwhelmed; and find men ready to declare publicly that they think his measures the best which could be devised. Not only so, but those who are to suffer must furnish the means of their own destruction; they must become their own executioners.[56]

Moore argues that since the Common Council was dependent "upon their street-commissioner for all their information," this gave the street commissioner too much power to sway them over to his opinion.[57] As Moore himself puts it, "it is almost a thing of course that they [the Common Council] should be swayed by his opinion in matters with which they are, for the most part, totally unacquainted, but which he is obliged by his office to make the subject of his particular attention."[58]

Placing this much power in the hands of one man was undemocratic as far as Moore was concerned. And, supposing for a moment that all political decisions could be reduced to a mathematical calculus, Moore still insists that "so many and various are the occupations of a street-commissioner, that, had he the genius and knowledge of Newton, the task which he has to perform would be too great."[59] But, according to Moore, the experts were not beyond politics. Rather, they were often forced to make political decisions under the guise of mathematical exactitude.

Creating a street plan that had the *appearance* of scientific rationality through the use of a geometrical logic and a vocabulary of numbers by no means meant that the plan itself somehow became more "scientific," and, hence, less political. Moore did not deny

---

[56] Moore, *A Plain Statement*, 38-9. For another nineteenth-century depiction of the technical expert as Moses, see Powell (1997), "Enterprise and Dependency: Water Management in Australia," *Ecology and Empire: Environmental History of Settler Societies*, Griffiths and Robin. Seattle: University of Washington Press, 110.
[57] Moore, *A Plain Statement*, 10.
[58] Ibid.
[59] Ibid., 10-1.

that Randel, for instance, was an honest man who had mapped out the street and avenues of the grid plan with mathematical precision. "But if the whole system be intrinsically wrong," remarks Moore, "no uprightness of intention in those who blindly follow that system can compensate for the injury sustained in consequence of it."[60]

We got a taste of what it meant to "blindly follow the system" when Randel countered the property owners who had him arrested by maintaining that he was simply an "agent of the Commissioners" and that he was merely conducting "surveys under instructions from the Commissioners" (see Chapter 3).[61] This is the language of *de-politicization*, when the technical expert claims to be "beyond politics." Yet, the moment that Randel set foot onto John Mills' property and had his survey team "cut down trees, and do other damage," Randel himself was engaging in spatial politics. No action that Randel took—conducting the surveys, drawing the maps, setting the stone monuments—was "beyond politics" regardless of how many times Randel claimed to be following "instructions from the Commissioners."

For Moore, the whole system of leveling Manhattan's topography to impose a mathematical grid was all "wrong." He could not accept the maxim that "private convenience must give way to public good," because he felt that landowners were being unfairly "oppressed" for the benefit of the working class.[62] "Sometimes a considerable proportion of the members of our corporation are mechanics," notes Moore, "and persons whose influence is principally among those classes of the community to whom it is indifferent what the eventual result of their industry may be to society, if they but obtain

[60] Ibid., 8.
[61] Randel, "City of New York, north of Canal street, in 1808 to 1821," 848.
[62] Moore, *A Plain Statement*, 6-13.

employment, and are well paid out of the pockets of their richer fellow citizens."[63] The benefits assessment system of financing street construction, according to Moore, essentially amounted to "private property being invaded by public authority, without necessity and without compensation."[64]

Moreover, since those landowners with suburban villas had already risen to "their permanent station on the face of the earth," all this business about destroying their cherished hills was "all needless waste of time, money and labour."[65] Moore was perfectly content to have "northern" Manhattan remain a suburban dreamland forever—like a picture which captures a glimmer of a moment and holds it still. Would it not be "convenient" if Manhattan's suburban landscape were protected from the armies of urbanization so that Moore could enjoy his summer home in Chelsea? Using language uncannily resembling Verplanck six years later (see Chapter 4), Moore insists that "agreeably to a leading principle which appears to pervade the universe; and which must have presented itself to every observing mind,—in all the operations of nature or art, *the greatest results are attained by the simplest means*."[66] For Moore, the "simplest means" was not to flatten the surface of Manhattan and carve it into a simple grid (which would cost a considerable sum). Rather, in Moore's eyes, the simplest solution was to use the "contours of the land" to guide public policy. The ultimate question, for Moore, was:

[63] Ibid., 12.
[64] Ibid., 8.
[65] Ibid., 6-8.
[66] Moore, *A Plain Statement*, 52, emphasis added. Verplanck's wording of this idea is that beauty "attains the grandest results by the simplest means." Moore and Verplanck were both faculty members together at the General Theological Seminar in the 1820s. July (1951), *The Essential New Yorker: Gulian Crommelin Verplanck*, Durham, North Carolina: Duke University Press, 211.

"Must every part of a city be equally elevated? Are we to be reduced to a perfect uniformity?"[67]

No Predictable Future or Guaranteed Order Here: "the level of the ground is not determined, and nobody can say what it will be"

When we explored the literature on the Manhattan grid at the beginning of our journey, we confronted historian Edward Spann who argued that while landowners may have been angered over the intrusion of their property, at least they "received a general guarantee of future opportunities and restraints. The public plan thus provided a stable, assured basis for private planning . . . . it above all provided them with a predictable future and a guaranteed order within which they could carry on their myriad acts of development."[68] While one of the initial goals of devising a "permanent plan" for the streets of Manhattan was to provide some sense of stability for future growth, Moore correctly notes that the legislation of 1807 did not require that the Commissioners specify what the *future elevations* of the island would be, and the Commissioners did not do so on their own initiative. The determination of the future elevations of city blocks in Manhattan, therefore, was to be decided piecemeal by the Common Council, which led to great uncertainty concerning the level at which landowners should construct their buildings without having them demolished if the street grade was subsequently changed.[69]

---

[67] Moore, *A Plain Statement*, 31.
[68] Spann (1988), "The Greatest Grid: The New York Plan of 1811," *Two Centuries of American Planning*, Schaffer. Baltimore: Johns Hopkins University Press, 23 and 35. See Chapter 2 of the present study.
[69] Moore, *A Plain Statement*, 8-10 and 45-8.

"The map of the island shows where the avenues and streets are to be," Moore admits, "but the elevations and depressions which must take place before an avenue or street is finally regulated are to be determined by the corporation [i.e. the Common Council]."[70] The plan, says Moore, would have been much improved—and uncertainty much alleviated—if all the future elevations had been given from the very start: "Were the *whole* plan prepared, that is, were the profiles [i.e. elevations], as well as the courses and widths of the avenues and streets, all determined, and then merely the *execution* of this plan committed to the corporation, much less inconvenience would ensue."[71]

What was so unnerving about leaving the determination of elevations to the Common Council was that since its members were annually elected, even when they did decide the future elevations for a particular area, their decision could always be changed after a new election: "Even if a plan [for future elevations] be adopted and acted upon, it may be changed and undone by a subsequent board. *Thus the public can enjoy no security that any plan shall be carried into full and final effect*."[72] This lack of security was precisely what the members of the Common Council feared when they petitioned the State Legislature in 1807 to devise a "final and conclusive" plan for the streets of Manhattan. They worried that any street plan chosen by the Common Council could easily be "disregarded or annulled by their successors" (see Chapter 3).

The results of this ad hoc manner of deciding future elevations led to considerable "casualties" for those landowners who were brave enough to erect any buildings. As one example, Moore describes the perilous fate of a wire and card manufactory:

---

[70] Ibid., 9.
[71] Ibid.
[72] Ibid., 10, emphasis added.

> The proprietors of the wire or card manufactory at Greenwich employed every method they could devise to ascertain how their buildings should be placed in security against the regulations to which the ground about them might be subjected. The buildings were erected at a cost of upwards of thirty thousand dollars . . . . But notwithstanding their supposed security, Asylum-street . . . has been heaped up, so as to rise several feet above the base of the manufactory. The injury which is thus sustained is self-evident. But, in addition to this, the proprietors have been obliged to pay one hundred and thirty-three dollars and some cents, as their quota of the assessments for raising the street. When the streets on the other three sides of the plot in which the manufactory stands are raised, the assessments for so doing must likewise be paid; and the corporation [of the City of New York] may then order the box this made by their regulations to be filled to the level of the streets around it, without regard to, and without being accountable for, the ruin to the buildings which must ensue. This cannot be right. No law can make it just for individuals to give up their rights, and sacrifice their property to public convenience or public whim, without any remuneration on the part of that public.[73]

Incidents like this are, no doubt, what Moore is referring to when he notes that the implementation of the grid forced landowners to "furnish the means of their own destruction" and become "their own executioners."

While the grid plan did, for the most part, provide "a predictable future and a guaranteed order" in terms of the future *locations* of avenues and streets (the x- and y-coordinates of the materialized Cartesian coordinate system discussed in Chapter 1), Moore rightly argues that the plan's total silence concerning future *elevations* (the "z-coordinates," if you will) left landowners in a state of utter uncertainty, because "the level of the ground is not determined, and nobody can say what it will be."[74] Such uncertainty, and examples like the Greenwich manufactory, led many landowners to refrain from constructing buildings or buying property that had yet to be regulated, which according to Moore, led to prices "so low as to invite speculation."[75]

---

[73] Ibid., 45-6.
[74] Ibid., 19.
[75] Ibid., 47.

As Moore himself explains, "No one dares to purchase [property] . . . because no one can foretell the future condition of the property which he may buy, nor the future assessments with which it may be burdened. It is all a lottery, in which the tickets are so high, and the chances of gain so few, that people dread to venture."[76] Having said all of this, however, it is worth noting that when pressed, even people such as Clement Clarke Moore eventually yielded to the "inevitable" grid plan and tried to make the best of their circumstances. Several years after writing his *Plain Statement*, Moore "ordered his estate divided up into blocks."[77]

Manhattan's Anomaly: The Meandering Broad Way and the Logic of Irregularity

Over the course of the nineteenth century, the plan concocted in the Street Commissioners' minds was actualized through the process of physical landscape transformation. DeWitt's "wonderful system" of "algebraic characters" became a material reality in the form of the numerically-coded streets and avenues of the modern Manhattan landscape. One might presume, then, that the Cartesian logic of the Commissioners' Plan dominated all other logics when it came to constructing the conditions of politico-economic efficiency. It would seem, therefore, that the city was planned on a "rational" (methodical) basis, in stark contrast to the unguided "spontaneous growth" that results from "the criminal neglect of early discipline in the proper duties of life." Anything other than geometrical regularity, from this perspective, would appear "irrational" and "undisciplined." It was these "irrational impulses" (animal instincts) that

[76] Ibid.
[77] Patterson, *Old Chelsea and Saint Peter's Church*, 26-7.

Morris and DeWitt sought to eradicate, or more precisely to control (domesticate), through their disciplinary-utilitarian framework. However, the fact that the government decided not to take the Commissioners' advice to do away with Broadway—whose meandering path clearly defies the Cartesian regularity of the grid—throws this argument of "rational order" vis-à-vis what Le Corbusier calls the "Pack-Donkey's Way" for a spin.[78]

The Pack-Donkey's Way is seen as "irregular" because it does not conform to a linear geometrical logic. Instead of following a straight line, the donkey and other animals such as the cow (and we must surely include the human when hiking on hilly terrain), "meanders along, meditates a little in his scatter-brained and distracted fashion . . . [and] zigzags in order to avoid the larger stones, or to ease the climb, or to gain a little shade; *he takes the line of least resistance*."[79] When viewed from above and abstracted from its topographical context, the path that the donkey (or hiker) takes seems "scatter-brained and distracted," yet there is a method to the madness—that method, of course, is the logic of the "line of least resistance." It is, in other words, the logic of following the "contours of the land," just as water takes the path of least resistance when flowing downhill. This logic—and it is a logic—has humorously been called the "bovine instinct," as cows often create such paths wherever they tread.[80]

While what is now Broadway originated as an Indian trail, it was, in fact, later used to drive cattle out to pastures in the Common Lands (Figure 5.10).[81] The logic was

[78] Kostof (1991), *The City Shaped: Urban Patterns and Meanings Through History*, Boston: Bulfinch Press, 95.
[79] Le Corbusier as quoted in Kostof, *The City Shaped*, 95, emphasis added.
[80] Upton (1869), "The Plan of San Francisco," *The Overland Monthly* **2** (February), 131-6; Brown, Ed. (1917), *Valentine's Manual of the City of New York for 1916-7*, New York: Valentine Company, 67.
[81] Brown, *Valentine's Manual (1916-7)*, 70.

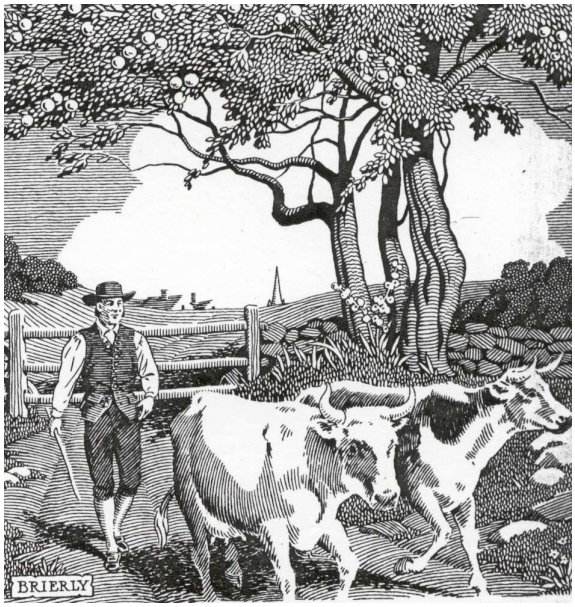


Figure 5.10: A retrospective depiction of cows being herded up Broadway to the Common Lands (Source: Brierly, 1953)

simple: "It was the line of least resistance and thus early showed its utility."[82] When the Commissioners laid out their grid plan, they were essentially trying to erase this previous logic, and its associated utility, from the landscape. The Manhattan of the future, the Commissioners seem to be telling us, must be a great Empire City not a rugged isle for goat herding and hen houses. "With their distaste for oddly shaped blocks," remarks David Dunlap in *On Broadway: A Journey Uptown Over Time* (1990), "the commissioners viewed Broadway and the Bloomingdale Road as anathema."[83] If such "deviant" paths were to remain, they would completely upset the "rational" appearance of the grid. In their Plan of 1811, therefore, the Commissioners decided to have Broadway continue in a straight line up to 23rd Street where it was to get "lost" in the military Parade. As John Randel noted in retrospect some fifty years after the grid plan was laid

[82] Ibid.
[83] Dunlap (1990), *On Broadway: A Journey Uptown Over Time*, New York: Rizzoli International Publications, Inc, 3.

out, "By the '*Commissioners' Plan*,' Broadway was to have been *straightened* . . . by continuing it from the bend at the present 10th street, northward between 3d and 4th avenues to 23d street, where it was lost in '*The Parade*.'"[84]

While the Commissioners viewed "irregularities" such as Broadway and Bloomingdale Road (now upper Broadway) as inconsistent with their utilitarian program, members of the Common Council and the New York State Legislature felt otherwise. Upon petition from the Common Council, the State Legislature passed a law in 1815 to ensure that "Broadway shall not be continued northwardly from the Tenth street to the Twenty-third street, as is contemplated by the said commissioners and designated on the said map or plan."[85] Rather than taking a straight line to 23rd Street, Broadway was "bent" at 10th Street so as to "align Broadway with the Bowery Road, making for a smoother and more direct junction with the angle of the Bloomingdale Road at Sixteenth Street," as Dunlap points out.[86] Just as Broadway was exempted from the Commissioners' Plan, so too was Bloomingdale Road through the passage of subsequent state legislation in 1838 and 1847.[87] The meandering Bloomingdale Road (Broadway), insisted the Legislature, "shall remain and be kept open as a public road."[88]

The government did not choose to keep Broadway because its meanderings had sentimental value. Rather, Broadway was "saved" from the plan of the Commissioners because the plan, not Broadway, was inconsistent with the politico-economic values of the government in numerous respects. Members of the Common Council seem to have

[84] Randel, "City of New York, north of Canal street, in 1808 to 1821," 850.
[85] Valentine (1862), *Laws of N.Y.S. Relating to the City of N.Y.*, New York (held at the Municipal Reference Library), 818.
[86] Dunlap, *On Broadway*, 91.
[87] Valentine, *Laws of N.Y.S. Relating to the City of N.Y.*, 846-52.
[88] Ibid., 847.

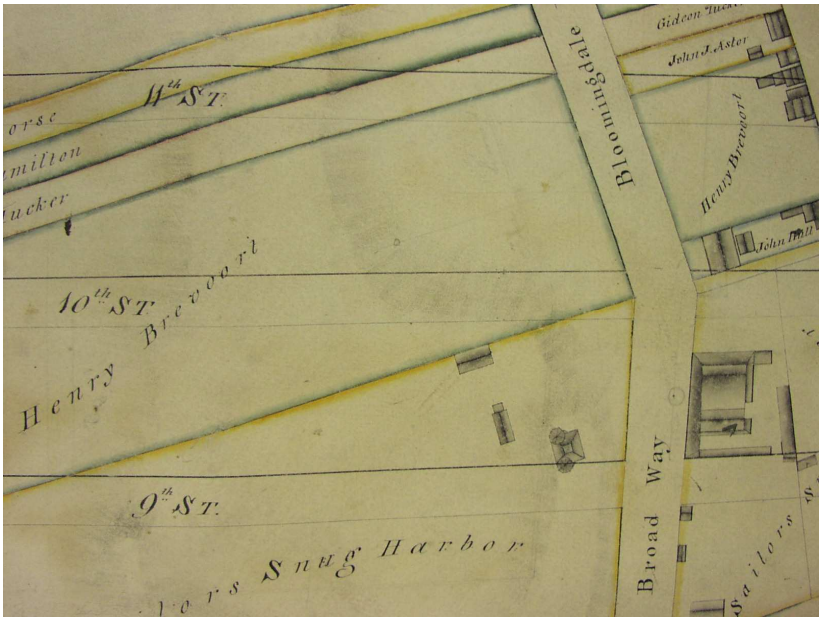


Figure 5.11: Henry Brevoort's property cut in half by the opening of Broadway (Bloomingdale Road) at 10th Street (Source: Randel, c. 1819)

been more accommodating to the desires of local landowners than the Commissioners had anticipated. In the law of 1815, the rights of landowners who would have been affected by the straightening of Broadway were a paramount concern:

> the several and respective owners and proprietors of the lands over which the said Broadway would have run, and which would have formed that street from Tenth street to Twenty-third street, according to the map or plan of the said commissioners . . . shall have, hold, occupy, possess, and improve the same in the same manner that they would have been entitled to if the said commissioners had not included such lands and tenements in the said . . . Broadway.[89]

One of these "owners and proprietors of the lands over the said Broadway" was Henry Brevoort Sr., who owned property at the present intersection of Broadway and 10th Street (Figure 5.11). In 1807, Brevoort and six other landowners sent a petition to the Common

[89] Ibid., 820.

Council entitled, "Reasons of several land holders in Broad Way against the payment of the Sums assessed upon them for Opening the Same."[90]

In this petition, they insist that they should not have to pay the assessments for opening "the Broad Way" because "the further opening of the said Street was never solicited by them, or any of them, but has been done at the instance and by the desire of others."[91] The petitioners also maintain that government agents promised them that they would not have to pay any assessments as long as they gave up a portion of their property for the public road:

> Because as an Inducement to the Undersigned to cede as much of their respective lands as was necessary to form part of the said Street they were assured and had every reason to believe that the lands required from them respectively for that purpose would be accepted in lieu of all demands to be made upon them on account of the Opening of the said Street, and that in no event were they or was either of them to be called upon for the payments of any money for the opening of the Same.[92]

Not only were the petitioners upset that they would have to pay additional assessments, they were outraged that there was no talk of reimbursing them for "the damages the Whole or either of them should sustain by opening the said Street."[93]

If the city did reimburse some individual landowners for "damages," they did so by assessing others. That all landowners were not compensated equally for equal losses is one of the petitioners' harshest criticisms of the city:

> Because in one instance at least the Owner of lands through which the said Street is now further opened is to be paid out of the amount of the said assessment, not only for his buildings, but for fences and for Poplar trees standing in the Same

---

[90] Brevoort (1807), *Reasons of several land holders in Broad Way against the payment of the Sums assessed upon them for Opening the Same, Submitted to the Honorable the Mayor & Corporation of the City & County of New York,* Municipal Archives, NYC Common Council Papers (1670-1831), "Street Commissioner: Accounts-Assessments," Box 31, Folder 858, Microfilm Roll # 31. New York.
[91] Ibid.
[92] Ibid.
[93] Ibid.

> Whereas no provision is contemplated to indemnify any of the undersigned for their buildings, fences or fruit trees similarly circumstanced.—[94]

This is a classic case of landowners resisting street construction in early nineteenth-century Manhattan, and it is not improbable that landowners such as Brevoort were partly responsible for the 1815 law preventing Broadway from being straightened and extended from 10th Street to 23rd Street as specified on the Commissioners' Plan. As time passed and the details of the Brevoort petition faded, this incident grew into a myth that continues to circulate in the realm of urban legends in New York City.[95]

In the "creation myth" associated with the bend in Broadway at 10th Street, the legendary Henry Brevoort plays the part of the stubborn landowner who fights against the opening of Broadway through his property. As is often the case with creation myths, there is at least a hint of historical truth amid fancy. Yet, it is the fanciful aspect of myth that gives it its symbolic importance and instills a "moral" into its designated audience. The legend of the bend in Broadway at 10th Street, indeed, offers a "moral" that sheds light on the issues raised by the landowner's encounter with the technical expert in nineteenth-century Manhattan.

A brief vignette of this legend is given in J. Brierly's *The Streets of Old New York* (1953):

> In 1807, near the present Grace Church, Henry Brevoort kept a tavern. It was open country out here, but New York was steadily growing and the "city fathers" were planning new streets, intending to extend Broadway northward in a straight line as far as 14th Street. This would have made it necessary to chop down a very old and beautiful tree, standing close to the tavern. Brevoort had spent many happy hours smoking his pipe in the shade of this old tree; so when he was informed of the city planners' scheme, he lost no time in using all his influence to change their plans. He was successful and, instead of continuing Broadway in a

[94] Ibid.
[95] Guiterman (1920), *Ballads of Old New York*, New York: Harper & Brothers Publishers, 279-86; Brierly (1953), *The Streets of Old New York*, New York: Hastings House Publishers, 90-1.

> straight line, they "bent" it a little to the westward at 10th Street, thus saving Henry's tree. Today, the tree, the tavern and the tavern-keeper have all passed on, but the "bend" in Broadway still survives.[96]

Regardless of historical accuracy, this legend serves as a parable offering an explanation of the "rationality of deviance," which is symbolized as the independent landowner's attempt to protect his "rights" against the "city fathers" and their street plans. To the deviant landowner, the logic of a standardized street system flew in the face of private property rights, and it was the duty of the landowner to protect his property so that he could continue to enjoy those "many happy hours smoking his pipe in the shade" (Figure 5.12).

Another rendition of this legend of the bend in Broadway is given by Arthur Guiterman in his *Ballads of Old New York* (1920), this time in the form of a poem called the "Dutchman's Quirk."[97] The storyline is roughly the same but the emphasis is different. Not only is "Old Hendrick Brevoort" fighting against the city fathers, he is also seen as fighting Reason and Science itself, and their municipal representative, the technical expert. The poet begins by describing the current "irregularity" at 10th Street: "Broadway reaches northward from fair Bowling / Green / Direct as an arrow-flight, flexureless, clean / . . . Quite suddenly then, / At the street numbered 'Ten,' / . . . It leaps to the west / Like a roadway possessed! / In flagrant defiance / Of Reason and Science." The stubborn landowner, Brevoort, then shows up on the scene to explain Broadway's "flagrant defiance / of Reason and Science" (read: deviance from the numerical, rectilinear Cartesian logic of the grid).

[96] Ibid.
[97] Guiterman, *Ballads of Old New York*, 280-6.

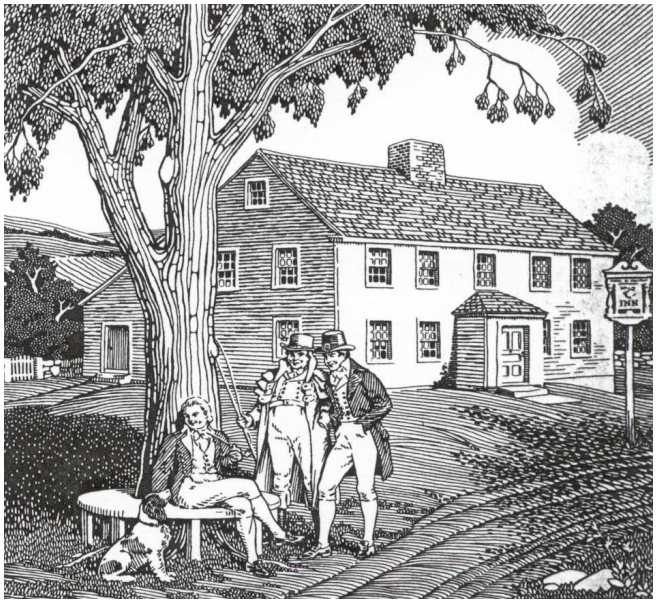


Figure 5.12: The myth of Henry Brevoort and his Tulip Tree (Source: Brierly, 1953)

Old Hendrick Brevoort, so the stories goes, had a "tulip-tree"[98] under which it "T'was Hendrick's delight in the cool of its bower / To smoke and to ponder from hour to hour." Brevoort would do anything for his tree, "'For, truly,' said he, / 'Of all friends, the very best friend is my tree / That never provokes me and never deceives, / But echoes my thoughts with the sigh of its / leaves.'" But, Old Hendrick's "best friend" was in danger. The city fathers had "sanctioned a plan / To straighten the roadways that rambled and ran." Broadway was, indeed, one of these meandering roads, and the city had put together a scientific army to carry out their plan: "they summoned a file / Of axmen with axes and chainmen with chains / And hardy surveyors of mountains and plains / And gave them instructions, / In spite of all ructions, / To follow the chart / Nor ever depart."

And off they went: "Forth sailed that trigonometrical band / To further the work that the Fathers had planned; / And strictly obeying / The rules of surveying, / Invested

[98] The term "tulip-tree" is actually short for "tulip-poplar tree," and given the actual Brevoort petition discussed above, there is good reason to believe that Brevoort did, in fact, have "Poplar trees" in the vicinity of 10th Street and Broadway.

Figure 5.13: Henry Brevoort sitting by his Tulip Tree (Source: Guiterman, 1920)

with powers that challenged gainsaying, / They carried the roadway o'er high land and low, / Direct as the flight of a bee or a crow." This "trigonometrical band" encountered resistance, of course, but it was nothing they could not handle—that is, until they came to Old Brevoort's property: "Though housewives defended beleagured dominions / Or voiced from their doorways unfettered opinions / Of levels and transits and government minions— / Though cattle protested from buffeted sheds, / Though turnips and cabbages rained on their heads, / Though farmer boys fought them, / Though maidens besought them, / They followed their map, undismayed, till it / brought them / To Hendrick Brevoort at the foot of his tree" (Figure 5.13).

And, what did Brevoort do according to the fanciful poet? "What! Yield up his friend to the axman? / Not he!" Rather,

> He called out his neighbors . . .
> Both merry young springalds and crusty curmud-

geons
With ax-helves and pitchforks and scythe-blades
and bludgeons,
Resolved to defend
To the bitterest end
The right of a Dutchman to stand by his friend!

The Knights of the Sextant yet sought to prevail
With promise of riches or threat of the jail;
But, finding old Hendrick perverse or obtuse,
They drew off their army and patched up a
truce.

Brevoort left the tree in the keep of his horde
To make good in law what he held by the sword.
He called on the Mayor,
City Surveyor,
To Coroner, Marshal, and every taxpayer
Of substance or influence, urging his plea
Of "Woodman, oh, woodman, don't fool with
that tree!"

Sing hey! for the hard-headed man with a
whim!
The plan of a city was altered for him!
The highway led straight
To Hendrick's estate,
Then gallantly swerved
And gracefully curved
Away to the westward . . . . The tree was preserved!
(To chuckle, no doubt,
At the numberless rout
Of mortals his Majesty made to turn out.)

When up through the cañon entitled "Broadway"
You're riding on business or pleasure to-day,
And suddenly, close to the front of Grace Church,
The car takes a curve with a jolt and a lurch
That loosens, mayhap,
Your hold on a strap
And drops you quite neatly in someone's lap,
Remember, the cause of that shameful jerk
Is, just as I've shown you, a "Dutchman's Quirk!"

Figure 5.14: The westward bend in Broadway at 10th Street (photo taken by author, 2001)

This story, of course, is a humorous retrospective account written in the first quarter of the twentieth century, yet historical accuracy aside, the themes it addresses (e.g. struggles between landowners and surveyors, the use of "the rules of surveying" as somehow giving the appearance of a "scientific" plan, the imposition of straight lines "o'er high land and low," and the passing of the days of "farmer boys" in Manhattan) are quite consistent with the themes that I have addressed throughout the present study. It reminds us that the Cartesian logic of numerical perpendiculars is merely *one* logic out of many and that even the meanderings of the Broad Way—that diagonal "anomaly" in a sea of rectangularity—has its own logic, or "rationality" (Figure 5.14). Broadway's continuing existence reminds us that projects of material rationalization—i.e. attempts to create blank slates upon which mathematical orders are inscribed—often encounter resistance

from existing socio-political actors and that “deviance” is the inevitable companion of “rational order.”

6. SOME "ELUCIDATORY REMARKS" ON THE RATIONALIZED LANDSCAPE

> *O* sancta simplicita! *In what strange simplification and falsification man lives! One can never cease wondering once one has acquired eyes for this marvel! How we have made everything around us clear and free and easy and simple! how we have been able to give our senses a passport to everything superficial, our thoughts a divine desire for wanton leaps and inferences! how from the beginning we have contrived to retain our ignorance in order to enjoy an almost inconceivable freedom.*
>
> —Nietzsche, *Beyond Good and Evil* (1989 [1886])

The Birth of the Disciplinary Society: Empire-Building, Capitalism, and the Protestant Ethic

In the preceding two chapters, I have attempted to reconstruct the lens through which the designers of the grid plan, and their initial critics, viewed the rationalization of the Manhattan landscape. In the present chapter, I would like to take a step back and examine the Street Commissioners' logic from a critical perspective that engages the larger theoretical problematic that should be considered when trying to make sense of their rationalization project. I shall also offer some "elucidatory remarks"—to use a phrase from the legislation of 1807—on the continuing consequences of the rationalized landscape and its contribution to the birth of the disciplinary society.

While I have by and large focused on the Street Commissioners' discourses in order to grapple with the logic behind the Manhattan grid, the contents of these discourses did not magically fall from a metaphysical heaven into their minds but were rather embedded within the material practices of the emerging American Empire. Certainly, there is a good deal of truth in Marx's view that "The production of ideas, of

conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life."[1] Marx, however, goes a step further by arguing that "Life is not determined by consciousness, but consciousness by life . . . . [the materialist view of history] does not explain practice from the idea but explains the formation of ideas from material practice."[2] As is well known, Weber viewed such a "one-sided materialistic" interpretation of history as being over-simplistic and argued that ideas could play a crucial role in influencing the behavior of groups and individuals.[3]

I have sought to transcend this debate by describing how a particular disciplinary-utilitarian discourse was part and parcel of the material practices of the American Empire while also exploring how physical landscapes can be converted into materialized conceptual frameworks (sign systems) through the process of inscription. When a physical landscape is transformed into an interactive sign system, the distinction between the "material" and the "conceptual" dissolves: the landscape becomes a *material-conceptual hybrid*.[4] The way people think is, of course, influenced by their material practices, but conceptual frameworks can also be inscribed into particular landscapes, which has the effect of spatially rationalizing politico-economic processes while also reinforcing the conceptual framework that has thus become materialized.

---

[1] Marx and Engels (1970), *The German Ideology*, [1845], New York: International Publishers, 47.
[2] Ibid., 47 and 58.
[3] Weber (2000), *The Protestant Ethic and the Spirit of Capitalism*, [1930], New York: Routledge, 183.
[4] Latour (1999), *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass: Harvard University Press, 47-8. Also, see Sluyter (1999), "The Making of the Myth in Postcolonial Development: Material-Conceptual Landscape Transformation in Sixteenth-Century Veracruz," *Annals of the Association of American Geographers* **89** (3), 377-401; Sluyter (2001), "Colonialism and Landscape in the Americas: Material/Conceptual Transformations and Continuing Consequences," *Annals of the Association of American Geographers* **91** (2), 410-28.

While there are many different windows through which to examine the social process, I have attempted to view the world through the Commissioners' eyes using discourse analysis in order to better understand the logic behind the Manhattan grid. One of the hazards of this approach is that one may potentially descend into the same trap that historians have fallen into with regard to the *Commissioners' Remarks*. That is, we must be cautious not to take the Street Commissioners' words at face value. DeWitt himself warned against this when he reminded us to be "Aware of the false estimate we are prone to make of our own productions."

While DeWitt does, in fact, seem to be the ideal poster-child for Weber's theory that the Protestant ethic was the foundation of the modern capitalist spirit, DeWitt's ideas did not emerge in an ethereal world disconnected from the material conditions in which he was immersed. Just because DeWitt and Morris likely believed that the purpose of acquiring wealth and power was for heavenly salvation, this should not preclude us from finding it rather too "convenient" that God should be so partial to a particular group's project of empire-building and world domination. Or, to put it another way, it is all-too-convenient that the Street Commissioners' religious ideas were so compatible with the "will to power"[5] of the expanding American Empire of which they were a part.

Underlying their "consoling hope of immortality" and pursuit of strict discipline to achieve eternal salvation, the will to power permeates the Commissioners' thought processes right down to the very core and becomes manifest wherever they turn "the contemplative eye." These men of renunciation[6] were not attempting to rid the world of animal desire through reason—rather, they sought to harness the instincts of the

[5] Nietzsche (1989), *Beyond Good and Evil: Prelude to a Philosophy of the Future*, [1886], New York: Vintage Books, 21.
[6] Nietzsche (1974), *The Gay Science*, [1887], New York: Vintage Books, 100-1.

American people with the whip of discipline to secure the conquest of the North American continent. “What does the man of renunciation do?” asked Nietzsche in 1887. His answer can help us understand how the “man of renunciation” is also a “man of affirmation”:

> He strives for a higher world, he wants to fly further and higher than all men of affirmation—he throws away much that would encumber his flight, including not a little that he esteems and likes; he sacrifices it to his desire for the heights. This sacrificing, this throwing way, however, is precisely what alone becomes visible and leads people to call him the man of renunciation: it is as such that he confronts us, shrouded in his hood, as if he were the soul of a hairshirt. But he is quite satisfied with the impression he makes on us: he wants to conceal from us his desire, his pride, his intention to soar *beyond* us.—Yes, he is cleverer than we thought and so polite to us—this man of affirmation. For that is what he is, no less than we, even in his renunciation.[7]

Even under the cloak of self-denial and self-renunciation, there lies the affirmative will to power.

If the American Empire was to achieve power within the European-dominated world system, the accumulation of wealth via the capitalist mode of production was essential. The ultimate success of this project, however, was dependent on creating a disciplined population that, as DeWitt notes, “must have it impressed on them, as an undeniable self-evident proposition, that they must work and work hard both in qualifying themselves for the business of their profession, whatever that may be . . . and that all their powers must be strenuously, systematically and perseveringly exerted, if they aim at any thing like superiority.” This is the language of capital in the service of empire. But, by what means could DeWitt legitimize the imperial longing for power?

One of the most effective ways of convincing people—especially oneself—that a particular practice is legitimate is to universalize, or “eternalize,” it through a teleological

[7] Ibid.

discourse while also throwing in a few "laws of nature," to boot. It is in this way that discourse became a medium of power for members of the ruling class of Enlightenment America, such as Simeon DeWitt and Gouverneur Morris. The "councils of eternal wisdom," DeWitt reminds us, had "fixed unalterably" the "destiny of man." If this was the case, then God himself must have been a capitalist since it was one of his commandments, according to DeWitt, that man "MUST BE EMPLOYED." Fortunately, God had made a "wise provision in the laws of nature" to assure that man "must have some object of pursuit or be miserable . . . that he has innumerable wants to coerce him to fields where he must labor or die." This continuous pursuit of "innumerable wants" was the "flaming sword of paradise" that sustained the "moral orbit of empire."

It was, of course, also the very basis of the capitalist mode of production that was emerging in nineteenth-century America. If capital accumulation was to provide a long-term foundation for the American Empire, such accumulations could not be squandered on "infamous gratifications" and a life of "dissipation." As Marx notes, the capitalist must demonstrate "his bourgeois virtue by consuming only a portion of it and converting the rest into money" in order to continue the cycle of accumulation through the circulation of commodities.[8] In other words, capitalists "have a choice of consuming or reinvesting. There arises a 'Faustian conflict between the passion for accumulation and the desire for enjoyment.'"[9]

Far from being the "root cause" of modern capitalism, DeWitt's ethic of self-renunciation—the so-called "Protestant ethic"—was a metaphysical articulation of the pragmatic solution to the capitalist's dilemma: "The passion for accumulation drives out

[8] Marx (1976), *Capital: A Critique of Political Economy, Vol. 1*, [1867], New York: Penguin Books, 732.
[9] Harvey (1999), *The Limits to Capital*, [1982], New York: Verso, 28-9.

the desire for enjoyment."[10] This solution was pragmatic in the sense that it was essential in a capitalist system where, as Harvey observes, "the capitalist who reinvests can gain the competitive edge of the capitalist who enjoys the surplus as revenues" for consumption.[11] For those not satisfied with "accumulation for accumulation's sake," the belief that capital accumulation served a "higher purpose" of divine salvation offered the consolation so desired and the determination to acquire the "means for the attainment of the objects to be achieved." The net-effect of both capital accumulation and its religious rationalization, however, should not be lost sight of, since it is here where we find the will to power in its most explicit form. The logic of capitalism and its metaphysical "guardian angel," the Protestant ethic, enabled the rapid and often violent expansion of empire and the construction of legible landscapes within which the disciplinary society was born.

The Geometry of Power: Discipline, Material Rationalization, and the Making of the Legible Landscape

While the founding fathers of the United States of America are often portrayed as proponents of "freedom" and "enlightenment" by mainstream historians,[12] not to mention contemporary politicians, the thoughts and actions of Simeon DeWitt and Gouverneur Morris clearly demonstrate that underlying the rhetoric of freedom was the will to power and the development of disciplinary mechanisms of social control. This is what Foucault calls the "dark side" of the historical formation of modern juridico-political structures in

[10] Ibid., 29.
[11] Ibid.
[12] For a contemporary example, see Peterson's Introduction in Peterson (1975), *The Portable Thomas Jefferson*, New York: Penguin Books, xi. This characterization is a classic case of the phenomenon that Marx and Engels' describe in which historians "take every epoch at its word and believe that everything it says and imagines about itself is true." Marx and Engels, *The German Ideology*, 67.

his brilliantly written book, *Discipline and Punish* (1995 [1975]).[13] That freedom and the power-to-dominate are one and the same thing was one of Nietzsche's basic insights, and like Heidegger before him, Foucault was well acquainted with Nietzsche's realization.[14]

During the course of his "great Nietzschean quest"[15] of examining different mechanisms and technologies of power, Foucault explored the relationship between disciplinary power and the organization of space into geometrical forms that facilitate social control.[16] A number of scholars, such as geographer Matthew Hannah, have attempted to explicitly incorporate Foucault's conceptual insights into a framework for analyzing spatial politics.[17] James Scott's *Seeing Like a State*, no doubt, also bears witness to Foucault's influence on the social sciences, despite the fact that Scott does not explicitly acknowledge in any meaningful way the debts his analysis owes to the Foucauldian project. More so than Hannah, however, Scott does examine the imposition of abstract geometrical forms onto material landscapes through "state projects of legibility and simplification."[18]

---

[13] As Foucault himself notes, "Historically, the process by which the bourgeoisie became in the course of the eighteenth century the politically dominant class was masked by the establishment of an explicit, coded and formally egalitarian juridical framework, made possible by the organization of a parliamentary, representative régime. But the development and generalization of disciplinary mechanisms constituted the other, dark side of these processes. The general juridical form that guaranteed a system of rights that were egalitarian in principle was supported by these tiny, everyday, physical mechanisms, by all those systems of micro-power that are essentially non-egalitarian and asymmetrical that we call the disciplines." Foucault (1995), *Discipline and Punish: The Birth of the Prison*, [1975], translated by Alan Sheridan, New York: Vintage Books, 222.

[14] Nietzsche (1969), *Thus Spoke Zarathustra: A Book for Everyone and No One*, [1883], New York: Penguin Books, 137; Nietzsche, *Beyond Good and Evil*, 153. For a brief discussion of the freedom/domination issue with regards to Heidegger and Foucault, see Miller (1993), *The Passion of Michel Foucault*, New York: Doubleday, 48.

[15] Miller, *The Passion of Michel Foucault*, 67.

[16] In particular, see the entire section on "Discipline" in Foucault, *Discipline and Punish*, 135-228.

[17] Hannah (2000), *Governmentality and the Mastery of Territory in Nineteenth-Century America*, New York: Cambridge University Press. Also, see Boyer (1983), *Dreaming the Rational City: The Myth of American City Planning*, Cambridge, Mass: The MIT Press.

[18] Scott (1998), *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven: Yale University Press, 9. While Hannah does periodically mention that the construction of legible landscapes is a prerequisite for projects of social control, his analysis focuses more on human

Before engaging Scott's characterization of projects of landscape simplification in general, and his scattered references to the Manhattan grid in particular, it is important to discuss Foucault's notion of "disciplinary space" in some detail, because it underlies much of Scott's analysis and goes a long way toward explaining the Street Commissioners' disciplinary project in nineteenth-century Manhattan. My aim here is to consider the extent to which my analysis of the logic behind the Manhattan grid conforms with, or diverges from, some of the theoretical frameworks currently on the market of intellectual exchange.

In Part 3 of *Discipline and Punish*, entitled "Discipline," Foucault ruminates[19] over the emergence of what he calls "disciplinary power." While recognizing that disciplinary techniques have a long history, Foucault argues that over the last four hundred years, disciplinary power became the general basis for social control in the West: "Many disciplinary methods had long been in existence—in monasteries, armies, workshops. But in the course of the seventeenth and eighteenth centuries the disciplines became general formulas of domination."[20]

The process of domination, argues Foucault in his typical Nietzschean fashion, must not be seen as a purely negative phenomenon. "We must cease once and for all," Foucault proclaims, "to describe the effects of power in negative terms: it 'excludes', it 'represses', it 'censors', it 'abstracts', it 'masks', it 'conceals'. In fact, power produces; it produces reality; it produces domains of objects and rituals of truth. The individual and

---

populations (and their construction as governmental "objects") than it does on actual *landscape* transformation.

[19] Since Foucault described his project as a "Nietzschean quest," it only makes sense to use Nietzsche's terminology to describe Foucault's discursive process: "One skill is needed—lost today, unfortunately—for the practice of reading as an art: the skill to ruminate, which cows possess but modern man lacks. This is why my writings will, for some time yet, remain difficult to digest." Nietzsche (1956), *The Birth of Tragedy and the Genealogy of Morals*, [1887], Garden City, New York: Doubleday Anchor Books, 157.

[20] Foucault, *Discipline and Punish*, 137.

the knowledge that may be gained of him belong to this production."[21] These are very strong statements, all requiring a good deal of rumination, but for the purposes of the present study, I shall focus on how disciplinary power "produces reality" through the production of rationalized landscapes.

The "general formula of domination" under the regime of disciplinary power is quite simple enough: (1) it makes its subjects *visible* by converting them into "objects" to be dominated while itself remaining invisible, and (2) it achieves the goal of "compulsory visibility," at least in part, through the spatial arrangement of physical "objects" within a legible geometric order. As Foucault himself puts it,

> Disciplinary power . . . is exercised through its invisibility; at the same time it imposes on those whom it subjects a principle of compulsory visibility. In discipline, it is the subjects who have to be seen. Their visibility assures the hold of the power that is exercised over them. It is the fact of being constantly seen, of being able always to be seen, that maintains the disciplined individual in his subjection . . . . In this space of domination, disciplinary power manifests its potency, essentially, by arranging objects.

The "arrangement" of objects, therefore, is central to Foucault's analysis of the mechanics of disciplinary power. This implies that disciplinary power gains its "potency" through the manipulation of spatial relations. "The order of the architecture, which frees at its summit the figures of the dance," Foucault observes, "imposes its rules and its geometry on the disciplined men [and women] on the ground."[22]

As the quintessential example of disciplinary power in its materialized form, Foucault directs our gaze to Jeremy Bentham's model of the modern prison: the Panopticon.[23] Put simply, the Panopticon is an annular building with prison cells all facing a central observation tower. From this central tower, visibility of the relevant

[21] Ibid., 194.
[22] Ibid., 187-8.
[23] Ibid., 195-228.

"objects" (prisoners) is obtained "without any physical instrument other than architecture and geometry."[24] Spatial organization and geometrical form, therefore, provide the very foundation for the exercise of disciplinary power.

In addition to his discussion of the Panopticon, Foucault also examines the utility of other spatial arrangements that are conducive to social control. In particular, he notes how the rectilinear geometry of the "square plan" for military camps offers a means of wielding disciplinary power. "The camp is the diagram of power that acts by means of general visibility," says Foucault. The square plan, then, provides the basis for "an architecture that would operate to transform individuals" into disciplined subjects. Its power lay in its ability "to act on those it shelters, to provide a hold on their conduct, to carry the effects of power right to them, to make it possible to know them, to alter them. Stones can make people docile and knowable. The old simple schema of confinement and enclosure . . . began to be replaced by the calculation of openings, of filled and empty spaces, passages and transparencies."[25]

We can now begin to see the role that disciplinary power played in constructing landscapes in the form of Cartesian coordinate systems, where numerical sign systems enabled the precise location of "any point" in the landscape: "The avenue-number and street-number, with the necessary supplements of smaller numbers [i.e. address numbers] . . . enable us to fix definitely and uniquely the position of any *point* whatever with respect to the *axes*, by giving the *pair* of numbers which measure its *east or west* and its *north or south* from the *axes*, this pair of numbers is called the *coordinates* of the point

[24] Ibid., 206.
[25] Ibid 171-2.

(with respect to the axes)" (see Chapter 1).[26] The Cartesian grid, in conjunction with address numbers, was an extraordinarily efficient mechanism enabling governments to render their populations visible within a legible landscape.

If capital accumulation for the purpose of empire-building required a disciplined population, then the production of a "disciplinary space" would be an invaluable mechanism for "organizing the multiple, of providing oneself with an instrument to cover it and to master it; it was a question of imposing upon it an 'order'."[27] "It was a question," Foucault emphasizes, "of distributing individuals in a space in which one might isolate them and map them."[28] The logic of rectilinear geometry was one means—but surely not the *only* possible means—of constructing such a disciplinary space. The goal, of course, was not discipline for discipline's sake but rather to serve the expansion of empire through the accumulation of capital.

If the logic of capital required efficiency, discipline supplied the technology for efficient conduct: "Discipline is [not] simply an art of distributing bodies, of extracting time from them and accumulating it, but of composing forces in order to obtain an efficient machine." The maintenance of this "efficient machine" required the elimination of non-productive activities and the "theoretically ever-growing use of time."[29] We see precisely this logic of disciplinary efficiency articulated quite forcefully in DeWitt's advocacy of the Protestant ethic when he insists that "there must be the *labor improbus*, hard labor, strong exertions, struggles against improper propensities, a rigid observance of rules, a radical extermination of evil habits, a scrupulous improvement of time, an

[26] Bell (1986), *Men of Mathematics: The Lives and Achievements of the Great Mathematicians from Zeno to Poincaré*, [1937], New York: Simon & Schuster, 52-3.
[27] Foucault, *Discipline and Punish*, 143 and 148.
[28] Ibid., 144.
[29] Ibid., 164 and 154.

unwavering perseverance, and a judicious exercise of a well disciplined reason in the selection of means for the attainment of the objects to be achieved."

The articulation of this "Protestant work ethic" was not simply an attempt to give advice on the attainment of eternal salvation. Rather, it was a commandment for the subjugation of the "multitudes" of the American Empire through the process of human domestication such that they would act as disciplined individuals that would obey the dictates of the logic of capital. While DeWitt himself may have considered the Christian doctrine of self-renunciation as the motivating force behind his disciplinary reasoning, this should not blind us from seeing the will to power as the foundation of DeWitt's conceptual processes.[30]

Foucault's examination of disciplinary power via the production of disciplinary spaces, therefore, is quite consistent with the account I have presented with respect to the logic behind the Manhattan grid. By simplifying the Manhattan landscape and enhancing geographical accessibility, the grid offered government officials "visibility" of the population, enabled capitalists the ability to buy and sell land more efficiently, and also facilitated the circulation of people and commodities across the island. More importantly, however, the grid forced the general population to "cheerfully submit" to the Cartesian logic of linearity and numerical coordinates, which, according to DeWitt, was a potent technique for securing the "discipline which is held necessary for rearing them to maturity."

[30] "Where I found a living creature, there I found will to power; and even in the will of the servant I found the will to be master." Nietzsche, *Thus Spoke Zarathustra*, 137. "A living thing seeks above all to *discharge* its strength—life itself is *will to power*." Nietzsche, *Beyond Good and Evil*, 21.

Figure 6.1: The manicured green carpet, Central Park, New York (photo taken by author, 2001)

If people were forced to think in "scientific" terms—that is, in Cartesian terms—then would they not see the "rational order" of the system? The immediate generation might resist, but as time passed, the population would eventually grow accustomed to the legibility that the grid provides. In other words, it would become "natural" to think in terms of numerically-coded perpendiculars and Cartesian coordinates. The immediate population might remember the "pre-grid days" and "how things used to be," but over time this would fade into mere nostalgia, and the general public's only means of reminiscence would be a stroll through the city's manicured "parklands" (Figure 6.1). There was, indeed, more than a hint of truth in DeWitt's remark that "by commencing with infancy in its earliest stages, it is not absolutely impracticable, for the human being as come from the hands of the Creator, is composed of such pliable materials that it can be moulded into any shape, which time will harden and render unalterable." The production of the "disciplined individual" through the rationalization of the physical

landscape would supply the atomic unit for "a society to come."[31] Is it possible that this day to come has now arrived, and that we are living in the disciplinary society? Are we to believe that DeWitt's dreams have been fulfilled?

The Production of Permanence in a World of Flux: Manufacturing the Taken-for-Granted "Order of Life"

Before grappling with the important question just posed, I would like to examine James Scott's notion of legible landscapes, and how, according to Scott, many of these "schemes to improve the human condition have failed."[32] What most stands out in Scott's *Seeing Like a State* is the fact that, besides his moralizing, Scott tells us little of theoretical import that Foucault had not already brought to our attention in his analysis of disciplinary power and its material manifestations. This is not to suggest that Scott's analysis is identical to Foucault's. There are, indeed, major differences in method and evaluation between Scott and Foucault. One of the greatest virtues of Scott's work is that it focuses our attention on how projects of social control have historically become manifest in the transformation of *entire landscapes*, a theme that Foucault recognizes but does not elaborate in great detail.

Scott examines how in various historico-geographical circumstances, governments have attempted to impose "order" upon a population by constructing "legible" landscapes neatly carved into geometrical formations (often grids). By "legibility," Scott refers to a state's attempt to "arrange the population in ways that simplified the classic state functions of taxation, conscription, and prevention of

[31] Foucault, *Discipline and Punish*, 209.
[32] Scott, *Seeing Like a State*.

rebellion." According to Scott, such projects of legibility were often led by government "officials [who] took exceptionally complex, illegible, and local social practices, such as land tenure customs or naming customs, and created a standard grid whereby it could be centrally recorded and monitored." Constructing legibility through the simplification of landscapes, says Scott, was "a central problem in statecraft."[33]

Scott provides us with a four-variable model to explain the dynamics of governmental projects of legibility:

> the legibility of a society provides the capacity for large-scale social engineering, high modernist ideology provides the desire, the authoritarian state provides the determination to act on that desire, and an incapacitated civil society provides the leveled social terrain on which to build.[34]

While this model is based largely on the experience of the twentieth century, where does it take us with respect to the development of the grid street system in nineteenth-century Manhattan? Based on Scott's characterization of the issue, the driving force behind state simplification projects is "high modernist ideology" which "provides the desire" for constructing socially-engineered, legible landscapes. What is this so-called "high modernist ideology"? "It is best conceived," says Scott,

> as a strong, one might even say muscle-bound, version of the self-confidence about scientific and technical progress, the expansion of production, the growing satisfaction of human needs, the mastery of nature (including human nature), and, above all, the rational design of social order commensurate with the scientific understanding of natural laws . . . . High modernism must not be confused with scientific practice. It was fundamentally, as the term "ideology" implies, a faith that borrowed, as it were, the legitimacy of science and technology . . . . The carriers of high modernism tended to see rational order in remarkably visual aesthetic terms. For them, an efficient, rationally organized city, village, or farm was a city that *looked* regimented and orderly in a geometrical sense.[35]

[33] Ibid., 2.
[34] Ibid., 5.
[35] Ibid., 4.

Much of this seems to resonate quite well with DeWitt and Morris' reflections and the Common Council's desires for order and regularity, but there is something missing from this analysis.

First of all, whereas Foucault admits that the "rigours of the industrial period long retained a religious air,"[36] Scott's high modernist ideology confronts us as a purely secular mode of thought (a secular "faith," as Scott puts it). It was the European Enlightenment, says Scott, that "fostered a strong aesthetic that looked with enthusiasm on straight lines and visible order."[37] From this perspective, the Manhattan grid would simply appear to be a product of "mathematical utilitarianism" and "Enlightenment rationalism."[38] While the Manhattan grid is not a central topic of investigation in *Seeing Like a State*, there are a number of instances in which Scott references the Manhattan grid as an example of modernist ideology.[39]

Not having examined the history of the Manhattan grid or DeWitt's disciplinary-utilitarian rationale for using surveying principles to design the landscape, Scott provides us with a rather misleading assessment of the Manhattan grid:

> If, as is the case in upper Manhattan, the cross streets are consecutively numbered and are intersected by longer avenues, also consecutively numbered, the plan acquires even greater transparency . . . . the order in question is most evident, not at street level, but rather from above and from outside. Like a marcher in a parade or like a single riveter in a long assembly line, a pedestrian in the middle of this grid cannot instantly perceive the larger design of the city . . . . A second point about an urban order easily legible from outside is that the grand plan of the ensemble has no necessary relationship to the order of life as it is experienced by its residents.[40]

[36] Foucault, *Discipline and Punish*, 149.
[37] Scott, *Seeing Like a State*, 55.
[38] Ibid., 15 and 50.
[39] For instance, see Ibid., 56-7, 108, 369-70.
[40] Ibid., 56-8.

While it is true that the Manhattan grid offered "transparency" (Foucault's "visibility") to governmental officials, it also drastically transformed "the order of life as it is experienced by its residents" and has now become a taken-for-granted aspect of the everyday lives of New Yorkers.

There most definitely *is* a relationship between "the grand plan" and the "order of life" of the local population. Although non-numerical grids may leave pedestrians clueless to the overall design of a city (especially outsiders who do not know the street names or landmarks), the Manhattan grid's numerically-coded, perpendicular streets and avenues make it nearly impossible for pedestrians *not* to "perceive the larger design of the city" as they calculate their own numerical coordinates within the Cartesian matrix that is Manhattan. This was, in fact, precisely what DeWitt had in mind when he concocted his "wonderful system" of Cartesian order.

While a project of simplification may "destroy" the existing social relations and ecological dynamics in a particular geographical region, it also creates, or produces, a new socio-environmental dynamic that then becomes the taken-for-granted order of life for future generations. Although part of the immediate population may, indeed, suffer from the rationalization of the landscape, this does not necessarily preclude future generations, or even particular segments of the immediate population, from reaping the benefits of the new system. In a climate of competing interests, abstractions such as the "improvement of the human condition"—which Scott still clings to—have little genuine meaning and are merely relics of a universalizing high modernism which Scott has yet to completely relinquish.

This leads to a more fundamental problem with respect to the normative aspect of Scott's argument, which anthropologist Fernando Coronil rightly points out: what *criteria* are to be used to judge the success or failure of governmental projects of legibility and simplification?[41] Scott implies that if landscape simplification results in the dramatic transformation of traditional social practices and ecological dynamics, then it is therefore a failure because it does not accommodate its logic to the existing socio-environmental order. The Street Commissioners in Manhattan, on the other hand, could not have disagreed with him more (see Chapter 4). The very purpose of the Manhattan grid plan was to obliterate the existing socio-environmental conditions in order to create a *new* order of geometrical legibility.

To the extent that the Street Commissioners achieved their goal of sending the hen houses of pre-grid Manhattan into oblivion, they would have seen the history of obliteration as a fabulous "success story." A dilemma thus arises: the determination of the success or failure of an "improvement project" is completely dependent upon the normative presuppositions that one has at the outset of one's analysis. If the ultimate goal was to obliterate the existing social order to make way for a new order more conducive to capital accumulation and empire-building, then the Commissioners "succeeded" in achieving their goal. If, on the other hand, one strongly believes that the accommodation of existing conditions is the ultimate virtue, then the grid plan was an utter disaster. Just like the situation we ran into concerning the issue of aesthetics, we find that the very determination of "success" or "failure," "progress" or "decline," is a question of competing interests that are expressed through *competing normativities*.

[41] Coronil (2001), "Smelling Like a Market," *American Historical Review* **106** (1), 122.

It is not a question, therefore, of good versus evil but rather a series of "ongoing social struggles over different conceptions of the normal and the desirable," as Coronil correctly points out.[42] Or, to put it in Nietzsche's terms, we find ourselves engaged in "a battle and battleground of virtues."[43] We see that in this battle between competing virtues, "every single one of them would like only too well to represent just *itself* as the ultimate purpose of existence and the legitimate *master* of all the other drives. For every drive wants to be master—and it attempts to philosophize in *that spirit*."[44] And that is not the end of it, "as soon as any philosophy begins to believe in itself . . . . It always creates the world in its own image; it cannot do otherwise. Philosophy is this tyrannical drive itself, the most spiritual will to power, to the 'creation of the world,' to the *causa prima*."[45]

In the struggle between competing virtues, force (power) is the ultimate judge of who shall be the victor. To the extent that capital accumulation generates power, it seems quite evident that in a capitalist system (such as nineteenth-century America), the production of landscapes will be dominated by the logic of capital and that it will strive continuously to create the world in its own image. If the logic of capital is not simply "accumulation for accumulation's sake," but rather accumulation for the purpose of consolidating power (freedom), then it is quite reasonable to suppose that governments supported by a capitalist system will do what it takes to ensure that the population is "fit" for the demands of capital accumulation. If this means constructing disciplinary spaces within which disciplined individuals are "trained" from "infancy in its earliest stages," as

[42] Ibid., 127.
[43] Nietzsche, *Thus Spoke Zarathustra*, 64.
[44] Nietzsche, *Beyond Good and Evil*, 13-4.
[45] Ibid., 15-6.

DeWitt would have it, then this is precisely what the government will do to maintain the foundation of its power.

The result of all these power relations and economic transactions is the construction of a rationalized landscape. While the grid pattern is not unique to capitalist political economies, when we consider the particular case of New York City, we are dealing with a capitalist system, and this is why it is necessary to emphasize the logic of capital as a key factor in power relations within this context. One of the basic facets of the capitalist economy, as Marshall Berman rightly observes, is that it "annihilates everything that it creates—physical environments, social institutions, metaphysical ideas, artistic visions, moral values—in order to create more, to go on endlessly creating the world anew."[46] There is a constant "drive to create a homogeneous environment, a totally modernized space, in which the look and feel of the old world have disappeared without a trace." This is what it means to create a *tabula rasa*, a blank slate upon which a new order is constructed by annihilating the past. As we have seen with the case of Manhattan, there are often "people who are in the way—in the way of history, of progress, of development; people who are classified, and disposed of, as obsolete."[47] That these people "in the way" must be sacrificed for the "public good" is a basic tenet of utilitarianism—it is also extraordinarily conducive to the logic of capital and the expansion of empire.

It is not merely a coincidence, then, that utilitarianism—as a "moral theory"—gained popularity at precisely the same time that the capitalist world system was expanding. Would it not be convenient to construct a "morality" to legitimize the

[46] Berman (1988), *All That Is Solid Melts Into Air*, [1982], New York: Penguin Books, 288.
[47] Ibid., 67-8.

conquest of the American Indians, for example? They were, after all, people "in the way" of the expansion of empire, from the perspective of the proponents of "freedom" and "enlightenment." Provided that this utilitarianism had the blessing of God, it would be even more suitable as an ethical justification of conquest and domination. If we were to pursue such a "genealogy of morals,"[48] would we not find that at the bottom of every normativity lies the will to power? How else can we explain the self-renunciation of the conqueror?

If the conquest of North America was to be achieved by the American Empire, it was crucial to have an ideological justification for dominating the natives while also disciplining the "multitudes" within the Empire itself. It would also be necessary to conceptually legitimize the new social relations associated with the emerging capitalist economy. While couched in the language of Christian metaphysics and scientific achievement, the belief in endless "improvement" was essentially an articulation of the logic of capital, which required that "all that has been created up to now . . . must be destroyed to pave the way for more creation" in order to continue the cycle of capital accumulation.[49]

In the world of constant flux and creative destruction that capitalism produced, and continues to produce, in New York City, the grid has remained one of the only constants in the material-conceptual landscape. As Shanor points out, "the grid plan has exhibited a certain lasting resilience, having stood the test of time through both the industrial age and the age of technology."[50] Following Alfred North Whitehead,

[48] Nietzsche, *The Birth of Tragedy and the Genealogy of Morals*.
[49] Berman, *All That Is Solid Melts Into Air*, 48.
[50] Shanor (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*, Columbia University, Master's thesis, 60.

geographer David Harvey uses the term "permanences" to describe geographical entities that exhibit this type of "lasting resilience" in the midst of continuous change:

> The process of place formation is a process of carving out "permanences" from the flow of processes creating spaces. But the "permanences"—no matter how solid they may seem—are not eternal: they are always subject to time as "perpetual perishing." They are contingent on the processes that create, sustain and dissolve them.[51]

The Manhattan grid is such a "permanence," and if we seek to understand the modern Manhattan landscape, the emphasis for future research concerning the grid must be on the various processes that produced and sustain the grid as a spatial framework within which the flux of modern life is lived.

Living in a Cartesian World: "we are used to living in space that's defined for us and is primarily uniform"

It is one thing to impose a disciplinary order upon a population by rationalizing the landscape and quite another for those subjected to "cheerfully submit" to that order. While this study has focused on the logic behind the *production* of the rationalized landscape, it is equally important to consider the "innumerable practices by means of which users reappropriate the space organized by techniques of socio-cultural production," as Michel de Certeau insists.[52] Users of a space are not merely passive recipients of the technocratic order that is imposed upon them. "In the technocratically constructed, written, and functionalized space in which the consumers move about," de Certeau argues, "their trajectories form unforeseeable sentences, partly unreadable paths across a space . . . . the trajectories trace out the ruses of other interests and desires that

[51] Harvey (1996), *Justice, Nature, and the Geography of Difference*, Oxford: Blackwell Publishers, 261.
[52] de Certeau (1984), *The Practice of Everyday Life*, Berkeley: University of California Press, xiv.

are neither determined nor captured by the systems in which they develop."[53] This is certainly true in many ways, yet it is also true that "Numbered streets and street numbers . . . orient the magnetic fields of trajectories just as they haunt dreams."[54]

While the actions of users do not always coincide with the intentions of the producers of a space, what is remarkable in the case of Manhattan is the extent to which many New Yorkers now have precisely the same characteristics that Simeon DeWitt so admired in a disciplined, capitalist worker. We can catch a glimpse of the life-world of modern New Yorkers in a collection of interviews published by Roberte Mestdagh entitled, *Manhattan: People and Their Space* (1981).[55] Most of those interviewed agreed that the dynamics of the city pushed New Yorkers to lead a "fast paced" life. "New Yorkers on the average have a much faster pace than any other people I know," notes a film distributor in Midtown, "You hear people just go crazy working hard . . . . The pace is almost an addiction. I don't say I like it, but it's almost like a necessary evil. It means getting five times as much business done as I would if I lived in Miami."[56]

An actress named Jeanne living on East 71st Street explains the psychological impact that such a fast paced lifestyle has had on her:

> The city runs you so fast. Really, it's like rats trapped in a cave sometimes. This past winter, I just stopped. I said, "What am I doing? I am always moving, always busy, where is it all going?" You don't have time to look into yourself and just

[53] Ibid., xviii.
[54] Ibid., 104.
[55] Using the homogeneous category "New Yorkers" is, of course, an abstraction that conceals the tremendous diversity that exists within the city. Yet, as Harvey observes, "the fact that a category like 'New Yorkers' can make sense to the polyglot millions who occupy that place testifies precisely to the political power that can be mobilized and exercised through activities of place construction in the mind as well as on the ground." Harvey, *Justice, Nature, and the Geography of Difference*, 323. Mestdagh interviewed a diverse group of individuals, however, thus revealing many different windows through which to view Manhattan.
[56] Mestdagh (1981), *Manhattan: People and Their Space*, New York: Thames and Hudson, 25.

> make sure you're going the way you're supposed to be going . . . . I like the fast pace, but you can really get run over by it all.[57]

What is it that leads people like Jeanne to run so fast that they burn out? "I was very, very career oriented and I still am," Jeanne continues, "but I think I have to take care of myself or I'm going to run myself into the ground."[58] The modern career-oriented individual who sacrifices the taking-care-of-oneself for economic success is precisely what DeWitt had in mind when he spoke of the imperative to obey the "extremes of self-denial, fortitude and voluntary suffering" that were the necessary requirements to obtain "a good character as a christian."

The modern worker is now "forced" to follow DeWitt's insistence that people must be disciplined to "work and work hard . . . in qualifying themselves for the business of their profession," while the ever-increasing pace of social and economic life in Manhattan is a realization of DeWitt's demand that there be "a scrupulous improvement of time" to suite the needs of capitalist production. In short, much of DeWitt's hopes have been achieved beyond even his wildest imagination. This achievement, of course, is not solely the result of the grid, yet Manhattan's Cartesian landscape provided the spatial framework necessary for enhancing the capabilities of imposing disciplinary power to maintain the "efficient machine."

While people do tend to take DeWitt's materialized Cartesian sign system for granted, this does not necessarily mean that he succeeded in converting them into proponents of his aesthetic of harmonious proportion. "I like to be in it," says a secretary named Barbara, "but not all the time—you know why? There are not enough curves. Nature always has curves, it's not only right angles. New York City, it's mostly right

[57] Ibid., 21.
[58] Ibid.

angles . . . . So I prefer the curves sometimes" (Figure 6.2).[59] The Romantic aesthetic of the "picturesque" is still alive and well, and now the well-to-do spectator can gaze out at the world below from the heights of a penthouse apartment. A social scientist named Diane, for instance, lived in a penthouse on East 96th Street, which had "an unobstructed southern view and an unobstructed view to the west overlooking Central Park, so we can see the sunset."[60]

Although DeWitt forced people to think in numerical perpendiculars by imposing the grid upon the island, he underestimated the resistance that his aesthetic of harmonious proportion would encounter in the minds of those subjected to his Cartesian order (Figure 6.3). Yet, such resistance notwithstanding, DeWitt successfully "impressed" his Cartesian logic into the minds of future generations by structuring the taken-for-granted order of life experienced in Manhattan. As one New Yorker puts it, "we are used to living in space that's defined for us and is primarily uniform, and we're used to walking through maze-like situations."[61] The trajectories of Manhattanites, it seems, cannot escape the fact that the grid has "regularly laid us out."[62]

Rediscovering the Present: Excursions Through the Rationalized Landscape

Nearly two centuries have passed since Gouverneur Morris, Simeon DeWitt, and John Rutherford set out to remodel the Island of Manhattan to suit the needs of capital accumulation and the expansion of empire. Their ultimate hopes, in many ways, have

[59] Ibid., 109.
[60] Ibid., 15.
[61] Ibid., 84.
[62] Winkler (1911), "Mitigating the 'Gridiron' Street Plan: Some Good Effects Achieved in New York City," *Architectural Record* **May**, 379.

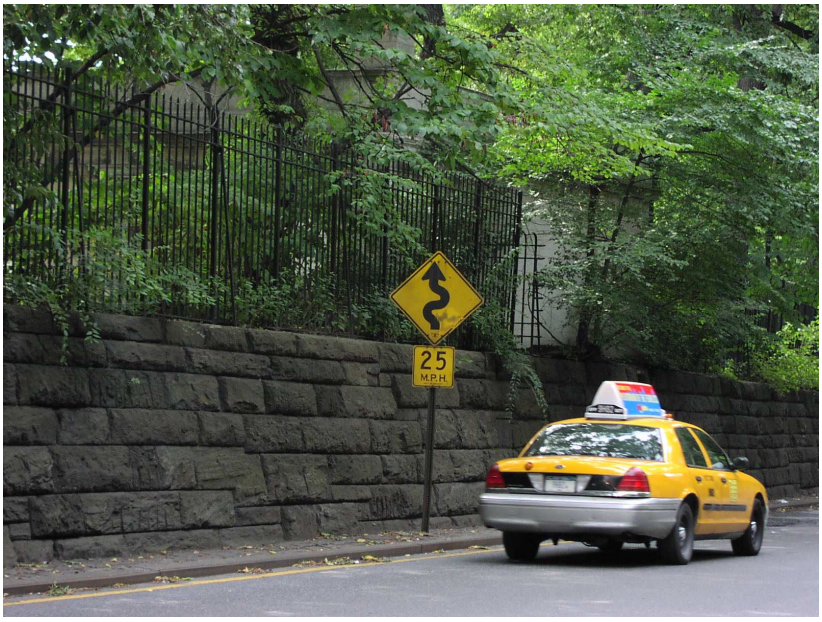


Figure 6.2: For those who "prefer the curves sometimes," there is always Central Park (photo taken by author, 2001)

Figure 6.3: Two spectators enjoying the "picturesque" view atop "an immense rock" in Central Park (photo taken by author, 2001)

become a reality, just as the modern Manhattan landscape is a near replica of the Cartesian coordinate system. I say "near replica" because the Cartesian ethos of the original plan of 1811 eroded over the years. While the Commissioners' Plan gave all the streets and avenues numerical names, when an additional thoroughfare was laid out between 3rd and 4th Avenues in 1832, this upset the "mathematical purity" of Manhattan's materialized sign system. Rather than renaming all avenues above 3rd Avenue to fit the Cartesian symbolic order, the government simply gave it a non-numerical name—Lexington Avenue. In 1841, another non-numerical avenue, Madison Avenue, was laid out between 4th (now Park Avenue) and 5th Avenue. While most of the avenues on the West Side retain their Cartesian names below Central Park, they take on new identities as they follow the meandering Broad Way northward up the island.[63]

A few of DeWitt's cross-streets were also re-inscribed with non-numerical names, although these "deviants" have not completely relinquished their Cartesian heritage (Figure 6.4). The names of street signs may seem trivial, yet for DeWitt the numerical logic of the grid was a crucial component of his overall plan to instill the principles of surveying into the minds of the "multitudes" so that they would, as Morris puts it, take "the course which reason indicates." Indeed, DeWitt's numerical street names and their associated inscriptions in the landscape (street signs) provide the foundation for the symbolic order of the Empire City even today.

To the extent that the language of "algebraic characters" has successfully been inscribed both into the consciousness of the "multitudes" and the physical landscape

[63] The avenues with multiple identities are as follows: 6th Ave. (Avenue of the Americas/Lenox Ave./Malcolm X Blvd.), 7th Ave. (Adam Clayton Powell Jr Blvd.), 8th Ave. (Central Park West/Frederick Douglass Blvd.), 9th Ave. (Columbus Ave.), 10th Ave. (Amsterdam Ave.), 11th Ave. (West End Ave.), and 12th Ave. (West Side Highway).

Figure 6.4: The dual identity of West 106th Street (photo taken by author, 2001)

itself, it is not entirely out of place to suggest that the Manhattan grid has reinforced the dominance of Cartesian thought within the sciences as well as the public imagination in general. This reinforcement was *formalized* in the mathematics of Hermann Minkowski (one of Einstein's professors), who developed a mathematical metric that has subsequently been used to mimic the rectilinear logic of city blocks by not allowing for diagonals.[64] Interestingly, some scientists now refer to this variant of Minkowski's metric as the "Manhattan distance metric" and denote the two-dimensional space that conforms to this metric as "Manhattan space" (Figure 6.5).[65] As the geographers Abler, Adams, and Gould explain, "Manhattan space is a variant of Euclidean space, in which the shortest distance between two points is a path consisting of line segments which meet at right angles . . . . Diagonal movements are not permitted; only movements along cardinal

[64] Krause (1986), *Taxicab Geometry: An Adventure in Non-Euclidean Geometry*, [1975], New York: Dover Publications, Inc., v-vi.
[65] Abler, Adams and Gould (1971), *Spatial Organization: The Geographer's View of the World*, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 73. Also, see Harvey (1969), *Explanation in Geography*, New York: St. Martin's Press, 315.

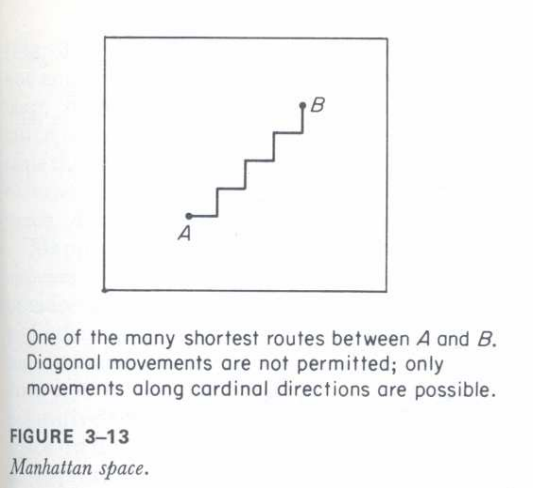


Figure 6.5: "Manhattan space" (Source: Abler, Adams, and Gould, 1971)

directions are possible."[66] This concept is "well known to every student of introductory topology," according to one mathematician.[67]

Here we witness the most curious of phenomena: after surveyors inscribed the Cartesian coordinate system into the Manhattan landscape, scientists then used the logic of the Manhattan grid as an analogy for further mathematical conceptualization.[68] This continuous *self-referential* process of conceptualization and inscription is what Latour calls the development of the "circulating reference."[69] The "reference" being circulated here is the Cartesian coordinate system, and the inscription process is the key mechanism by which this conceptual framework was translated into a material reality and then back into a conceptual framework again. The details of this reference-circulation process have only been hinted at in my discussion of the surveying process and Randel's numerically-coded stone monuments (see Chapter 3), but additional research can certainly offer

[66] Abler, Adams and Gould, *Spatial Organization*, 73.
[67] Krause, *Taxicab Geometry*, vi.
[68] While Minkowski himself may not have had Manhattan in mind when devising his mathematical metrics, mathematicians and scientists continuously use the notion of city blocks and the Manhattan grid as an analogy for Minkowski's theoretical construct.
[69] Latour, *Pandora's Hope*, 24-79.

greater specificity to the "mechanics" of the inscription process that I have touched on here.

If everyday pedestrians tend to work through this process unconsciously as they navigate through the Manhattan grid, they can easily be trained to do so *systematically* by reading Eugene Krause's book, *Taxicab Geometry* (1986), which provides a series of exercises whereby one can learn how to think analytically about the mathematics of Cartesianized material landscapes. "The exercises in this book," says Krause, "require graph paper, a ruler, a compass, and a protractor."[70] One of its greatest virtues—which should come as no surprise to anyone who has walked through the Manhattan grid—is that "taxicab geometry is easy to understand. There are no prerequisites beyond a familiarity with Euclidean geometry and an acquaintance with the coordinate plane" (Figure 6.6).[71] Is this partly what Nietzsche meant when he said that "reason is merely an instrument, and Descartes was superficial"?[72] The mathematician's resolve to find the world easy and simple has made the world easy and simple![73]

But, as simple and orderly as Manhattan space may appear, chaos still lurks between the regimented street lights that demand discipline to their standardized synchronicity (Figure 6.7). Anyone who has driven in Manhattan knows quite well that the taxicabs within this taxicab geometry can be ruthless when the green light allows them to accelerate. A poetic spirit might speak to Manhattan thus: "I tell you: one must have chaos in one, to give birth to a dancing star. I tell you: you still have chaos in you,"

[70] Krause, *Taxicab Geometry*, iii.
[71] Ibid., vi.
[72] Nietzsche, *Beyond Good and Evil*, 104.
[73] I take this phrase from one of Nietzsche's aphorisms: "*A dangerous resolve*—The Christian resolve to find the world ugly and bad has made the world ugly and bad." Nietzsche, *The Gay Science*, 185.

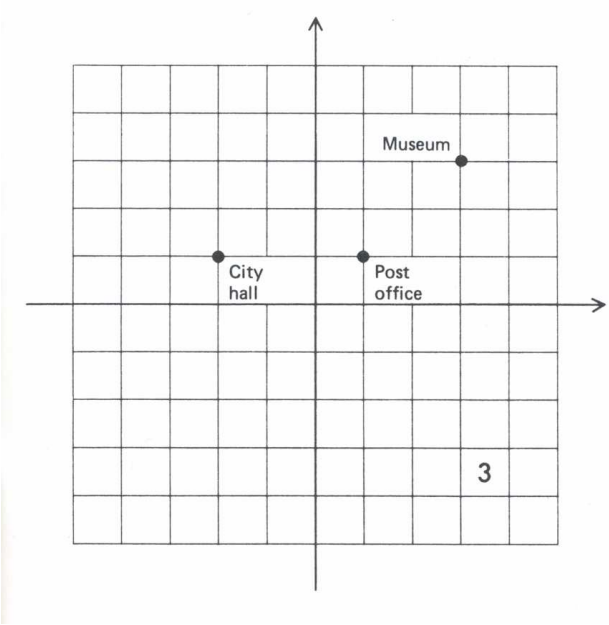


Figure 6.6: The Cartesianized landscape as an object of study for "taxicab geometry" (Source: Krause, 1986)

Figure 6.7: The discipline of standardized synchronicity on Central Park West (8th Avenue) and 86th Street (photo taken by author, 2002)

despite the superficial passports you have given to our senses.[74] The Great Transformation of the Island of Manhattan did not annihilate the chaos of the human experience, it merely provided an ordered spatial framework within which the chaos of modernity could unfold.

When James Reuel Smith rode his bicycle around the Island of Manhattan at the end of the nineteenth century, he witnessed the obliteration that ensued from the rationalization of the landscape. As Poe had earlier prophesized, the urbanization of the island was rapid and swift. In less than a century, the topography of Manhattan Island was carved up into a Cartesian grid to make way for "the stone and metal hives of humanity" (Figure 6.8 and Figure 6.9). As *Valentine's Manual of Old New York* noted in 1923, pre-grid Manhattan has long since "gone its way into memory land," and both the protagonists and antagonists—I shall let the reader judge for him or herself which characters fit these roles—in our narratives of the environmental history of New York City "have long since answered 'Adsum' to death's roll call and for many years they have been 'far beyond the twilight judgment of this world and all its mists and obscurities.'"[75] In the course of examining the material and conceptual fragments of Manhattan's environmental history, my central aim has been to make historical sense of the taken-for-granted "order of life" that is now played out every day in the Manhattan of the present. This history has been one of both rupture and continuity, difference and homogenization, lofty ideals and violent obliteration.

---

[74] Nietzsche (1969), *Thus Spoke Zarathustra: A Book for Everyone and No One*, [1883], New York: Penguin Books, 46.

[75] Brown, Ed. (1923), *Valentine's Manual of Old New York: No. 7, New Series 1923*, New York: Valentine's Manual, Inc., 61-2.

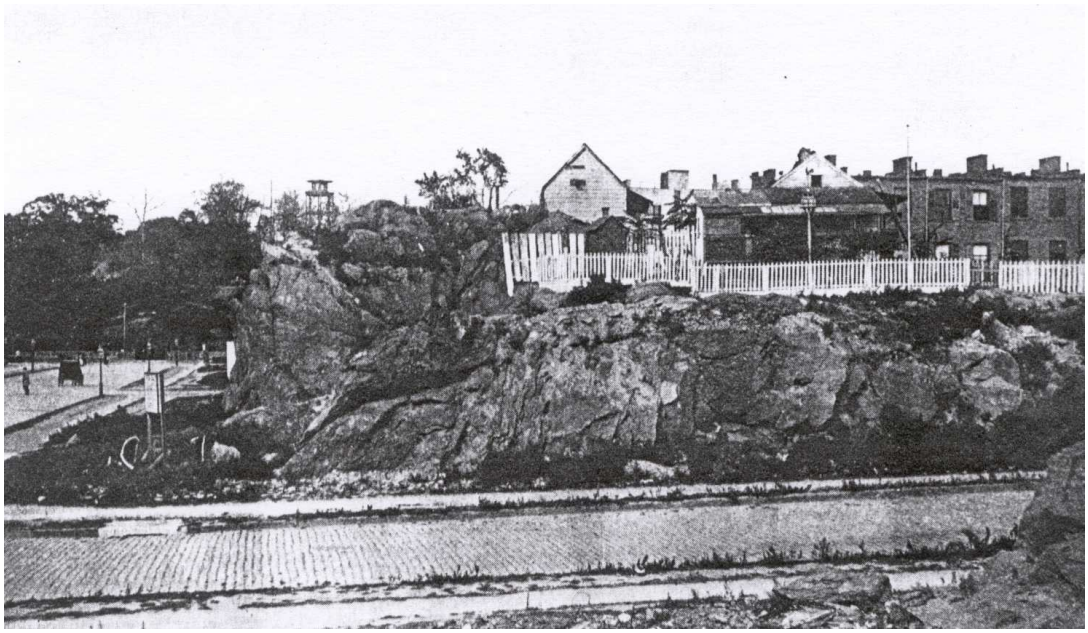


Figure 6.8: Looking northward from the intersection of 5th Avenue and 120th Street in 1880 (Source: Brown, 1923)

Figure 6.9: Looking northward from the intersection of 5th Avenue and 120th Street in 1923, after the "stone and metal hives of humanity" had come to dominate the landscape. Note the Mt. Morris Park tower (top left) in both images for comparison (Source: Brown, 1923)

Having explored the struggles over environmental transformation in Manhattan during the nineteenth century, the rhetoric of current environmental debate can be put into perspective. In the course of our excursion, we have learned—I hope—to be aware that scientific and aesthetic discourses are often used as masquerades to hide the politico-economic agendas of competing interests. Revisiting the past, we see the present with new eyes. For instance, can we not hear Clement Clarke Moore's battle cry in the words of contemporary commentator Bill Moyers as he speaks about the "natural" features in New York City's parklands? "These are the handiwork of Providence," says Moyers, "worn and encroached upon, to be sure, but still our living ground. They could yet spare us that utterly barren city-scape which is the certain fate of a people who do not treasure the gifts of nature."[76]

Those who do cherish the "gifts of nature" now claim that science is on *their* side as they seek to "promote ecological health and unite Manhattan's urban residents with their origins by providing them with opportunities to experience the Earth from which the human species evolved."[77] If Morris and DeWitt were attempting to discipline (domesticate) the instincts of the "multitudes" through their disciplinary self-renunciation for the greater glory of empire, modern environmentalists now seek to recover the "wildness" that still lurks within us: "The time that people spend in natural sites also nurtures familiarity with animals whose instinctual life mirrors theirs, helping them to understand their own primal behavior."[78]

Yet, how do environmentalists teach Manhattan's urban residents their "origins"? The past, they say, is still "visible" within the city's parklands. In *Urban Wilderness:*

[76] Gardner (1988), *Urban Wilderness: Nature in New York City*, New York: Earth Environmental Group, 9.
[77] Ibid., 35.
[78] Ibid.

Figure 6.10: Seeing "Manhattan's past" in Central Park (photo taken by author, 2001)

Nature in New York City (1988), Jean Gardner informs us that "Natural sites within Manhattan also make visible the island's ancient past. Manhattan's past can still be seen in Central Park."[79] If the grid is a "laboratory," then Central Park is a great outdoor "museum"—a second "natural history museum," if you will—in which the relics of a mythical time primeval are "on display" for the general public. Certainly, it is true that the remaining bedrock in Central Park is a reminder of the island's geological history. However, although this bedrock may have been formed 360-million years ago,[80] *right now* it serves as an "artifact" within the museum that is Central Park (Figure 6.10).

Rather than examining the complex socio-environmental processes, competing politico-economic interests, and imperial ideals that produced the current Manhattan landscape, most environmentalist depictions of Manhattan's environmental history

[79] Ibid.
[80] Ibid.

reduce such complexity to a technocratic narrative in which the "human species" has "disturbed the environment." According to these accounts, the historical process of environmental change in Manhattan has led to a "crisis," which can only be solved by using science to guide policy.[81]

We are thus confronted with a new discourse of technical expertise, which takes ecology (and the environmental sciences more broadly)—rather than engineering and surveying—as its basis for reducing political questions to technical calculations. "Proper ecological answers" are what are needed to solve the problems of environmental destruction, says the new technical expert.[82] "Such answers," Gardner argues, "can make New York City a more viable habitat for both humanity and the natural systems on which the city depends for survival . . . . today's visionary efforts to sustain nature in New York City embody a reciprocity between nature and the city. The initiators of these efforts realize that human life depends on maintaining the natural processes of the Earth."[83] What is so fascinating about this new technocratic discourse and these "visionary efforts to sustain nature in New York City" is their utter silence concerning the imperial legacy of the Empire City. By ignoring such power relations, grand visions for creating a "sustainable" city that use the universalizing language of "humanity" and "nature" obscure the competing interests that make up the social process and will likely serve to perpetuate the status quo of global (and local) power relations in their quest for ecological "stability."

Given the lessons learned from the history of the Manhattan grid, it appears that the new technical experts are attempting to de-politicize their political agendas by

[81] Ibid., 13.
[82] Ibid., 11.
[83] Ibid., 11-3.

framing them in scientific and aesthetic terms and that they will likely follow the Street Commissioners by remaking the world to fit their own conceptual frameworks. My point is not so much to condemn technical expertise or the inscription of particular conceptual frameworks into the landscape per se; rather, I simply wish to point out the *self-referential logic* of the inscription process as well as the normative assumptions presupposed by the technical experts. Should we really be surprised to find that the strategies which the technocrats of yesteryear used to de-politicize the pressing political questions of their day have now been turned against them as the defenders of "the environment" now attempt to reduce political issues to technical dilemmas of "sustainability" and "environmental management"? Are we not to suppose that underlying the current environmental rhetoric—on all sides of the political spectrum—there lies a struggle between competing wills to power?

In comparison to today's technical experts, the Street Commissioners who designed the grid seem to have been rather honest about their imperial objectives. Today's technocrats, however, no longer speak in public about the imperial goals to which the Empire City has been aspiring for the last two centuries. Rather than articulating a critique of the "moral orbit of empire," they do not even speak the language of empire—it is no longer part of the vocabulary of the technocrat. It is much more convenient to speak of creating a utopian harmony between "humanity" and "nature," while ignoring the central issues that are currently unfolding on the world stage. Gouverneur Morris' hope that future generations of Americans would look back on his time as "the day-dawn of our empire" seems to have been in vain, not so much because his project of laying the foundations of empire was unsuccessful, but rather since many

Americans have convinced themselves into believing that being a world superpower does not entail the maintenance, and, indeed, the "sustainability," of a new form of empire.

7. CONCLUSION

Strange, mingled scene of bliss and pain!
That, like a dream, before us flies;
Where, 'midst illusions false and vain,
Substantial joys are seen to rise.

—Clement Clarke Moore, *Poems* (1844)

Rationalizing the Landscape: Logic, Mechanics, and Resistance

By examining landscape transformation in nineteenth-century Manhattan from a historico-geographical perspective, I have sought to bridge the science-humanities divide by exploring environmental change in terms of the disciplinary-utilitarian project of rationalizing the landscape. To narrow the scope of this study, I have focused on the logic, mechanics, and resistance during the initial stage of the imposition of the grid upon the Island of Manhattan. It should be stressed, however, that emphasizing these particular "moments" in the socio-environmental process does not mean that other aspects are not equally important.[1]

For instance, while I suggest that the Street Commissioners were thinking and acting within the context of an emerging capitalist system, I have by no means conducted a thorough analysis of the particular economic forces that dominated politics in nineteenth-century Manhattan. If I explore the social dynamic between surveyor and landowner, I have certainly not conducted a systematic analysis of class relations that incorporates the working class in any meaningful way. Who were the members of the Common Council that sent the petition to the State Legislature in 1807 and what were

[1] For a discussion of the different "moments" within the social process, see Harvey (1996), *Justice, Nature, and the Geography of Difference*, Oxford: Blackwell Publishers, 78.

their individual motives with respect to the development of New York City's street system? Was Moore correct when he suggested that the endless perpetuation of public works projects (such as the grid) was the result of a working-class conspiracy against the owners of property, as Blackmar suggests?[2] Or, were working-class New Yorkers mere pawns in the real-world chess game played by capitalists on the geographical checkerboard they were creating? These are questions that most likely can be answered with some specificity and offer fertile ground for future research.[3] Clearly, the present study is not a comprehensive examination of the Manhattan grid (nor was it my intention to provide such an analysis within this preliminary study), but hopefully it will inspire a renewed interest in the rationalization of the landscape, which may amend any deficiencies, or "loose ends," within the present work.

While I do not deny the importance of politico-economic context, my objective has been threefold: (1) to interpret the logic that the designers of the grid themselves used to explain the rationalization of the Manhattan landscape; (2) to analyze the mechanics (i.e. techniques or procedures) utilized to inscribe the Cartesian coordinate system into the physical landscape; and (3) to examine the resistance that was encountered during the process of material rationalization. Because most of the literature on the Manhattan grid has come from an urban planning perspective, I first found it necessary to take a step

[2] Blackmar argues that Moore was on to something: "Before the depression of the 1840s, public officials seldom explicitly acknowledged the link between public works and jobs. But the long history of party patronage suggests that, for all his bitterness, Moore had correctly identified a key issue in some propertyless New Yorkers' support for a policy that by promoting rising land values also endorsed rising rents." Blackmar (1989), *Manhattan for Rent, 1785-1850*, Ithaca: Cornell University Press.

[3] The story is, of course, more complex than a simple capital vs. labor struggle. In Goldman's study of New York's sewers, she notes that there were often "shared interests" between the merchant class and the laboring cartmen (i.e. those who hauled commodities on carts) and that "These shared interests enabled this group of laborers to enjoy a status usually reserved for professionals and merchants." See Goldman (1997), *Building New York's Sewers: Developing Mechanisms of Urban Management*, West Lafayette, Indiana: Purdue University Press, 12. For a more detailed analysis of the role of cartmen in New York City history, see Hodges (1986), *New York City Cartmen, 1667-1850*, New York: New York University Press.

back to explore the *possibility* that the grid plan was more than just a blueprint for a street system. I have made what at first appears a rather obvious observation: the Manhattan grid is a physical representation, or "material replication," of the Cartesian coordinate system—where each intersection has its own numerical "Cartesian coordinates" within the matrix formed by the consecutively numbered streets and avenues that makeup the modern Manhattan landscape.

Using this rather simple observation as a starting point, I then pursued the fundamental question: how was it possible to successfully inscribe the Cartesian coordinate system into the Manhattan landscape and what specific procedures (mechanics) did this rationalizing project entail? Framing the question in this way led me through the detailed intricacies of state legislation, which legitimized the project of creating a standardized street system in Manhattan by mandating that a Commission be set up to design a "permanent plan" for the island. Given that the Street Commissioners agreed to use the grid pattern, I then showed how the imaginary grid in the Commissioners' minds was given material form through the process of surveying the landscape.

The surveying process entailed more than merely mapping out the terrain. In addition to the production of maps, the chief surveyor of the grid plan, John Randel Jr., inscribed stone monuments with their Cartesian coordinates (i.e. the numbered names of each street and avenue) and then bolted these monuments into the geographical locations where the streets and avenues of the proposed grid plan would intersect. This moment when Randel inscribed a language of "algebraic characters" into stone monuments and fixed these monuments into the landscape was the first stage in which the materialization

of thought actually achieved a substantive form of realization. It is in Randel's stone monuments that we find the intersection between thought and materiality, and, hence, the surveying process was a direct *mediation* between conceptual frameworks and material practice.

The Commissioners were no longer speculating in their own imaginary world of criss-crossing perpendiculars. Now when they spoke of a future grid that would engulf the island, they could point to a rudimentary network of physical objects—numerically-coded stone monuments—that seemed to validate their conceptual framework. That a product of one's imagination can become materialized, and then once materialized reinforce the very conceptual framework that gave rise to it, is one of the fundamental conclusions we must draw from our encounter with Randel and his numerical markers. The process of materializing thought, of inscribing a conceptual framework into a physical landscape, is an inherently political enterprise wrought with struggles between competing interests. Proponents and opponents of the grid attempted to de-politicize their own politico-economic agendas by using the language of science and aesthetics to provide a sense of authority for their own political persuasions.

I have also questioned the long-standing interpretation of the rationale behind the grid plan as well as the methodological foundations upon which that interpretation rests. While most historians and urban planners have focused primarily on a formal document called the *Commissioners' Remarks* to argue that the grid was purely a product of utilitarian economic logic, I have gone beyond the *Commissioners' Remarks* by examining various other texts in an attempt to reconstruct the multi-faceted spectacles through which the Commissioners themselves viewed the world. As I illustrated, the

Commissioners saw themselves as the founders of an emerging empire. In order to secure a prosperous future, they were firmly committed to laying the foundations to serve what they saw as the long-term interests of the American Empire.

Gouverneur Morris and Simeon DeWitt were both products of the Enlightenment and agreed that science and reason should serve as "guardians of social happiness." However, in contrast to some of their Enlightenment comrades, they viewed the "multitudes" as being largely ruled by "irrational" animal instincts that swayed them from "the course which reason indicates." They therefore felt that if "order" was to be maintained and "reason" obeyed, it would have to be forced upon the youthful population of the American Empire. While they did not put it in quite this way, they were essentially arguing that if a "civilized" life was to be attained, this would require not only the domestication of the American "wilderness," but also, and perhaps more importantly, the domestication of each human subject within the American Empire itself.

The domestication of the American people would require discipline, and Simeon DeWitt, in particular, was well-versed in the logic of disciplinary practice. He despised the idleness and extravagant enjoyment of luxury that often resulted from the accumulation of wealth while he also condemned those without wealth for squandering their existence on "infamous gratifications." What was needed, according to DeWitt, was a means by which to instill a sense of discipline into the population in general (both rich and poor) so as to assure the future greatness of the American Empire. Just like Morris, DeWitt believed that both science and religion were the best instruments available to achieve this goal.

Given his Christian upbringing, DeWitt saw the Christian doctrine of self-renunciation as offering the basis for rationalizing all aspects of social life:

> By the infallible oracles of divine inspiration we are taught, that no man can obtain a good character as a christian, unless he denies himself, takes up his cross—cuts off a right hand, or pulls out an eye, if necessary for his advancement to perfection—Figurative expressions denoting the extremes of self-denial, fortitude and voluntary suffering. The same doctrine may, with a qualified propriety, be addressed to those who aim at distinction in any of the professions of civil life.

By obeying the ethic of self-renunciation and incorporating it into all aspects of life, DeWitt felt that this would lead people to the inevitable conclusion that they must work hard in their profession, not squander their accumulations, and live a "civil life" in pursuit of their "advancement to perfection." In other words, by using Christ as a model, the work of disciplining (domesticating) the American people for the hard labor required of them in the modern world could find a religious foundation of legitimacy.

The Commissioners were mesmerized by the logic of "improvement" and saw the accumulation of wealth and the expansion of the American Empire as fulfilling God's divine plan. Rather than being an enemy of religion, science could be used as an instrument to serve divine glory while the Christian ethic of self-renunciation supplied a basis for what Morris calls the "moral orbit of empire." The full ramifications of this disciplinary-utilitarian project have yet to be examined. My goal has been to describe how this logic was translated into a material reality through the rationalization of the Manhattan landscape.

DeWitt strongly believed that the science of surveying (linear perspective) was "well-calculated" to lead the youthful American population "into a cheerful submission to that *extent* of discipline which is held necessary for rearing them to maturity." The

principles of surveying—especially the "rules of symmetry" and the use of "algebraic characters"—made one's thought process "intelligible" by keeping "the whole process of . . . reasoning continually before [one's] eyes." Constructing an environment that forces those who navigate through it to obey the rules of surveying was a clear way to impose a disciplinary order upon a population. Not only was converting the Manhattan landscape into a materialized Cartesian coordinate system an attempt to create a disciplined population, the grid's legibility would also enhance the government's ability to monitor and tax its subjects while facilitating capital circulation by maximizing geographical accessibility.

As with most "improvement projects," there were people "in the way" that resisted the imposition of the new order. The most outspoken critics of the grid were, not surprisingly, the defenders of the status quo: individual landowners with summer homes in the vicinity where the *tabula rasa* was to be created. Wealthy landowners, such as Clement Clarke Moore, lamented the destruction of the "picturesque" hills and dales that served as "scenery" and the "most picturesque sites for villas," as Poe put it. Moore insisted that the increasing power of the technical expert was undemocratic and that private property rights should not be sacrificed at the alter of public convenience. He also articulated an aesthetic that was magnificently compatible with the privileges of suburban living in nineteenth-century Manhattan.

Yet, wealthy landowners were not the only "victims" of the grid. The logic of the grid assured that any type of building (e.g. dwelling house, barn, hospital, granary, hen house, military fort, shed, stable, etc.) that stood "in the way" would be obliterated. And, indeed, many of the buildings that were not "swept off the face of the earth altogether"

met their maker by tumbling "promiscuously into the mass of worthless ruins" such that "posterity was enriched," as historian Martha Lamb so aptly puts it. While the Manhattan grid was "democratic" in the sense that it indiscriminately chose its victims, to argue that the grid was an inherently democratic plan in general, as Peter Marcuse maintains,[4] is taking the argument too far.

Marcuse argues that the grid plan does not represent a "display of power," since there is no center or "hierarchical ordering of uses."[5] Rather, according to Marcuse, the grid has an unmistakable "democratic" quality: "there is a 'democratic' aspect to the grid, in which all parcels are created equal and alike."[6] Marcuse thus concludes that "cities where the display of power to the local population is of importance are least likely to be laid out in a grid plan."[7] Yet, was not the imposition of the grid in itself a "display of power" to the local population? And, does not the numerically-coded matrix that the grid plan established display its technocratic power daily to those forced to obey its Cartesian logic as they navigate through the "trajectories" of their everyday lives, whether they like it or not?[8]

Indeed, constructing landscapes divided into parcels that are all "equal and alike" (i.e. homogeneous) is one of the most widespread techniques that modern governments have used for controlling populations, both in democratic *and* authoritarian countries, on

---

[4] Marcuse (1987), "The Grid as City Plan: New York City and Laissez-Faire Planning in the Nineteenth Century," *Planning Perspectives* **2**, 294.
[5] Ibid.
[6] Ibid.
[7] Ibid.
[8] I use the term "trajectories" here in the sense that Michel de Certeau elaborates in *The Practice of Everyday Life*, where he notes that the term "was intended to suggest a temporal movement through space, that is, the unity of a diachronic *succession* of points through which it passes, and not the *figure* that these points form." See de Certeau (1984), *The Practice of Everyday Life*, Berkeley: University of California Press, 35.

the one hand, as well as under capitalist *and* socialist regimes on the other.[9] It is therefore not possible to make an *a priori* determination of what purpose the grid pattern will serve, as it depends on historico-geographical circumstance. In most cases, however, there is a common goal of creating a disciplined population within a legible landscape, which makes the job of management so much easier for the governmental authorities.[10] This is, quite simply, the fundamental thread that ties together the myriad instantiations of the grid and is one of the major reasons for the creation and maintenance of the so-called "landscape of modernity," with its technocratic logic and flatland mentality.

The Manhattan grid served two distinct disciplinary purposes: (1) it forced the population to think like a surveyor (that is, in Cartesian terms), which DeWitt believed would discipline the mind; and (2) it created what James Scott calls a "legible" landscape that rendered the population "visible" to the government authorities (in the Foucauldian sense). Rationalizing the landscape by converting it into a Cartesian coordinate system, then, must be seen not only as a means of enhancing property values. The Manhattan grid served as one of the "great columns" which were to support the fabric of the wealth and power of the American Empire through the production of a disciplined population that was required to maintain the "efficient machine" that we call modern capitalism.

Oblivion and Beyond: A Bicycle Ride Revisited

There is no question that the process of "rationalizing the landscape" by carving it into a Cartesian coordinate system resulted in a complete reorganization of the spatial

[9] Kostof (1991), *The City Shaped: Urban Patterns and Meanings Through History*, Boston: Bulfinch Press, 95-157; Scott (1998), *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven: Yale University Press; Brown (2001), "Gridded Lives: Why Kazakhstan and Montana Are Nearly the Same Place," *American Historical Review* **106** (1), 17-48.
[10] Scott, *Seeing Like a State*; Hannah (2000), *Governmentality and the Mastery of Territory in Nineteenth-Century America*, New York: Cambridge University Press; Brown, "Gridded Lives," 46-7.

configuration of Manhattan Island. We might say—not without the hope of achieving dramatic effect—that the new order prescribed by this Great Transformation of the Island of Manhattan was only made possible through the "obliteration" of the pre-grid landscape. Following the nineteenth-century historian Martha Lamb, we might add that the production of the *tabula rasa* envisioned by the grid's designers required that pre-grid Manhattan above the present Houston Street be "swept off the face of the earth altogether" and cast down into that abyss we call "oblivion." If we were to focus only on this aspect of the historical process, we might conclude that the grid was merely a source of "environmental destruction," or "anthropogenic disturbance," to use the more "scientific" parlance currently in vogue. After all, this is what terms such as "obliteration" imply. Yet, by now it should be clear that the grid also *created* a new spatial regime that would become the taken-for-granted order of life for generations of New Yorkers.

From the vantage point of nearly two centuries, it is quite easy to simply brush aside Morris and DeWitt's imperial ambitions as an outdated characterization of the American project. Yet, surely we must admit that the present is not suspended in space and time, disconnected from the past. This discontinuity may very well be the effect sought after in the production of *tabula rasas* (both material and conceptual), but, as Nietzsche observes, there is simply no getting around the fact that "since we happen to be the results of earlier generations we are also the results of their aberrations, passions and errors, even crimes; it is not possible quite to free oneself from this chain."[11] Try as we

[11] Nietzsche (1980), *On the Advantages and Disadvantages of History for Life*, [1874], Indianapolis: Hackett Publishing Company, Inc., 22.

may, "If we condemn those aberrations and think ourselves quite exempt from them, the fact that we are descended from them is not eliminated."[12]

When renouncing the development of the grid, it is all-too-common to imagine an idealized pre-grid "wilderness" that is then praised as a paradise from which "modern man" has fallen. This idealization of the past is, at least in part, a means of coping with the stressful demands of the urban present. In an article published in the *New York Times* in 2001, Jeremy Eichler reflects on how the yearly influx of Christmas tree sellers into Manhattan "shortly after Thanksgiving" consoles his "desire . . . to feel less painfully the gulf between my daily urban reality and my dreams of a distant wilderness."[13] He informs us that while "New York clearly loves to see itself as impervious to the natural world," it must be conceded that "the city grew out of the wilderness."[14]

One might imagine that such "dreams of a distant wilderness" could easily lead to an idealization of the landscape that James Reuel Smith described on his bicycle ride though the last vestiges of a pre-grid order on Manhattan Island (Figure 7.1). This temptation, however, runs the risk of ignoring the asymmetrical power relations of the pre-grid order. While Smith gives us a picture of a Manhattan with "all the wildness of a place far out in the country" where "no sound is heard that is foreign to the country," he also reminds us that in areas where "no city streets [are] cut . . . here and there are roads or lanes leading to the estates of a few wealthy families who are the owners of the territory. Their wealthy young sons here practice cross country horseback riding."[15]

---

[12] Ibid.
[13] Eichler (2001), "My Manhattan: The Season When Gray Turns Green," *New York Times*, Section E, Late Edition, December 21, 2001, 41.
[14] Ibid.
[15] Smith (1938), *Springs and Wells of Manhattan and the Bronx: New York City at the End of the Nineteenth Century*, New York: New-York Historical Society, 98 and 158.

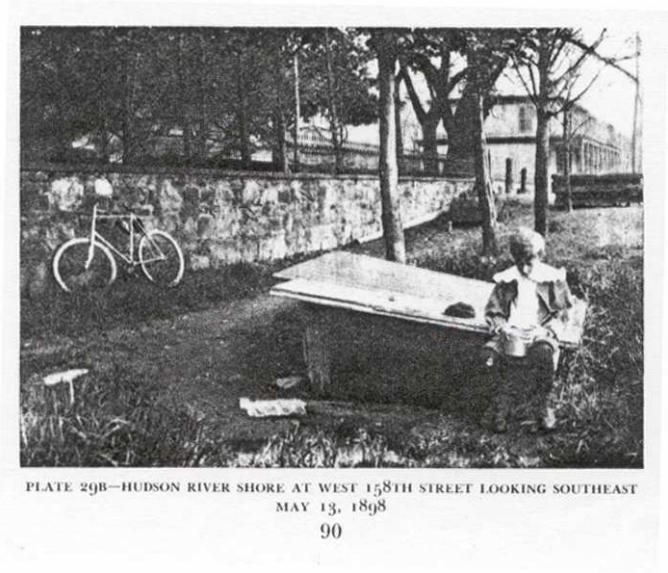


PLATE 298—HUDSON RIVER SHORE AT WEST 158TH STREET LOOKING SOUTHEAST
MAY 13, 1898
90

Figure 7.1: James Reuel Smith's bicycle joy ride through Manhattan at the end of the nineteenth century. Note what is likely Smith's bicycle resting against the wall (Source: Smith, 1938)

Smith notes that standing above one of the springs he found was "a sign reading 'No Trespassing allowed.'"[16] This paradisiacal "primeval forest," no doubt, was private property long before the grid divided it into "blocks."

While idealizing the past may offer psychological consolation, it is hardly a basis for creating a "sustainable" future. Science, it will then be argued, is the only means by which to find a solution to the "sustainability" crisis. Yet, if our examination of the grid has taught us anything, it is to question the claim that political questions can be reduced to technical calculations tabulated by technical experts. Re-politicizing the technical expert, however, need not result in a complete de-legitimization of technical expertise. It does, however, open the playing field up to a more democratic dialogue that will hopefully call a spade a spade, and no longer proceed under the delusion that

[16] Ibid., 158.

policymaking can cease to be political through the magical powers of technical calculation.

A Tribute to Descartes and the "Wisest Men"

You first want to make *all being conceivable: for, with a healthy mistrust, you doubt whether it is in fact conceivable.*

But it must bend and accommodate itself to you! Thus will your will have it. It must become smooth and subject to the mind as the mind's mirror and reflection.

That is your entire will, you wisest men; it is a will to power; and that is so even when you talk of good and evil and of the assessment of values.

You want to create the world before which you can kneel; this is your ultimate hope and intoxication . . . . they make the wolf into a dog and man himself into man's best domestic animal.

—Nietzsche, *Thus Spoke Zarathustra* (1969 [1883])

(Source: Guiterman, 1920)

THE END

BIBLIOGRAPHY

Abler, Ronald, John Adams and Peter Gould (1971), *Spatial Organization: The Geographer's View of the World*, Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Anonymous (1807), "Futurity." *The New and Complete American Encyclopaedia: or, Universal Dictionary of Arts and Sciences*, Vol. 3. New-York: John Low, 621.

——————— (1835), "Obituary," *American Journal of Science and Art* **27**, 395.

——————— (1888a), "Moore, Benjamin." *Appleton's Cyclopaedia of American Biography*, Vol. 4. James Grant Wilson and John Fiske. New York: D. Appleton and Co., 378-9.

——————— (1888b), "Morris, Lewis." *Appleton's Cyclopaedia of American Biography*, Vol. 4. James Grant Wilson and John Fiske. New York: D. Appleton and Co., 414-6.

——————— (2002), Boeotian. Website. <<http://www.dictionary.com>>. accessed on 1/9/2002.

Augustyn, Robert and Paul Cohen (1995), "Maps in the Making of Manhattan," *Magazine Antiques* **(Sept. 1995)**, 336-47.

Barnes, Trevor and James Duncan, Eds. (1992), *Writing Worlds: Discourse, Text and Metaphor in the Representation of Landscape*, New York: Routledge.

Bedini, Silvio A. (1999), "DeWitt, Simeon." *American National Biography*, Vol. 6. John Garraty and Mark Carnes. New York: Oxford University Press, 528-30.

Bell, E.T. (1986), *Men of Mathematics: The Lives and Achievements of the Great Mathematicians from Zeno to Poincaré*, [1937], New York: Simon & Schuster.

Berman, Marshall (1988), *All That Is Solid Melts Into Air*, [1982], New York: Penguin Books.

Black, George (1967), *The History of Municipal Ownership of Land on Manhattan Island*, [1891], New York: AMS Press, Inc.

Blackmar, Elizabeth (1989), *Manhattan for Rent, 1785-1850*, Ithaca: Cornell University Press.

Blackmar, Elizabeth and Roy Rosenzweig (1992), *The Park and the People: A History of Central Park*, New York: Henry Holt and Co.

Blaut, James M. (1993), *The Colonizer's Model of the World: Geographical Diffusionism and Eurocentric History*, New York: Guilford Press.

———————— (2000), *Eight Eurocentric Historians: The Colonizer's Model of the World, Volume 2*, New York: Guilford Press.

Bohm, David and F. David Peat (2000), *Science, Order, and Creativity*, [1987], New York: Routledge.

Bolton, Reginald Pelham (1928), *The Path of Progress*, New York: Kalkhoff Company.

Boyer, M. Christine (1983), *Dreaming the Rational City: The Myth of American City Planning*, Cambridge, Mass: The MIT Press.

Boyle, Robert (1998), "A Free Enquiry into the Vulgarly Received Notion of Nature." *Encompassing Nature: A Sourcebook*, [1686], Robert Torrance. Washington, DC: Counterpoint, 887-92.

Brevoort, Henry Sr. et al. (1807), *Reasons of several land holders in Broad Way against the payment of the Sums assessed upon them for Opening the Same, Submitted to the Honorable the Mayor & Corporation of the City & County of New York.* Municipal Archives, NYC Common Council Papers (1670--1831), "Street Commissioner: Accounts-Assessments," Box 31, Folder 858, Microfilm Roll # 31. New York.

Bridges, William (1811), *Map of the City of New-York and Island of Manhattan; with Explanatory Remarks and References*, New-York: T & J Swords.

Brierly, J. Ernest (1953), *The Streets of Old New York,* New York: Hastings House Publishers.

Brown, Henry Collins, Ed. (1917), *Valentine's Manual of the City of New York for 1916-7,* New York: Valentine Company.

——————— (1923), *Valentine's Manual of Old New York: No. 7, New Series 1923*, New York: Valentine's Manual, Inc.

——————— (1924), *Valentine's Manual of Old New York for 1924*, New York: Museum of the City of New York.

——————— (1925), *Valentine's Manual of Old New York for 1925*, New York: Museum of the City of New York.

Brown, Kate (2001), "Gridded Lives: Why Kazakhstan and Montana Are Nearly the Same Place," *American Historical Review* **106** (1), 17-48.

Bruckbauer, Frederick (1919), *The Kirk on Rutgers Farm*, New York: Fleming H. Revell Company.

Burchell, Graham, Colin Gordon and Peter Miller (1991), *The Foucault Effect: Studies in Governmentality*, Chicago: University of Chicago Press.

Burrows, Edwin G. and Mike Wallace (1999), *Gotham: A History of New York City to 1898*, New York: Oxford University Press.

Buttenwieser, Ann L. (1999), *Manhattan Water-Bound: Manhattan's Waterfront from the Seventeenth Century to the Present (second edition)*, [1987], Syracuse: Syracuse University Press.

Carey, Mathew (1825), *Exhibit of the shocking oppression and injustice suffered for sixteen months by John Randel, Jun., Esq.*, Philadelphia.

Cohen, Paul (1988), "'Civic Folly': The Man Who Measured Manhattan," *AB Bookman's Weekly*, 2511-5.

Cohen, Paul and Robert Augustyn (1997), *Manhattan in Maps, 1527-1995*, New York: Rizzoli International Publications, Inc.

Comfort, Randall (1901), *Colonial Homes in the Bronx: A Paper delivered before the New York Historical Society, November 6, 1901*. Collection of the New-York Historical Society, Box 2, # 10.

Common Council of the City of New York (1810-1812), *Minutes of the Common Council (Vol. 6)*, New York: City of New York.

———————— (1817-1818), *Minutes of the Common Council (Vol. 9)*, New York: City of New York.

———————— (1818-1820), *Minutes of the Common Council (Vol. 10)*, New York: City of New York.

——————— (1820-1821), *Minutes of the Common Council (Vol. 11)*, New York: City of New York.

Conklin, Lawrence H. (1997), "Kingsbridge, An Early Quarrying District on Manhattan Island," *Mineralogical Record* **28**, 457-73.

Coronil, Fernando (2001), "Smelling Like a Market," *American Historical Review* **106** (1), 119-27.

Cronon, William (1991), *Nature's Metropolis: Chicago and the Great West*, New York: W.W. Norton & Co.

——————— (1992), "A Place for Stories: Nature, History, and Narrative," *Journal of American History* **78** (March), 1347-76.

D.S.M. (1934), "Morris, Gouverneur." *Dictionary of American Biography*, Vol. 7. Dumas Malone. New York: Charles Scribner's Sons, 209-12.

de Certeau, Michel (1984), *The Practice of Everyday Life*, Berkeley: University of California Press.

Delaney, Edmund (1965), *New York's Turtle Bay Old & New*, Barre, Mass: Barre Publishers.

DeWitt, Simeon (1813), *The Elements of Perspective*, Albany: H.C. Southwick.

——————— (1819), *Considerations of the Necessity of Establishing an Agricultural College, and having more of the Children of Wealthy Citizens Educated for the Profession of Farming*, Albany: Websters and Skinners.

Dickens, Charles (1990), *Hard Times*, [1854], New York: W.W. Norton & Co.

Duncan, James (1990), *The City as Text: The Politics of Landscape Interpretation in the Kandyan Kingdom*, Cambridge: Cambridge University Press.

Duncan, James and Nancy Duncan (2001), "The Aestheticization of the Politics of Landscape Preservation," *Annals of the Association of American Geographers* **91** (2), 387-409.

Dunlap, David (1990), *On Broadway: A Journey Uptown Over Time*, New York: Rizzoli International Publications, Inc.

Eichler, Jeremy (2001), "My Manhattan: The Season When Gray Turns Green," *New York Times*, Section E, Late Edition, December 21, 2001, page 41.

Flagg, Ernest (1904), "The Plan of New York, and How to Improve It," *Scribner's Magazine* **36** (August 1904), 253-56.

Foucault, Michel (1990), *The History of Sexuality: An Introduction, Volume 1*, [1978], New York: Vintage Books.

———————— (1995), *Discipline and Punish: The Birth of the Prison*, [1975], translated by Alan Sheridan, New York: Vintage Books.

Gallatin, R. Horace (1939), *Dedication Ceremonies, New York Historical Society Miscellaneous Speeches, March 30, 1939*. Collection of the New-York Historical Society.

Gandy, Matthew (2002), *Concrete and Clay: Reworking Nature in New York City*, Cambridge, Massachusetts: MIT Press.

Gardner, Jean (1988), *Urban Wilderness: Nature in New York City*, New York: Earth Environmental Group.

Gerth, H. H. and C. Wright Mills, Eds. (1958), *From Max Weber: Essays in Sociology*, New York: Oxford University Press.

Goldman, Joanne Abel (1997), *Building New York's Sewers: Developing Mechanisms of Urban Management*, West Lafayette, Indiana: Purdue University Press.

Guiterman, Arthur (1920), *Ballads of Old New York*, New York: Harper & Brothers Publishers.

Hamilton, Edith (1969), *Mythology*, [1940], New York: Penguin Books.

Hannah, Matthew (2000), *Governmentality and the Mastery of Territory in Nineteenth-Century America*, New York: Cambridge University Press.

Harper's Magazine (1991), *New York: A Collection from Harper's Magazine*, New York: Gallery Books.

Hartog, Hendrik (1983), *Public Property and Private Power: The Corporation of the City of New York in American Law, 1730-1870*, Ithaca: Cornell University Press.

Harvey, David (1969), *Explanation in Geography*, New York: St. Martin's Press.

——————— (1996), *Justice, Nature, and the Geography of Difference*, Oxford: Blackwell Publishers.

——————— (1999), *The Limits to Capital*, [1982], New York: Verso.

Hill, Geo. Everett and Geo. E. Waring, Jr. (1969), "Old Wells and Watercourses of the Island of Manhattan." *Historic New York: The Half Moon Papers*, [1897], I. Maud Wilder Goodwin, Alice Carrington Royce and Ruth Putnam. Long Island: Ira J. Friedman, Inc., 192-262.

Hodges, Graham (1986), *New York City Cartmen, 1667-1850*, New York: New York University Press.

James, William (1981), *Pragmatism*, [1907], Indianapolis: Hackett Publishing Company.

July, Robert W. (1951), *The Essential New Yorker: Gulian Crommelin Verplanck*, Durham, North Carolina: Duke University Press.

Kant, Immanuel (1996), "An Answer to the Question: What is Enlightenment?" *From Modernism to Postmodernism: An Anthology*, [1784], Lawrence Cahoone. Oxford: Blackwell Publishers, 51-7.

Koeppel, Gerard T. (2000), *Water for Gotham: A History*, Princeton: Princeton University Press.

Koolhaas, Rem (1994), *Delirious New York: A Retroactive Manifesto for Manhattan*, [1978], New York: Monacelli Press.

Kornhauser, David (1984), "Common Imprints on the Landscapes of Japan and America: Invention or Diffusion?," *Asian Profile* **12** (5), 465-72.

Kostof, Spiro (1991), *The City Shaped: Urban Patterns and Meanings Through History*, Boston: Bulfinch Press.

Krause, Eugene F. (1986), *Taxicab Geometry: An Adventure in Non-Euclidean Geometry*, [1975], New York: Dover Publications, Inc.

Lamb, Martha (1896), *The History of the City of New York (Vol. 3)*, New York: A.S. Barnes and Co.

Latour, Bruno (1993), *We Have Never Been Modern*, [1991], translated by Catherine Porter, Cambridge, Mass: Harvard University Press.

——————— (1997), *Science in Action: How to Follow Scientists and Engineers through Society*, [1987], Cambridge, Mass: Harvard University Press.

——————— (1999), *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass: Harvard University Press.

Lefebvre, Henri (1991), *The Production of Space*, [1974], Cambridge, Mass: Blackwell.

Marcuse, Peter (1987), "The Grid as City Plan: New York City and Laissez-Faire Planning in the Nineteenth Century," *Planning Perspectives* **2**, 287-310.

Marks, Alfred (1999), "Moore, Clement Clarke." *American National Biography*, Vol. 15. John Garraty and Mark Carnes. New York: Oxford University Press, 743-4.

Marx, Karl (1976), *Capital: A Critique of Political Economy, Vol. 1*, [1867], New York: Penguin Books.

Marx, Karl and Frederick Engels (1970), *The German Ideology*, [1845], New York: International Publishers.

McDonnell et al. (1997), "Ecosystem processes along an urban-to-rural gradient," *Urban Ecosystems* **1**, 21-36.

Mestdagh, Roberte (1981), *Manhattan: People and Their Space*, New York: Thames and Hudson.

Miller, James (1993), *The Passion of Michel Foucault*, New York: Doubleday.

Mintz, Max (1999), "Morris, Gouverneur." *American National Biography*, Vol. 15. John Garraty and Mark Carnes. New York: Oxford University Press, 896-899.

Mitchell, Timothy (1991), *Colonising Egypt*, [1988], Berkeley: University of California Press.

Moehring, Eugene P. (1981), *Public Works and the Patterns of Urban Real Estate Growth in Manhattan, 1835-1894*, New York: Arno Press.

Moore, Clement Clarke (1818), *A Plain Statement, addressed to the Proprietors of Real Estate, in the City and County of New-York*, New-York: J. Eastburn and Co.

———————— (1844), *Poems*, New York: Bartlett & Welford.

Morris, Gouverneur (1771), *Oration on Love*. Columbia University, MS Collection, "Morris, G. Papers, 1768-1816," Reel 3, Copy 1.

——————— (1814), *A Discourse delivered before the New-York Historical Society, at their Anniversary Meeting, 6th December, 1812, Collections of the New-York Historical Society, for the Year 1814*. Collection of the New-York Historical Society. New York.

——————— (1821), *An Inaugural Discourse, delivered before the New-York Historical Society, by the Honourable Gouverneur Morris, (president,) 4th September, 1816, Collections of the New-York Historical Society, for the Year 1821*. Collection of the New-York Historical Society. New York.

Motz, Lloyd and Jefferson Hane Weaver (1993), *The Story of Mathematics*, New York: Avon Books.

Mumford, Lewis (1938), *The Culture of Cities*, New York: Harcourt, Brace and Company.

——————— (1961), *The City in History: its Origins, its Transformations and its Prospects*, New York: Harcourt Brace Jovanovich.

Nash, Roderick (1982), *Wilderness and the American Mind*, [1967], New Haven: Yale University Press.

New York, City of, Ed. (1832), *Report and Documents relative to the Stuyvesant Meadows, from the year 1825 to 1831, inclusive*, New-York: George Robertson.

Nietzsche, Friedrich (1956), *The Birth of Tragedy and the Genealogy of Morals*, [1887], Garden City, New York: Doubleday Anchor Books.

——————— (1969), *Thus Spoke Zarathustra: A Book for Everyone and No One*, [1883], New York: Penguin Books.

——————— (1974), *The Gay Science*, [1887], New York: Vintage Books.

——————— (1980), *On the Advantages and Disadvantages of History for Life*, [1874], Indianapolis: Hackett Publishing Company, Inc.

——————— (1989), *Beyond Good and Evil: Prelude to a Philosophy of the Future*, [1886], New York: Vintage Books.

Olmsted, Frederick Law (1971), *Civilizing American Cities: A Selection of Frederick Law Olmsted's Writings on City Landscapes*, edited by S.B. Sutton, Cambridge, Mass: MIT Press.

Patterson, Samuel White (1935), *Old Chelsea and Saint Peter's Church: The Centennial History of a New York Parish*, New York: Friebele Press.

Pattison, William (1964), *Beginnings of the American Rectangular Land Survey System, 1784-1800*, [1957], Chicago: University of Chicago Press.

Peterson, Merrill (1975), *The Portable Thomas Jefferson*, New York: Penguin Books.

Polanyi, Karl (2001), *The Great Transformation: The Political and Economic Origins of Our Times*, [1944], Boston: Beacon Press.

Powell, Joseph (1997), "Enterprise and Dependency: Water Management in Australia." *Ecology and Empire: Environmental History of Settler Societies*, Tom Griffiths and Libby Robin. Seattle: University of Washington Press, 102-21.

Randel, John Jr. (1864), "City of New York, north of Canal street, in 1808 to 1821." *Manual of the Common Council of New York ("Valentine's Manuals")*, Valentine. New York: 847-56.

———————— (1819-20), *Randel Farm Maps*, held at the Manhattan Borough President's Office.

Reps, John W. (1961), "Thomas Jefferson's Checkerboard Towns," *Journal of the Society of Architectural Historians* **20** (3), 108-14.

———————— (1965), *The Making of Urban America: A History of City Planning in the United States*, Princeton: Princeton University Press.

Rosen, Christine and Joel Tarr (1994), "The Importance of an Urban Perspective in Environmental History," *Journal of Urban History* **20** (3), 299-310.

Russell, Edmund (1996), "'Speaking of Annihilation': Mobilizing for War against Human and Insect Enemies, 1914-1945," *Journal of American History* **82** (4), 1505-29.

Sandweiss, Eric (1997), "Paving St. Louis's Streets: The Environmental Origins of Social Fragmentation." *Common Fields: An Environmental History of St. Louis*, Andrew Hurley. St. Louis: Missouri Historical Society Press, 90-106.

Scott, James C. (1998), *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven: Yale University Press.

Sennett, Richard (1990), "American Cities: the Grid Plan and the Protestant Ethic," *International Social Science Journal* **42** (3), 269-85.

Shackleton, Robert (1920), *The Book of New York*, Philadelphia: Penn Publishing Co.

Shanor, Rebecca (1982), *New York's Paper Streets: Proposals to Relieve the 1811 Gridiron Plan*. Columbia University, Master's thesis.

Short, John Rennie (2001), *Representing the Republic: Mapping the United States, 1600-1900*, London: Reaktion Books.

Simpson, J. A. and E.S.C. Weiner (1989), "Futurity." *Oxford English Dictionary (2nd Ed.)*, Vol. VI. Oxford: Clarendon Press.

Sluyter, Andrew (1999), "The Making of the Myth in Postcolonial Development: Material-Conceptual Landscape Transformation in Sixteenth-Century Veracruz," *Annals of the Association of American Geographers* **89** (3), 377-401.

——————— (2001), "Colonialism and Landscape in the Americas: Material/Conceptual Transformations and Continuing Consequences," *Annals of the Association of American Geographers* **91** (2), 410-28.

——————— (2002), *Colonialism and Landscape: Postcolonial Theory and Applications*, New York: Rowman & Littlefield Publishers, Inc.

Smith, James R. (1938), *Springs and Wells of Manhattan and the Bronx: New York City at the End of the Nineteenth Century*, New York: New-York Historical Society.

Spann, Edward (1988), "The Greatest Grid: The New York Plan of 1811." *Two Centuries of American Planning*, Daniel Schaffer. Baltimore: Johns Hopkins University Press, 11-39.

Spannuth, Jacob, Ed. (1929), *Doings of Gotham: Poe's Contributions to The Columbia Spy*, Pottsville, Penn: Jacob E. Spannuth publisher.

Stokes, I.N. Phelps (1915-1928), *The Iconography of Manhattan Island, 1498-1909*, New York: R.H. Dodd.

Trachtenberg, Alan (1964), "The Rainbow and the Grid," *American Quarterly* **16** (1), 3-19.

Upton, M.G. (1869), "The Plan of San Francisco," *The Overland Monthly* **2** (February), 131-6.

Valentine, D.T. (1862), *Laws of N.Y.S. Relating to the City of N.Y.*, New York (held at the Municipal Reference Library).

Verplanck, Gulian C. (1824), *Address, delivered before the American Academy of Fine Arts*. Columbia University, Avery Library Rare Books Collection. New York.

Ward, David and Olivier Zunz, Eds. (1992), *The Landscape of Modernity: New York City, 1900-1940*, Baltimore: Johns Hopkins University Press.

Warmington, Eric and Philip Rouse, Eds. (1984), *Great Dialogues of Plato*, New York: Penguin Group.

Weber, Max (2000), *The Protestant Ethic and the Spirit of Capitalism*, [1930], New York: Routledge.

White, C. Albert (1983), *A History of the Rectangular Survey System*, Washington, DC: Government Printing Office.

Whitehill, Walter Muir and Lawrence W. Kennedy (2000), *Boston: A Topographical History*, [1959], Cambridge, Mass: Belknap Press of Harvard University Press.

Wilson, James and John Fiske (1921), "Rutherfurd, John." *The National Cyclopaedia of American Biography*, Vol. 2. New York: James T. White & Co., 10.

Winkler, Franz (1911), "Mitigating the 'Gridiron' Street Plan: Some Good Effects Achieved in New York City," *Architectural Record* **May**, 379-396.

Wojtowicz, Robert (1998), *Sidewalk Critic: Lewis Mumford's Writings on New York*, New York: Princeton Architectural Press.

Worster, Donald (1990), "Transformations of the Earth: Toward an Agroecological Perspective in History," *Journal of American History* **76** (March 1990), 1087-1106.

Zerlang, Martin (2002), “Urban Life as Entertainment: New York and Copenhagen in the Mid-nineteenth Century.” *The Urban Lifeworld: Formation, Perception, Representation*, Peter Madsen and Richard Plunz. New York: Routledge, 314-29.