

Building Modern New York

People, Works and Meanings

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MIGUEL AGUILÓ

ACS
ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS





If there is a city in the world that touches the sky it is New York. Not only because of the height of its buildings, its magnificent bridges or the extension of its avenues, but because of its permanent artistic splendor, its vibrant cultural activity, and the ambitious spirit of its citizens. Anyone who approaches its limits for the first time, whether by land, sea or air, immediately perceives this height, and the footprint that New Yorkers have left in building their city.

This new book by ACS on infrastructure and cities addresses, from a humanistic perspective, as always, the path of New York's construction over the past two centuries. To do so, it focuses on the influence of various eminent personalities whose intelligence, character, and determination contributed decisively to the extraordinary urban and social development of the city, which many consider the genuine capital of the world.

In short, *Building Modern New York* recounts, in a concise and readable style, the architectural and landscape history of this metropolis through professional biographies of famous people. It also shows a wide range of pictures and drawings that reveal the strong will and tremendous effort of several generations of New Yorkers to achieve the size and the current appeal of their city.

In this context, let me show off the work of the ACS Group in New York, whose companies established in the United States have had the honor to undertake some of its most iconic projects, such as the building of the United Nations, the construction of Lincoln Center, the expansion of the Grand Central station, the construction of Yankee Stadium and the expansion of Terminal 5i of John F. Kennedy International Airport.

Again, I invite you to delve into this new work in the collection edited by ACS, which I am sure will surprise you in its approach, and will please you as much as our previous publications.

Florentino Pérez
President, ACS Group

CONTENTS

1 Introduction 11
Penetrating the Unfathomable

2 New Yorkers 17
The Vibrant and Endless Building of the City

3 Jervis 27
John B. Jervis (1795-1885)
Structuring the Framework
Grid Plan
The New York Port
Erie Canal (Jervis, 1825)
Ships
Croton Aqueduct (Jervis, 1842-1907)
Catskill/Delaware System

4 Roebling 51
John A. Roebling (1806-1869)
Incorporating the New
The New
Modernity and Metropolis
Roebling in the East River
Brooklyn Bridge (Roebling, 1883)
Flatiron Building (Burnham, 1901)
The Breath of New Art

5 Olmsted 73
Frederick Law Olmsted (1822-1903)
Introducing Landscape
Countryside and City
Central Park (Olmsted & Vaux, 1873)
Prospect Park (Olmsted & Vaux, 1873)
Eastern and Ocean Parkways
(Olmsted & Vaux, 1874, 1880)
Upper West Waterfront (Olmsted, 1875)

6 MM&W 97
MM&W. McKim, Mead & White (1872-1961)
Housing the Institutions
Far-reaching Firms
Rafael Guastavino in New York
Four New Bridges

7 Wilgus 135
William J. Wilgus (1865-1949)
Moving Crowds
The First Railway Station (1871)
Grand Central Terminal (1913)
Aesthetics of the Crowd
The Manhattan Subway

8 Adams 155
Thomas Adams (1871-1940)
Anticipating Conflicts
New York City Zoning Resolution (1916)
Regional Plan of New York and Its Environs
(1929-1931)
New York Port Authority (1921)
Parks, Parkways and Scenic Roads
Underwater Tunnels for Cars

9 Harrison 175
Wallace K. Harrison (1895-1981)
Showing Corporations
From Institutions to Corporations
Design of Skyscrapers
Raymond Hood
Wallace K. Harrison
Rockefeller Center (Harrison, Hood, *et al.*, 1937)
United Nations (Wallace K. Harrison, 1952)

10 Mumford 201
Lewis Mumford (1895-1990)
Monitoring Change
Modernity in the 1930s. Art and Critique
Mumford and His Work
Giedion's Distrust

11 Moses 221
Robert Moses (1888-1981)
The Construction of the City in 1930
From Coney Island to Jones Beach
Surrounding and Crossing Manhattan
The 'Other' Moses

12 Ammann 255
Othmar Ammann (1879-1965)
Undertaking the Scale
George Washington Bridge (Ammann, 1931)
Links Among the Five Boroughs

13 Tobin 279
Austin Tobin (1903-1978)
Negotiating Difficulty
Airports
Manhattan's Waterfront
East Bank of the East River

14 Jacobs 303
Jane Jacobs (1916-2006)
Defending the Neighborhoods
The Defense of Neighborhoods
Hudson River Park
Aftermath of the Struggle
Impact of Her Ideas

15 Johnson 319
Philip Johnson (1906-2005)
Canon and Rhetoric
Controversial Philip Johnson
Skidmore, Owings & Merrill (SOM)
The Future of New York in 1982
The End of Skyscrapers
Noguchi Museum (1985)

16 Burden 345
Amanda M. Burden (1944-)
Crises and Challenges
Crisis, Renewal and Modernity
Tragedies, Disasters and Crisis
Design and Build the New
Recovering the Old

17 Readers 373
Discovering the City (2014-?)
Walks
Gardens
Atriums and Inner Courtyards
Settings, Engineering and Film in New York

18 Works by ACS 405
Recent Works

19 References 417
Bibliographical references
Index
Photo credits
Notes



1 | Introduction

Penetrating the unfathomable

Since New York is unfathomable, one can only penetrate it, dive into its entrails in search of meaning. The sequential enumeration of its many excellent works, more or less classified by types of bridges, skyscrapers, roads, parks, would obscure something that is evident from the outset: New York is much more than a collection of works, more or less known and admired by those of us who care about building. And the use of an introduction, to then continue that sort of enumeration by type, is insufficient to highlight the contribution of each project to the construction of an idea of the city.

As in any other case, the appeal to history is inexcusable. But to admit this does not make the mere chronological account of what took place the best approach to understanding the matter. If there is something truly characteristic of the evolution of the city it is the permanent presence of the traces of what has been said or done and of anticipations or future plans, intertwined and entangled with each other, and causing continuous jumps in time.

The intention to penetrate the city could be conceptualized as a real *Archaeology of New York,* in the most contemporary sense of the term. Stripped of its general ascription to the archaic, or at least to the very old, the task of finding the sense of some physical remains, not necessarily ruinous, but blurred or erased by their permanent actualization, accompanied by abundant sources and written interpretations, is not without interest.

Diving into New York in search of meaning, one finds people, not only the common people, ever present, but also many powerful New Yorkers, with the ability and incentive to set the city in motion. Looking under the stones, known names immediately reappear time and again, even in seemingly unconnected issues. A cursory reading of any documentation on these stones shows a tangle of relationships between these characters, and the consequent suspicion of a foundation or motivations not apparent to the eye. But, since we are dealing with individuals, not with institutions or abstract entities, it is not easy to select the relevant subjects, the real protagonists of its momentum.

The political class and money are the first to show, and secure backbone of what is happening. Mayors, state governors, presidents of the nation, congressmen, senators, banking families and active philanthropists would make it easier to organize the facts chronologically. Something like a traditional history of any country, organized around a more or less orderly succession of kings. Around them would arise the corresponding chamberlains, secretaries, bishops or field marshals to link their egregious and remote figures with the facts and matters pertaining to the common people.

But the unequivocal role of some of these figures does not suffice to explain what happened nor justifies the mention of other figures. The mere accumulation of power can be translated into action, but also into barbarism. And electoral victories do not explain anything, as neither does belonging to a dynasty. The possible recourse to an alleged 'Civil Society', often used with little rigor, is inappropriate for a country where nothing else seems to exist, where everything is civil. In a more or less systematic way, the search leads to certain 'catalysts', which may or may not belong to these castes, as essential elements in the formation of the city.

These would be individuals with sufficient capacity to mobilize power, money or influence on concrete proposals. Thanks to their ideas, perseverance and ability to successfully manage complex processes or, on the contrary, to

paralyze and cancel them. Their successes back them and maintain their influence long enough to make them relevant to the city. Since, given the scale and complexity of New York, good ideas are not enough by themselves. Power and perseverance to defend them and carry them out is needed. In New York, everything that happens is discussed, negotiated and pushed, or fails to occur.

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They may be, or perhaps they usually are, professionals, but not necessarily so. But they must reach a certain 'position.' How they manage to do so, does not really matter now, since, once there, they are able to face all kinds of issues. They are in everything that happens, they are not specialists but multifaceted. They appear again and again on the countertop where the city is cooked, and they are related to its main events. And they also weave strong and lasting relationships between them, probably essential to fuel their power.

It is not easy to distinguish or to list them, but their figures can be used to confer a certain systematic character to the inquiry about the city. The resulting narrative is necessarily sequential, but is dotted with jumps in time. And it reveals itself as intertwined with dense relations of issues and protagonists, and of the latter among themselves. How to convey these relationships in a sequential narrative is primarily a methodological challenge, and this book can only point towards it.

Behind the actions of each character, these relationships reveal a number of conditions, principles or qualities peculiar to New York and not easy to identify or characterize. Sometimes it comes to values and behaviors of New Yorkers and of the city itself, but also certain features of the buildings arise, belonging to certain buildings and public works.

Each one of them has been studied in depth and portrayed in numerous books, essays, articles, movies, songs and all types of communications. Probably, the study of no other city has been able to generate as much interest as New York, or to produce so many excellent publications. The most comprehensive, rich and interesting source written about the city remains perhaps the *New York Times,* the entire collection of which is available online.

But this wealth of sources, often easily accessible, multiplies the intricacies of the many interpretations of the city. And, therefore, it marks as provisional any possible approach to the construction of a city like New York, something that here we willingly accept from the outset.

The first chapter contains a general reflection on the construction of the city, by way of guiding thread of the book. The data and information are organized in a series of short essays about people, places or facts, joined by their proximity to relevant characters arranged chronologically in a conventional manner, but always interrelated.

Following the storyline established in Chapter 2, 14 characters begin to appear on the stage in Chapters 3 through 16. Each of them brings along a host of new characters, which should not be understood as secondary or subordinate to the protagonist of the chapter. In some cases, they may be as important as the chosen one, as their primacy arises from their own role as much as the intended consistency of the text.

As it was being written, the story acquired new attractions in two directions. On the one hand, the observation of how these characters reappeared and intertwined in the various episodes reported throughout the book gained importance. On the other, accurate profiles of sufficient theoretical relevance as to make their own momentum and establish themselves within the general discourse arose.

The reception of the new, the idea of modernity, the concept of metropolis, the resort to art, the role of the public, the construction-destruction link, conflicts of scale, the park as parkway, the ostentation of the corporate world, the strength of neighborhoods or the pulse of crisis are known and relevant affairs, but nonetheless essential for the city and indispensable to understand it.

Some of them are recurrent: modernity, for example, emerges in chapters 4 and 5, is circumvented in 6, recognized in 7 and 8, embodied in 9, 11 and 12, confronted in 10 and 14, manipulated in 15, and ignored in 16. However, despite their wide appeal, it has not been possible to address the demolished buildings, nor the many proposals and unrealized projects, forged in the heat of each citizens' initiative, but never realized. Undoubtedly, this is a material of great value to approach the consideration given to the new in New York, but too vast and impossible to summarize in order for it to be treated here.

Behind the brief mention of each case tautology crouches, because we are dealing with issues whose appearance or relevance has emerged, precisely, in New York, or because of it. Their theoretical development has been elaborated following that particular urban experience and, in a way, they are the product of the city itself. Therefore, they have been useful in explaining other cities, but should be handled with caution if one wants to explain New York with them, so as not to fall into vicious circles.

Beside the story and its theoretical profiles some important works remain, as islands whose interest is foreign to the main story.

Chapter 3 brings together what happened in the nineteenth century as the basic structuring of the city towards its imminent growth around the figure of John B. Jervis. The layout of the city, the first docks, the channel to Chicago, the mythic ocean liners, and the efficient water supply prepare the city and announce its splendor. In chapter 4, John A. Roebling appears as an emblem of the new, and brings the Brooklyn Bridge as its materialization, also shown in the Flatiron Bd., in years abundant in new ways of thinking about the art of the metropolis.

Chapter 5 is built around Frederick Law Olmsted, known as the author of Central Park, but also protagonist of a whole system of parks and roads of innovative design and great importance in America. Chapter 6 is dedicated to the firm of McKim, Mead & White, responsible for many of the institutional buildings in Manhattan, whose lifeblood also begot new suspension bridges to absorb the growing traffic between the island of Manhattan and Brooklyn.

Chapters 7 and 8 introduce the mass transport flows generated by the agglomeration, first clustered around William J. Wilgus and the railways, and then with Thomas Adams and their planning. The city began to colonize the underground with tunnels, trains and subways, only visible from the outside in the exceptional Grand Central Station, where a total control of the movement of crowds is evident.

Chapter 9 revolves around Wallace K. Harrison, captain of corporate protagonism as a substitute for the presence of the institutions in the image of New York. The city rises with skyscrapers and the emergence of the emblematic Empire State Bd., still lord and master of Midtown, and the Rockefeller Center, unique and huge set built in full communion with the grid.

Chapter 10 proposes a break of critical reflection around the figure of Lewis Mumford, but revolving around the assimilation and revision of modernity by various artists after the financial crisis of 1929 and its aftermath, alongside the misunderstanding of its evolution by the theorists of the Modern Movement.

Chapters 11 and 12 discuss the ripple effect of the measures of the New Deal to overcome these crises around the figures of Robert Moses and Othmar Ammann, friends and executors of the construction maelstrom fueled by federal funds. The variety and extent of what the former built supports itself and feeds back on the scale and magnitude of the great bridges of the second. Therefore it is not easy to take a look at the city without encountering the achievements of both. The emblem of their joint work is the Cross Manhattan Expressway, a ditch with a brutal history, with buildings on top, connected to its continuation in the Bronx through a complex knot of highways and bridges and projected into New Jersey over the Hudson River with the George Washington Bridge.

Chapter 13 coalesces around Austin Tobin, promoter of the New York & New Jersey Port Authority, a joint agency of both states to fund and undertake complex projects with full financial and management autonomy.

Responsible for bridges, ports and airports, it builds the World Trade Center, and a huge landfill with a neighborhood on top to fund these works, and it ends up just doing everything the city or the state can not cover.

Chapter 14 focuses on the figure of Jane Jacobs, able to rally popular opposition to paralyze initiatives potentially destructive of certain neighborhoods as the Village or SoHo, and a whole way of living the city. Her struggle and proposals directly impacted neighborhood recovery, although they have put in motion unexpected processes, such as gentrification.

Chapter 15 lists some examples of the splendid and contradictory way to build a whole era around the controversial figure of Philip Johnson, with the counterpoint of Skidmore, Owings & Merrill (SOM) and the contributions of notable architects, with products as varied as the United Nations, the Lincoln Center, and the Ford Foundation, or scenarios such as Times Square.

The figure of Amanda Burden, chosen to bind recent years in Chapter 16, is less known but soon her true dimension will emerge, as a tireless promoter of the new spirit assumed by the city to renew itself after a tragedy, various disasters and a large crisis. New or recovered parts, such as the High Line, streamline the city whereas creations of renowned architects, such as Frank Gehry, Jean Nouvel, and Christian de Portzamparc appear as a brand to promote large real estate projects in search of wealthy global customers.

The storyline of Chapter 1 and the 14 chapters dedicated to the protagonists are complemented by a final chapter 16, of different tenor. It is aimed at the reader, as an approach to four ways of peeking into the city through walks, courtyards, gardens and film settings. The protagonist is the reader, bringing along their own development and personal projects arising from the reading and examination of many small embodiments intended to serve as material for this personal work. To facilitate this task, precise locations must be indicated, but the intention is far from offering a sort of travel guide, as there are many, and for every possible taste, in every corner of the city.

Finally, a chapter with the latest achievements of ACS worldwide and another one with the corresponding notes, bibliography and indexes are included. The exercise of relating what has been built by ACS with the issues and works contained in the text, as in previous books, is complemented here with the most important recent achievements of the group.

This book would not have been possible without the support and work undertaken by architect Patricia Hernández Lamas, civil engineers Óscar de Castro Cuartero and Ana Rubio Gavilán, and student José de la Paz Noguera, providing information, text, photos and travel. It has benefitted from the usual collaboration of forestry engineer Santiago González Alonso and civil engineer Antonio Sarabia. In some drawings and specific texts their signature appears, but it is impossible to detail their sustained contribution in the form of group work in the many and fragmented tasks required by the book. I appreciate all the hard work they put into this book and their valuable cooperation.

I also thank the field help in New York, the indications and assistance provided by engineers José M. Iturriaga, Ricardo Franco, Fernando González, Chris Ward, Roman Garrido and Ricardo Martín de Bustamante, who helped and made pleasant the multiple stays and trips around town.

I am also grateful to the architects Paola Echegaray, for her work documenting photos, texts and locations in New York, and Gala Solomonov, for her insightful suggestions. And especially to Juan Herreros, architect and prominent professor at Columbia University for his continued support since the beginning of the book and for the many suggestions on works, authors and essential approaches.

Although it is not easy to understand a city, the best way to try to do it will always be personal. The approach, readings and the observation of the buildings are made to interest the reader. If the reader remains oblivious or indifferent, this story will not have achieved its main objective. Maybe next time.


Plymouth St

2 | New Yorkers

The vibrant and endless building of the city
Extend, ascend, travel
Conflicts of scale
Distant resources
Construction from demolition
Civic confrontation
A tense modernity
The push of dissatisfaction
City over architecture
A peculiar modernity
Preservation
Powerful personalities
Collective counter-power

New Yorkers

The vibrant and endless building of the city

Extend, Ascend Travel

Driven by tremendous vitality, born of the differences between its citizens, the city struggles to expand. New York is not just Manhattan, but that is where its strength and its meanings arise and concentrate. The island exceeds its river enclosure with bridges and tunnels, to horizontally forge new areas of work, leisure, and habitation. It confronts distance and establishes itself ever further, extending its character over a vast territory.

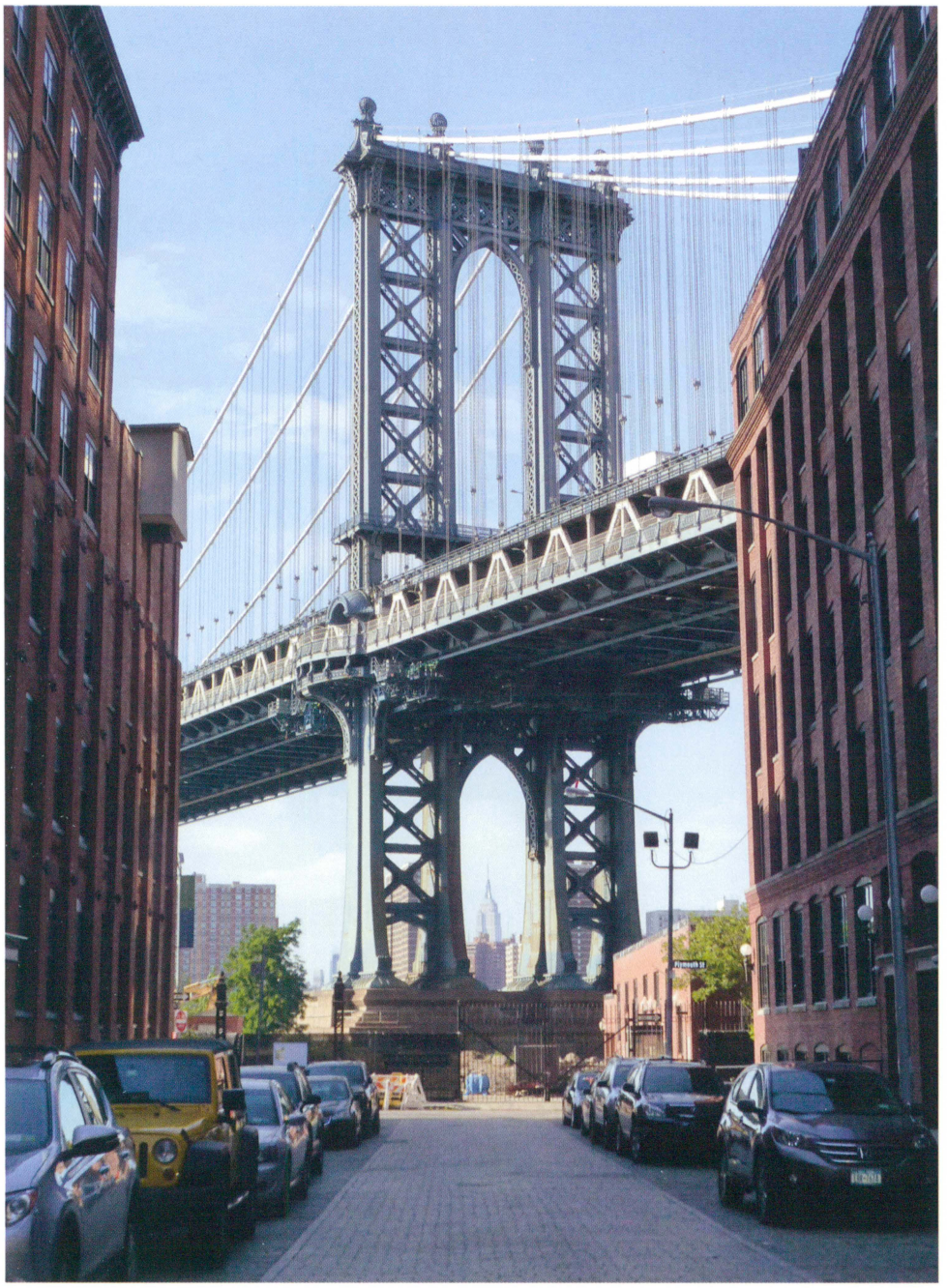
The city also defies gravity and grows vertically. It reaches upwards to rise towards the light and air without losing its competitive centrality. Secure in the strength that comes with its concentration, the island unhesitantly increases its density by raising the number of floors on its buildings. Ever higher towers, aspiring to scrape the heavens, define the unmistakable silhouette of the city.

After traveling long distances, crossing rivers and canals by bridges or tunnels, taking the car to the parking lot and walking several blocks, the New Yorker must climb many floors to reach his workplace. At five in the afternoon he will descend from the heights and will make his way back to the family home, close to the ground and nestled by the woods. Leaving behind the upheavals of work and the roar of the city to return to an assuredly familial and rural setting, where everything is known and soothing.

Conflicts of scale

The daily commute of millions of citizens requires highways, trains, bridges, and tunnels on a scale proportionate to the size of the obstacles to overcome. This merging with the moderate and uniform urban grid causes significant adaptive conflicts. To integrate within it an obstacle of such scale and to digest the strong flow of vehicles and passengers delivered by large engineering works, tricks, transitions and transfers are necessary. Blocks, buildings, sidewalks, traffic lights and pedestrians are subject to enormous pressure. Multiple ramps or tunnel mouths appear, facades are closed off and sidewalks are suppressed, whole blocks are demolished, residual spaces with trees and grass emerge. Residences, shops and other remnants of life are expelled from large areas of the city.

To maintain that concentration and its transits, the city needs huge supplies of fuel, goods and services arriving by land, sea and air. It builds and renovates ever growing airports. It constantly remakes its waterfronts and its ports to maintain an efficient connection to the sea, from which distant products arrive. And it has to invent new ways to protect itself from the fury and inclemency of an often devastating climate.





DUMBO with Manhattan Bridge and Empire State Building in the background

Grand Central Station and PAN AM Building

Distant resources

To feed its vitality, the city captures distant sources of water and energy, stores them in reservoirs, and transports them by canals, pipelines and power lines. For its protection, it allocates large wooded areas, in which all activity is forbidden. The consumption of so many resources requires processing the waste generated in the city itself, enabling remote sites to dispose of and transport it upriver in barges and tugs.

Due to this dense network of spaces and relationships, Manhattan projects itself horizontally in all directions, to establish itself as New York City on a vast territory. There are no gaps, and each piece of land has a use defined by and for the city: whether destined for habitation, industry, passageways, or parkland, separately, but also together in mixed or juxtaposed form. The high and visible silhouette of the skyline presents itself in unexpected places to remind of its hierarchy. Although some



Cross Bronx Expressway: conflicts of scale

mainland districts have grown faster, it is the island that projects itself onto them and their lands to turn beaches, streams, lakes, forests and hills into key parts of a unique and diverse city with specific functions.

The degree of social and physical mobility experienced by the average citizen through the 1920s was unprecedented. Perhaps more than any other factor, the advent of widespread automobile ownership stimulated urban expansion to previously unimaginable proportions; transforming traditional patterns of city grow [152:30].

Construction from demolition

In the eagerness to extend upward and sideways, every achievement involves a concession, every step forward a step backwards. The central space is always in short supply, and erecting a new building requires demolishing that which pre-exists it. Adding new access to a large bridge destroys hundreds of homes and transforms entire neighborhoods. Each reservoir fills a valley and fences off much of the territory. A storm guard ruins a beach or stops up a canal. Although every city sits on multiple pre-existences, New York does not hesitate to destroy itself in order to continue rebuilding itself.

The energy that fuels such vitality so eager for novelty seems to arise from the immigrant character of the city's successive waves of inhabitants — first from Europe by sea and then from around the world. *In America, remarks Han Meyer, the condition of modernity looms larger than anywhere else. The ocean plays a vital role in fostering the process of detachment. The decision to cross the ocean was strongly influenced by a desire to better oneself and to make a radical break with the existing social context.* Sailing for more than a week through an infinite and empty mass of water along with thousands of peers stimulated the desire for the new. The contrast with the glittering New York was winning and overwhelming [96: 184].

The pace and the patterns of this destruction-construction are the result of a dual confrontation: against the laws of nature and against the self. Roads confront distance, structures, gravity; reservoirs alter the rhythms of water, docks face the waves.

But in its quest for the new, the city also struggles with its own history to stay alive without losing that which it cares for. George Perkins Marsh noted in 1864 the relentless love of change imprinted in the American character, and how this has transferred to its landscape, which is as varied as the habits of its population[1].

Civic confrontation

Some citizens encourage or push expansion driven by the desire for improvement or economic interest. Other citizens band together against that pressure, in order to retain that which already exists. The authorities referee these confrontations according to their policies and in favor of their voters. Initially they support proposals for change, even the most innovative and aggressive ones, but end up favoring agreements with the conservationist groups.

The successes of the former have bequeathed to the city some buildings of diverse interest. Excellent public works and complex constructions, soon sublimated as symbols, coexist with failed projects, early candidates for yet another inevitable demolition. Within walking distance of bridges or skyscrapers enshrined as universal models of good practice, entire neighborhoods stand as true counter-examples of wrong ways to renew the city.

The triumphs of the latter prolong the life of a neighborhood, a building, or a square until the next battle. These permanences shape or enhance the character of the city and contribute toward building theories and urban myths. Some neighborhoods stand as alternative city models, and certain battles become crystallized in urban epic accounts, becoming civic paradigms for the whole world.



Williamsburg Bridge and graffiti



Kosciuszko Bridge



Chrysler Building and other towers



Brooklyn Bridge Promenade

A tense modernity

A strong image emerges from the confrontation between these two positions, one that is charged with a vibrant and peculiar modernity very characteristic of the city. *We often think of modernity as being revealed in a singular or unified logic. New York, which has for most of this century been regarded as a symbol of the modern and modern life, disrupts this notion of what modernity is, what it looks like. New York offers a richer and more complicated experience of modernity: progress (or newness) seems to be associated with archaicism (or older ways). I want to argue that this combination is essential to the city's modernity. Modernity is a conversation with the past, and that past must be present. That is one reason why the modernity of metropolitan New York must always be unfinished* [17:xv].

The new is incorporated, when it is done so, after an open, hard and divisive debate, and it bears the scars of dissent and concession. What comes from outside is never accepted or rejected as is, or for the mere fact of being new or fashionable: some of its components, features or essences are accepted and intermingle with local ingredients. That which pre-exists, meanwhile, always leaves traces, keeping alive its presence amid the new. It is in the juxtapositions and folds between the new and old where one can best feel the pulse of New York.

The history of the city has produced a special authenticity —a genius loci via a formal hybridity that is the result of the centuries long sequence of renewed paradigms jostling for priority and of the fact that the slate can never be wiped clean. The unique character of New York is the product of a series of juxtaposition of elements that might imply a continuous picture of the city —the city of row houses, the city of towers in the park, the city of street walls, the city of freestanding houses, and so on but that are distributed throughout the city as larger or smaller fragments of a more demanding whole [147:135].

The push of dissatisfaction

New York is never satisfied with itself —it requires better hotels, better office buildings, better homes, better stores. Its new buildings are scarcely occupied before they are torn down to make way for better ones. The great steel frames of its structures will never disintegrate from rust —they are scraped before rust can start. And all this is not a result of New York's own effort or even volition. It is beyond the power of men to accelerate or slow down. It moves likes a tidal wave, like the march of the seasons, like the revolution of the globe[2].

City over architecture

This evolution has little resemblance to what happened elsewhere and contains new and interesting contributions. But as Thomas Bender says: *Although New York is arguably the first modern city in the world (or at last one of them), it has not been recognized as a major contributor to the career of the modern movement en architecture. Only the city's parks and parkways received ritual praise... Nowhere does one find discussion of the interesting and important tug-of-war that took place between private and civic values, between vertical and horizontal structure, laissez-faire and professional efforts to give a sense of shape and unity to urban public spaces. These contests gave substance to an historically specific early New York modernism* [17:29].

Many critics, probably following the lead of the unavoidable Giedion, accord little value to the architecture of the city, and consider few of its pieces decisive for the evolution of the discipline (see Chapter 10). Its high skyscrapers, and even its pendant-bridges, are not protagonists in the history of these large frameworks, as is the case with



Urban scale of the Manhattan Bridge east access gate

some specific buildings in Chicago or certain European bridges, whose absence would require a complete reformulation of the history of construction. In the construction of New York, the city prevails over the building, the where always prevails over the what and the how. Buildings, skyscrapers, squares, and bridges, regardless of their eventual and sometimes enormous individual interest, end up being understood as integral parts of the city.

The novelty brought by each of them gives rise to a special modernity, produced by and for the city. This modernity does not lie specifically in the material, type, shape or character of the building or bridge, but rather in its complete absorption by New York, with specific contributions such as those already noted. New materials and theories such as concrete or the suppression of the street, central to European modernity, failed in New York. They were neither necessary, nor welcome, and they did not even manage to spark debate in the discipline. They just left some small samples, such as Nervi's George Washington Bus Terminal, or the repeated rebuffs of Le Corbusier, of whom only a slight whiff remains in some of the worst buildings in the city.

A peculiar modernity

The longed for Hegelian synthesis, as unlikely outcome or as mechanism to overcome these antagonistic stances towards the new, does not take place and is not manifested in New York. There are always triumphs and defeats, although they may be only partial. But even in these cases, traces remain of the confrontation and negotiation between interests, characteristic of the construction of the city. The numerous anomalies visible in the urban fabric provide a glimpse of what was demolished, of unfinished projects and unsuccessful proposals, like embers of the energy latent in the confrontation.

This recurring renewal of modernity changes the taste of citizens and promotes new lines of action throughout the city. The old buildings are no longer accepted as models and give way to new ways of living. Spaces and public services are not replaced with others serving the same functions: new buildings bring about new behaviors and give way to new uses and demands. These new behaviors, quickly understood as consumption needs and translatable into economic growth, feed back into the desire for novelty.

Preservation

In parallel to the acceptance of the new as their vital engine, New Yorkers have developed a strong sense for the preservation of what they consider truly important to their history. This will for conservation has focused on protecting historic landmarks, desig-



Queensboro Bridge



Long Island Piers

Following page:
Confluence of protagonists in works and meanings.
Developed by Oscar de Castro Cuartero with circos.ca

nated by a special Commission, set in catalogs of well-documented sites protected by comprehensive legislation [3].

Although some other precedents exist, there is certain consensus that fixes the origin of the city's rapid development in the destruction of Penn Station, a huge stone and iron building located on Eighth Avenue and 33rd Street, demolished in 1961. On its site an anodyne office building was built, with an inconvenient underground station below, and an ugly stadium next door, the Madison Square Garden.

From the opposite street side of the street, and witness to the crime, the colonnade of the building adjacent to the old station — the Post Office — remains present. There is also ongoing and recurring demand for a new demolition to replace in a dignified manner the station and to substitute the unattractive stadium. The demolition of Penn Station galvanized the conservationist will and made possible the preservation of hundreds of structures throughout the city, and the designation of whole neighborhoods as historic sites, such as SoHo, Ladies' Mile and much of Greenwich Village [147: 49].

Powerful personalities

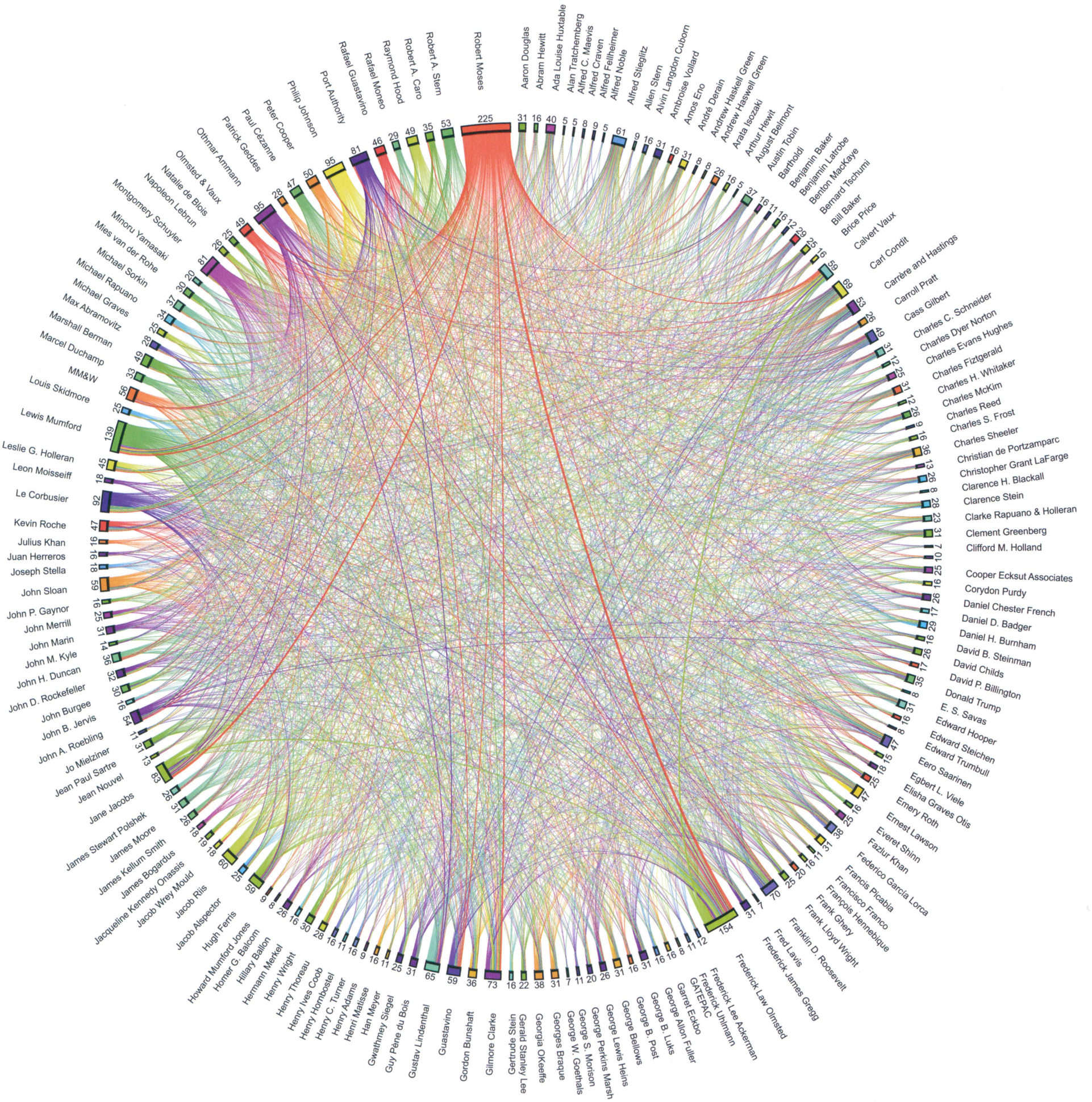
To take part in the game of 'building,' players must obtain some prior status. In New York, it is not enough to be a good architect or engineer to get projects, nor is it enough to be a great builder to undertake constructions. Even big fortunes take some time to find the appropriate channels for their business. Everyone has to find support and partners well acquainted with the rules of the game. In the city where everything is negotiated, contacts, influences and lawyers are essential to any action by an individual with regards to the city. And they become protagonists when it comes to big business or confrontations among citizen groups.

The scale, and the relentless character of the construction of New York requires and produces very powerful figures, able to handle large interests and large sums of money for long periods of time. This is also the case in other places and time periods, but in New York the presence of power is especially conspicuous, since it is so frequently celebrated and confronted. And its trail allows one to reach an understanding that runs deeper than mere history, style, trends and tendencies. These powerful actors maintain and strengthen the power they have achieved through firms and strong teams with the accumulated capacities to take on the many facets and battles involved in such large projects.

Collective counter-power

These actions generate counter-powers in the form of associations and citizens' movements clustered around opinion leaders. With arduous battles in the streets and in the media, these citizen groups often succeed in modifying or cancelling the proposals of the former. They remain, multiply and extend their presence and role in the successive interventions required by subsequent changes. Each of the great works of the city has been the subject of recurring requests for maintenance or expansion, sometimes entailing changes in use or partial demolition, in which their authors intervene again. This brings back the names associated with each work, immediately noticeable when examining any aspect related to New York.

The very process of destruction and construction feeds metaphors and theories to explain the formation of the city and to get closer to its essence. Quirky adjectives and scientific terms coexist with conspiracy theories to weave a dense network of meanings able to deliver a special notion of city. Poems, stories and comics distill certain essences of this imaginary and convey character traits classifiable as typically New Yorker. All of this contributes to the construction of the myth of New York. This book is no exception.


Robert Moses
Aaron Douglas
Abram Hewitt
Ada Louise Huxtable
Alan Tratchemberg
Alfred C. Maevis
Alfred Craven
Alfred Fellheimer
Alfred Noble
Alfred Stieglitz
Allen Stern
Alvin Langdon Cuborn
Ambroise Vollard
Amos Eno
André Derain
Andrew Haskell Green
Andrew Haswell Green
Arata Isozaki
Arthur Hewit
August Belmont
Austin Tobin
Bartholdi
Benjamin Baker
Benjamin Latrobe
Benton MacKaye
Bernard Tschumi
Bill Baker
Brice Price
Calvert Vaux
Carl Condit
Carrère and Hastings
Carroll Pratt
Cass Gilbert
Charles C. Schneider
Charles Dyer Norton
Charles Evans Hughes
Charles Fiztgerald
Charles H. Whitaker
Charles McKim
Charles Reed
Charles S. Frost
Charles Sheeler
Christian de Portzamparc
Christopher Grant LaFarge
Clarence H. Blackall
Clarence Stein
Clarke Rapuano & Holleran
Clement Greenberg
Clifford M. Holland
Cooper Ecksut Associates
Corydon Purdy
Daniel Chester French
Daniel D. Badger
Daniel H. Burnham
David B. Steinman
David Childs
David P. Billington
Donald Trump
E. S. Savas
Edward Hooper
Edward Steichen
Edward Trumbull
Eero Saarinen
Egbert L. Viele
Elisha Graves Otis
Emery Roth
Ernest Lawson
Everet Shinn
Fazlur Khan
Federico García Lorca
Francis Picabia
Francisco Franco
François Hennebique
Frank Ghery
Frank Lloyd Wright
Franklin D. Roosevelt
Fred Lavis
Frederick James Gregg
Frederick Law Olmsted
Frederick Lee Ackerman
Frederick Uhlmann
GATEPAC
Garret Eckbo
George Allen Fuller
George B. Luks
George B. Post
George Bellows
George Lewis Heins
George Perkins Marsh
George S. Morison
George W. Goethals
Georges Braque
Georgia OKeeffe
Gerald Stanley Lee
Gertrude Stein
Gilmore Clarke
Gordon Bunshaft
Guastavino
Gustav Lindenthal
Guy Pène du Bois
Gwathmey Siegel
Han Meyer
Henri Matisse
Henry Adams
Henry C. Turner
Henry Hombostel
Henry Ives Cobb
Henry Thoreau
Henry Wright
Hermann Merkel
Hillary Ballon
Homer G. Balcom
Howard Mumford Jones
Hugh Ferris
Jacob Alspector
Jacob Riis
Jacob Wrey Mould
Jacqueline Kennedy Onassis
James Bogardus
James Kellum Smith
James Moore
James Stewart Polshek
Jane Jacobs
Jean Nouvel
Jean Paul Sartre
Jo Mielziner
John A. Roebling
John B. Jervis
John Burgee
John D. Rockefeller
John H. Duncan
John M. Kyle
John Marin
John Merrill
John P. Gaynor
John Sloan
Joseph Stella
Juan Herreros
Julius Khan
Kevin Roche
Le Corbusier
Leon Moisseiff
Leslie G. Holleran
Lewis Mumford
Louis Skidmore
MM&W
Marcel Duchamp
Marshall Berman
Max Abramovitz
Michael Graves
Michael Rapuano
Michael Sorkin
Mies van der Rohe
Minoru Yamasaki
Montgomery Schuyler
Napoleon Lebrun
Natalie de Blois
Olmsted & Vaux
Othmar Ammann
Patrick Geddes
Paul Cézanne
Peter Cooper
Philip Johnson
Port Authority
Rafael Guastavino
Rafael Moneo
Raymond Hood
Robert A. Caro
Robert A. Stern



3 | Jervis

Grid Plan / Streets / Blocks / Priorities
Definition / Plot / Housing / Repercussion
Population / New York Port
Docks and piers / Expansion of the grid
Influence in the streets / Easing the landfills
Landscapes of the crossing / Erie Canal (Jervis, 1825)
John B. Jervis / Goods and Passengers
Ships / Sailing Boats and Steamliners
The Blue Ribbon / Planes and cruisers
Croton Aqueduct (Jervis, 1842-1907)
Water epidemics / Old Croton Dam
Croton Aqueduct / New Croton Dam (1907)
Design and forestry landscape
Kensico Dam (1884, 1917)
Monumental design / Kensico Dam Park Plaza
Art for the public / Titicus Dam (1878)
East Branch Dam (1891)
West Branch Dam (1891)
Cross River Dam (1908)
Crotons Fall Dam (1911) / High Bridge (1848)
Distribution network / Central Park Reservoir
Murray Hill Reservoir / Enlargement
Catskill System (1924)
Delaware System (1945)
Water Tunnels #1, #2 y #3
Fifty Years of Works / Sanitation

John B. Jervis (1795-1885)
Structuring the Framework

Grid Plan

It is almost as impossible to imagine New York City without the grid plan as it is to comprehend the audacity of its original ambition. Mayor Michael R. Bloomberg thus opened the celebration of the bicentenary of the Master Plan of New York. He noted the large dose of 'chutzpah' required to make such a proposal in 1811, one of the earliest and boldest manifestations of our city's incessant drive to build, to grow — to reach beyond our grasp. And he found that same pioneering spirit in the overcoming of the East River gap with the Brooklyn Bridge in 1883, and in the inhabiting the sky with the Empire State Building in 1931 [11:25].

Streets

In fact, the 1811 plan is not so much the description of a city or a place, as the establishment of an orderly system of growth. The urban fabric is organized in avenues facing north at an angle of 29 degrees and perpendicular streets. It builds on the pre-existing city as its southern edge and projects towards the north a methodical numeration from 1 to 155, in those days the end of the grid. In 1934, it was extended until the end of the island to the 218th St., although the latter streets are no longer parallel to the main directions. And although it seems to be a uniform grid, it introduces two patterns of variety.

The first lies in the gradation of the width of the streets, avenues with 30 m normal perpendicular streets with 18m, and main streets with 30 m, well above the usual 12-15 m in the already built southern area. The fifteen main crossings occur in the streets 14, 23, 34, 42, 57, 72 and 79, and occur every ten block in the streets 86, 96, 106, 116, 125, 135, 145 and 155.

Blocks

The second pattern is derived from the dimensions of the blocks. All are 60 m long in north-south direction, but its width varies around 240 m decreasing from the center of the island towards the edges. Between Fourth and Sixth Avenues, blocks are 276 m wide; between Second and Third they are down to 186 m; between First and Second Avenues, blocks are 195 m wide, and between Avenue B and First they are 192 m. Blocks on the West side are all 240 m wide, although the authors of the plan do not explain the reasons [11:33].

Priorities

The commissioners for the plan avoided creating irregularities and alleged improvements such as circles, ovals and stars such as those in Washington DC and in many European cities. They privileged the regular grid, its easy subdivision and its construction efficiency over any possible monumentality. They showed great care not to harm the property interests of landowners, although in fact they rather had in mind the interests of the future owners, as the implementation of the grid required the purchase and demolition of 40% of the existing buildings.



New York City Panorama (Queens' Museum)

They also proposed few public functions and placed them in places unfitting for residence. The observatory and a water tank were placed in a very rocky area; the market, in a salt marsh; the grid finished at the narrowest end of Manhattan, where the ground began to slope in the hills of Harlem. In general, and as a result, *The willingness to redraw property lines and take property took not only leadership from the commissioners but also, over the long run, strong government.* [11:39].

The grid plan commissioners were Simeon DeWitt Clinton, John Rutherfurd and Thomas Sully, always called Gouverneur Morris, prominent men in the life of New York, and chosen for their respective roles. DeWitt was an eminent cartographer, Mor-

Definition

ris was a prominent politician, father of the nation and Rutherfurd was an important landowner in the city. En 1810, DeWitt and Morris were also commissioned to oversee the construction of the Erie Canal [11:47].

The definition of avenues and streets on the field was the work of the cartographer and civil engineer John Rendel Jr. (1787-1865). Between 1818 and 1820, Rendel drew with accuracy 92 maps an approximate scale of 1/1200 (100 ft to one inch), later known as the Rendell Farm Maps. They collected all existing properties, and later served as land registry and legal reference for the city and the owners [11:57].

Plot

The blocks were subdivided into plots of 7.5 m wide by 30 m deep, prompting a peculiar distribution of property and construction, and conditioning the character of the city. The typical initial row of 24-28 houses occupied half of the plot (7.5 x 15 m) with a courtyard of similar dimensions.

This provision generated some difficulties, soon voiced by some authoritative critics. For Frederick Law Olmsted, much of the difficulties of New York to become a great metropolis were due to this unfortunate planning. They could not create hierarchical systems, from large avenues to alleys, and it was impossible to create large buildings or campuses joining several of them.

Housing

The problems of light and ventilation of these living quarters attached to each other in a row increased when the courtyards began to be occupied. With this, only the two rooms facing the street had direct light and ventilation. By 1865, some 700,000 New Yorkers lived in these homes, in which epidemics and social health problems abounded, as highlighted in the pictures and texts of the famous 1890 book, How the Other Half Lives by Jacob Riis [124]. In 1867, 1879, and 1901, new laws fixed somewhat the situation, requiring a 'water closet' for every twenty tenants, a shared central courtyard between neighboring houses, and two outlets per household as fire escape measure.

According to Michael Sorkin, the health and safety backdrop of these provisions set the vocabulary of subsequent standards and urban planning in the city, linking the private and the public interest. Thousands of fire escapes colonized the facades of the streets of New York, which were also used as balconies to get some fresh air or sleep in the summer in always poorly ventilated dwellings [147: 10].

Repercussion

In an article from 1879, Frederick Law Olmsted stated: *The great disadvantage under which New-York labors is one growing out of the senseless manner in which its streets have been laid out. No city is more unfortunately planned with reference to metropolitan attractiveness*. According to Olmsted, the cause was the inadequate grid plan, which produced unhealthy housing with inadequate dimensions: *The tenement-house, which is the product of uniform 200-feet-wide blocks, is beginning to be recognized as the primary cause of whatever is peculiarly disgraceful in New-York City politics, through the demoralization which it works in the more incapable class of working-people* [110].

Olmsted found particularly frustrating that this problem was not limited to the southern and oldest part of the city, having reappeared in the new northern areas, affecting even the wealthier homes.

Population

The growth of the city since the arrival of the Dutch in 1609 had been constant and unstoppable. By the early nineteenth century the population of New York was of about



The City of New York

80,000 inhabitants, concentrated in lower Manhattan. The opening of the Erie Canal in 1825 between Buffalo, with access to the Great Lakes and the industrial area of Chicago, and the city of Albany, located upstream the Hudson River, was a major boost for the city and its port. In 1870 it reached 700,000 inhabitants, and, starting in 1890, the frantic rush of European immigration began with 600,000 incoming [persons] per year, and increased up to a million per year in 1900, most of which remained in the city.

The New York Port

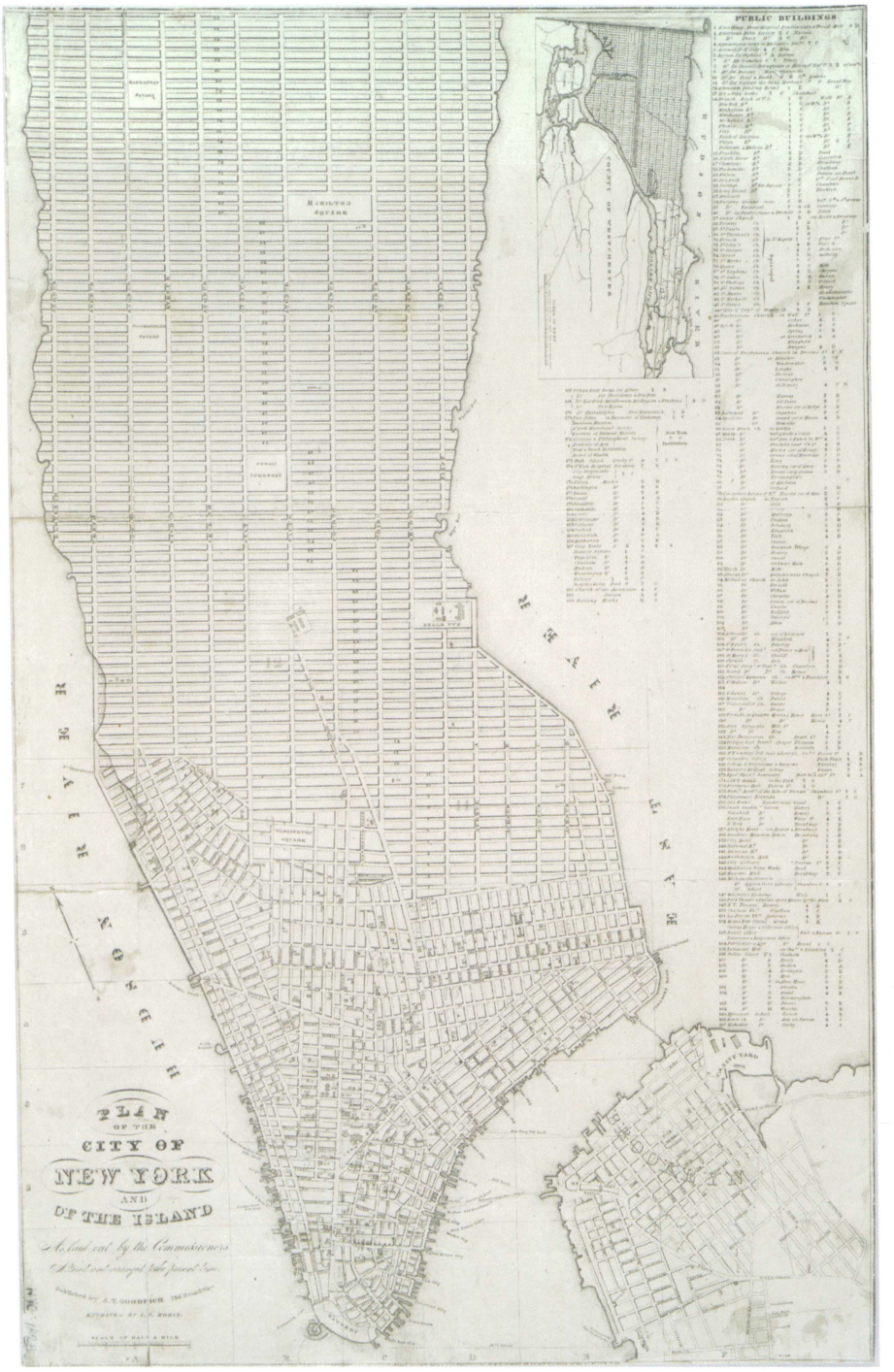
Rather than ordering the future city, it seemed as if the grid was trying to tame an island in a beautiful place. In a poem entitled Mannahatta, the old name of the island, in which Walt Whitman reaffirmed its beauty, the harbor and its boats occupy many of the verses:

> *The countless masts, the white shore-steamers, the*
> *lighters, the ferry-boats, the black sea-steamers, well model'd;*

and further down, the heights of the city in their maritime plenitude:

> *The beautiful city, the city of hurried and sparkling waters!*
> *the city of spires and masts!*
> *The city nested in bays! my city!* [4]

Many American ports with natural shelter are formed by extending the streets towards the sea through 'piers' or narrow docks on stilts. Every street extends towards the water and the block between remains as a quay where ships dock. New York is one of the best examples, with piers in much of its waterfront, in Brooklyn, and Queens, but especially in Manhattan



Plan of the city of New York and of the island: as laid out by the commissioners, altered and arranged to the present time / engraved by J.F. Morin

Docks and piers



Ferry terminal in Battery



The port is one more manifestation of the horizontal projection of the island into its surroundings, not anymore in search of dry land, as the bridges do, but into the water, to expand into the wide world. The port and maritime/sea-born transportation, exert a decisive influence on the functioning of the city itself and, conversely, the layout of the streets governs the design of port facilities.

Extension of the grid

The first designs imitated the English ports, but the installation of piers prevailed due to their greater flexibility. The grid facilitated a very fluid communication between the East and West coasts of the city through the side streets. In many cases, this cross traffic provided a smooth transition with the river traffic, especially in places with ferry connections to the shores of New Jersey, Queens or Brooklyn. By 1900, Manhattan had about 25 ferry connections to different points of the shores of Port [96: 193].

Thus, instead of promoting the access of vessels into the city through channels as in Amsterdam and other European cities, Manhattan ran towards them to better connect with the opposite shores and with the world. This favored the daily passenger traffic between the two sides, but also the distribution of goods arrived from other countries to all industrial areas of the metropolis. The ships arrived offshore could moor at any pier or anchor in the bay and deliver their cargo by barge to transfer it to other ships or download it to other docks of warehouses or factories.

Influence in the streets

With this extension of the city to accommodate the boats, the streets near the docks became a pulsating urban center. Trading activity joined the bustle of people and goods, soon accompanied by the offer of entertainment and services in the vicinity.

The transfer generated a large influx of people and public markets soon arose. Traders, farmers or fishermen helped to meet their daily needs and generated stable and durable clusters of urban life. The South Street Market of New York was in operation until 1890, but there were also piers dedicated to leisure, with swimming pools, hospitals, and playgrounds, supporting a wide range of facilities, buildings and uses on the waterfront of the city [96: 194].

The system of piers presented an additional benefit for the city, allowing easy landfills to gain ground to the sea. It was enough to convert piers in docks by filling with land the maritime space that existed between them. In heavily congested areas of Brooklyn or Manhattan many landfills were performed with this system.

A landfill of special significance is the one performed on the waterfront of the southwestern tip of Manhattan. Initially, the twin towers of the World Trade Center were practically on the shore, just a street between them and the river. But in 1970 the New York Port Authority made a major landfill of 37 ha (92 ac) with land from the excavation of foundations of the towers in a wide stretch of the coast, from Battery Park to Chambers St. in Tribeca. Its purpose was to obtain and sell land to build new office and residential towers in order to raise revenue.

Easing the landfills

Before the construction of the Brooklyn Bridge in 1883, passenger traffic inside the port was done entirely by ferries, when the weather and sea conditions allowed. The oldest images show a sheet/thin layer of water occupied by anchored ships, crossed by passenger ferry lines, and invaded by steamers and freight barges moving in all directions.

Landscapes of the crossing

In his poem Crossing Brooklyn Ferry, Walt Whitman left a beautiful testimony of what was perceived by many passengers when crossing the harbor in the Manhattan-Brooklyn ferry:

> [...] Look'd toward the lower bay to notice the vessels arriving,
> Saw their approach, saw aboard those that were near me,
> Saw the white sails of schooners and sloops, saw the ships at anchor,
> The sailors at work in the rigging or out astride the spars,
> The round masts, the swinging motion of the hulls, the slender serpentine pennants,
> The large and small steamers in motion, the pilots in their pilot-houses,
> The white wake left by the passage, the quick tremulous whirl of the wheels,
> The flags of all nations, the falling of them at sunset[5].



Old ferry terminal in Battery

Erie Canal (Jervis, 1825)

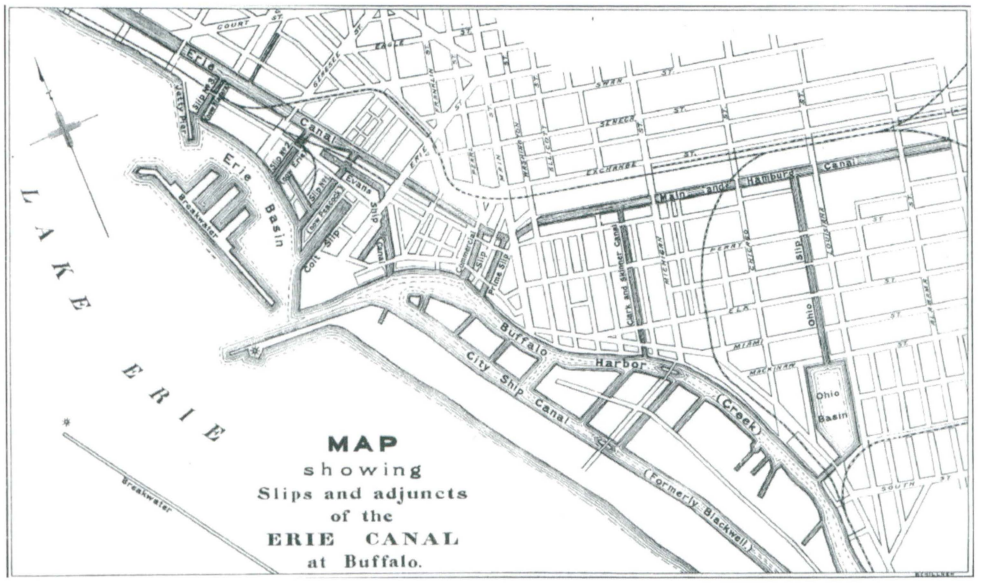
By the early nineteenth century the population of New York was about 80,000 inhabitants, concentrated in lower Manhattan. The opening of the Erie Canal in 1825 between Buffalo, with access to the Great Lakes and the industrial area of Chicago, and the city of Albany upstream the Hudson River marked a major boost for the city and its port.

New York, under the farsighted leadership of Governor DeWitt Clinton, undertook the greatest internal improvement of the age, a canal from Albany to Buffalo using the water level route along the Mohawk River Valley west to Lake Erie. In the spring of 1817, the State of New York aproved the first funds and, after a prodigious effort, the canal opened in 1825 [27:429].

John B. Jervis

The work was designed and directed by John B. Jervis (1795-1885), and its rapid and successful construction established him as a great civil engineer. After finishing the Erie Canal, he ran the layout and construction of the Delaware and Hudson Canal, and later worked as chief engineer in the construction of the railways in Albany, Schenectady and Saratoga. During this task, he invented in 1832 a wagon-locomotive whose prototype was built in the workshops of Robert Stephenson in Newcastle, England.

'Map showing Slips and adjuncts of the Erie Canal at Buffalo'



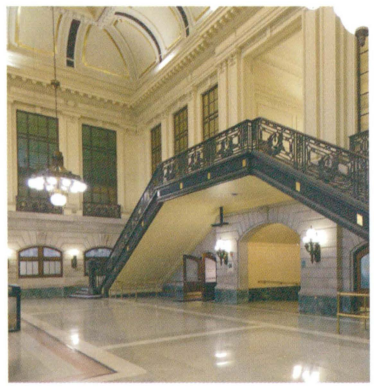
However, his most important work was the construction of the Croton Aqueduct to supply New York City, in which he was appointed chief engineer. Upon completion of the work in 1848, he was in charge of the Boston Water Works, from where he returned to the world of railways, building a significant number of lines in the Midwest[6].

The route of the Erie Canal begins in the West side of the Hudson River, and then crosses the dividing line to run along the valley of the Mohawk River to Rome, where the river turns North and the channel must follow its route West to go through Syracuse and Rochester, then Buffalo and the Buffalo River to Lake Erie. This route takes advantage of the only breach of the Appalachians South of the Saint Lawrence River to allow navigation —without abandoning the American territory— between the coast of the Great Lakes and the port of New York. With the channel, it becomes the Atlantic port of the whole Midwest and the large territory covered by Chicago, thanks to the railways, and New York starts to be known as the 'Empire State'.

Construction began in 1817, and the different sections were opened to traffic as they were completed until 1825, date of the culminations of the works. The most difficult point is the crossing of the Niagara escarpment, where the channel has to overcome 24 m (80 ft) to reach the level of Lake Erie. To do this, Jervis arranged two sets of five locks in a series with a unit jump of 3.7 m (12 ft) exiting in a channel excavated in



Erie Lackawanna Piers









Erie Lackawanna Piers

trench of 9,1 m (30 ft) height, all of it on limestone. Due to the accumulation of locks, the place became known as Lockport.

At the time the longest canal in the world, stretching for more than 363 miles, it proved an immediate success. Transportation costs from the Midwest to New York City declined dramatically, and the volume of goods shipped over the canal exceeded all expectations. Once the canal opened, the cost of shipping a barrel of flour from Ohio to New York declined from $12 to $1. By 1840, New York handled more of the nation's grain than did New Orleans, at the mouth of the Mississippi River. Making superb use of the Appalachian Mountain gap, the Erie Canal ensured the emergence of New York City as the greatest port in the country. In the space of a few years, the Erie Canal succeeded beyond the dreams of even its most ardent backers and solidified New York state and city's leading role in the economic life of the country.

Goods and passengers

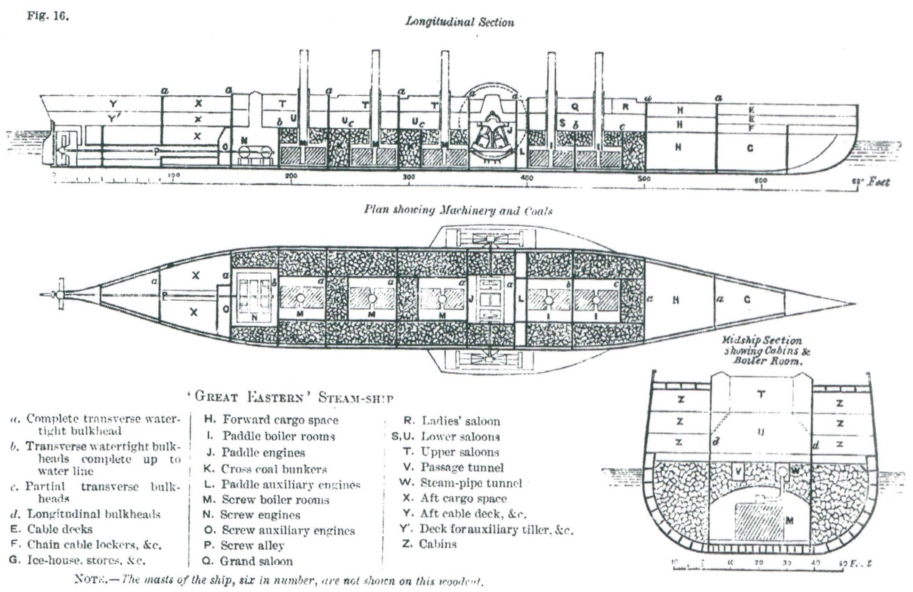
Despite its success, the Erie Canal suffered from a number of limitations. In the first place a canal could not operate in the winter months... and the passengers it did carry found the trip slow and uncomfortable. Erie Canal barges became notorious for their filth and the slovenliness of their bargemen. Almost as soon as the Erie Canal opened, the development of the first locomotives inspired businessmen to dream of a railroad paralleling the route of the canal [136:18].

Ships

The harbor ferries and the Hudson barges solved the inland transport of passengers and goods. But the really significant vessels for the city were the tall ships and cruise vessels from across the Atlantic. The first trip of Robert Fulton's steamer Clermont was in 1807, and the arrival of steam radically changed the use of the port. The exchanges between ship and shore or between different parts of the coast multiplied the use of the sheltered waters and relieved the city of the passage of goods.

Sailing boats and steamliners

Things also changed in ocean navigation. The first steamers to cross the Atlantic arrived in New York in 1838; they were the Sirius and the Great Western. But one had to wait until 1860 for the arrival of the Great Eastern, the giant iron steamer of 210 m in length, with propeller, wheels, and six masts, built by Isambard K. Brunnel (1806-1859).



Longitudinal Section, Plan, and Midship Section of the 'Great Eastern' Steamship

Marine & Aviation, Pier 57



Known as 'The Monster', the Great Eastern was completed in 1858, and it surpassed anything known. It had twice the length of the Persia, the biggest so far, and it would take 40 years to be matched by the Oceanic. Only the Mauritania clearly surpassed it in 1908, 20 years later. In a memorable voyage, the Great Eastern left London on June 17 and arrived in New York on June 29, twelve days (288 hours) after.

The Blue Ribbon

Since its arrival, getting the record for crossing the Atlantic was the goal of all shipowners and seamen. The Blue Ribbon, 12 m long, achieved by the fastest crossing was the most coveted award of the sea world, coveted by shipowners and seafarers. The transatlantic liners were part of the elite group and the arrival in Manhattan was the only destination considered. New York was the 'port' and vicissitudes of the voyage were followed fervently by New Yorkers.

The crossing time was gradually reduced. In 1898, the Kaiser Wilhelm der Grosse used 5 d, 17 h, 27 m (137.45 h) in the crossing and, 40 years later, managed to break the record of Brunnel's Great Eastern. Improvements spread rapidly and in 1907 the mark was beaten twice. First by the Mauritania, with a journey of 4 d, 22 h, 29 m (118.48 h) and then by the Lusitania, 4 d, 19 h, 52 m (115.87 h), ie, three hours less.

The First World War was a long hiatus until 1935, when the Europe used 4 d, 17 h, 6 m (113.10 h) and reduced the crossing time in two hours. But the same year it was beaten by the Normandie, 4 d, 3 h, 14 m (99.23 h) with a substantial lead of 14 hours. The following year, 1936, the Queen Mary took 4 d, 0 h, 27 m (96.45 h), scraping out the record two hours and a half. After Queen Elisabeth's crossings during World War II, the race resumed and in 1952 the Blue Ribbon went to American hands after the crossing of the United States in 3 days 10 hours 40 minutes (82.67 h).

Planes and cruisers

In the 1960s the plane begins to take over the route and the boat trip turns slowly into a luxury product. The Queen Elisabeth II, closer to the world of cruisers, took the baton of the liners in 1969. The classic image of the port of New York, with the island 'spiked' by piers and the transatlantic occupying its docks still remained for a few years, but it son vanished.

Croton Aqueduct (Jervis, 1842-1907)

Water epidemics

In 1834 a first council was created, the Board of Water Commissioners, to examine and consider all matters relative to supplying the city of New York with a sufficient quantity of pure and wholesome water for the use of its inhabitants. Two years earlier a cholera epidemic had unleashed, causing 3,500 deaths, soon attributed to the contaminated wells that supplied the city. Governor DeWitt Clinton presented a report on that same year of 1832, signaling the Croton watershed as the most adequate to supply the city [6: 115].

The Committee elected Mayor David B. Douglas, civil engineer and chief engineer of the Project, to develop the first plan and the preliminary layouts. In 1836, he was replaced by John B. Jervis, who had accumulated considerable experience in the construction of the Erie Canal.

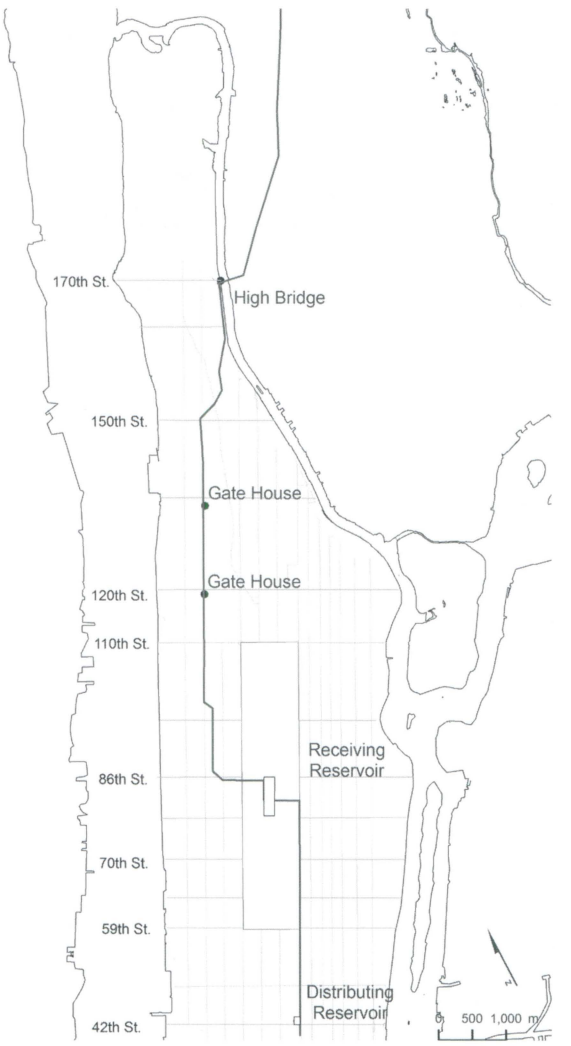
Old Croton Dam

In 1837, New York City started to build its new water supply system. The project began with the construction of a 250-foot wide and 55-foot high dam approximately 6 miles upstream of the mouth of the Croton River. The first significant masonry dam in the United States, the Old Croton Dam was built from square blocks of granite and cement and was 70 feet wide at its base and 7 feet wide at its top. It raised the level of the Croton River by 40 feet, creating a 5-mile long reservoir that was 400 acres in size, had a capacity of 500 million gallons, and was located at an elevation of 166 ½ feet above sea level.[7]

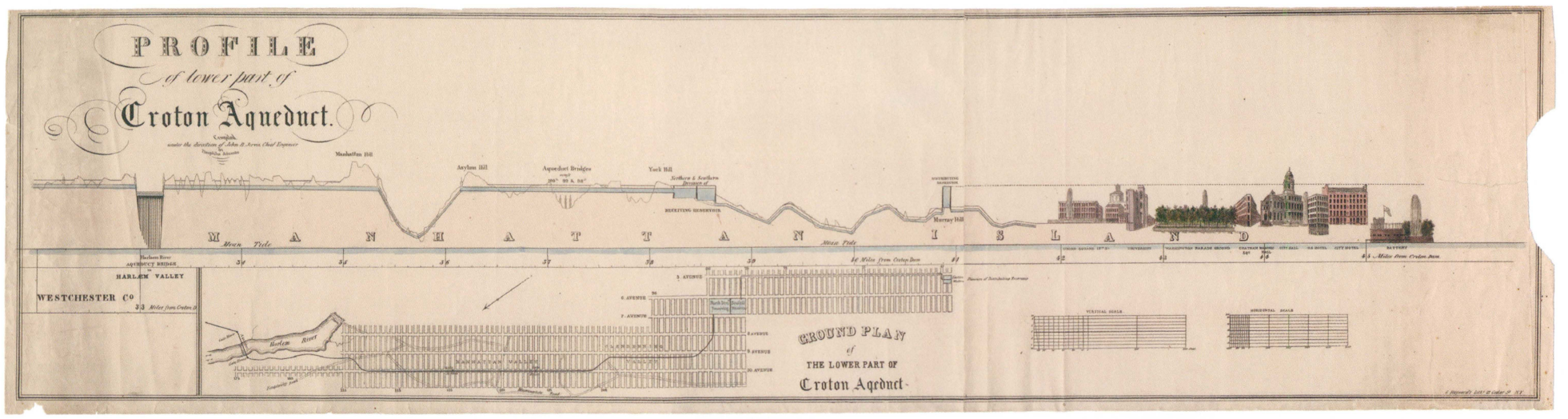
From the dam, the masonry aqueduct flows by gravity along the East bank of the Hudson River to Yonkers, about 53 km (33 mi). Then it turns eastwards to cross the Bronx for 11 km (7 mi) and crosses the Harlem River by the High Bridge (1842), a stone bridge with arches on high piles of stone, later modified with a large metal arc to allow navigation on the river. Then it continued South to end in a tank terminal of 14 ha (35 ac), with about 700,000 m3 (180 Mgal) located in Central Park, in turn connected by underground cast pipes with the Murray Hill tank, of 75,000 m3 (20 Mgal), located where the New York Public Library stands now [6: 116].

Croton Aqueduct

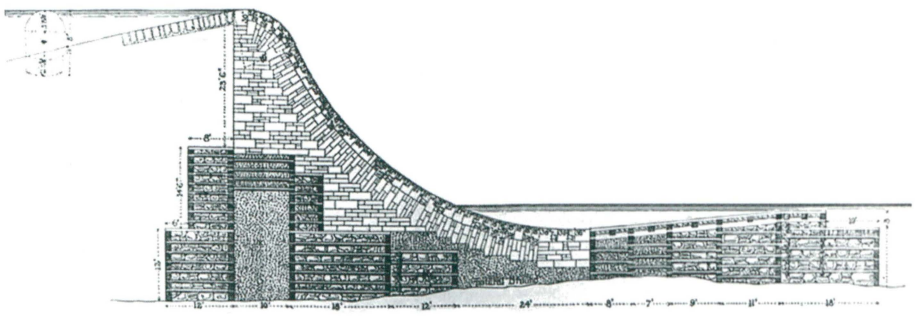
The works of the Croton Aqueduct were developed in the middle of the Great Depression of 1842, when all public contracts were paralyzed. In fact, its construction served as a palliative to the huge unemployment generated in the city which, in turn, cut the



Croton Aqueduct (1842-1907).
Drawing by Ana Rubio-Gavilán



Profile and Ground Plan of the Lower Part of the Croton Aqueduct. By John Jervis



Old Croton Dam (1842)

price of the works and allowed a certain speed of execution. The commissioners appointed by the city to oversee the work chose as chief engineer John B. Jervis, for his proven ability in Erie and Delaware-Hudson Canals, and the Mohawk-Hudson Railroad. Jervis divided the 22.5 km (41 miles) of the work in sections of 800 m (half a mile) and, despite some revolts motivated by low wages, the water reached the urban deposits in 1842 [27: 625].

The system required the construction of several dams and reservoirs, as its layout progressed and consumption increased. In 1842 started to operate the Old Croton Reservoir, created by a dam 15 m (50 ft) tall at a height of 50 m (166 ft) as the first collection at the headwater. Other elements were later added to the system, with the supplementary Boyds Corner Dam in 1873, Middle Branch in 1878, Kensico Dam in 1884, Bryant Dam in 1884, and Cross River Dam in 1908, a total of 16 reservoirs and four lakes controlled throughout the Croton watershed.

New Croton Dam (1907)

Finally, in 1907 the New Croton or Cornell Dam, a water collection at a longer distance and at a higher altitude than the Old Croton, started to operate to replace the already inadequate first dam. It is the masterpiece of the system. It was executed with skill, especially its fitting in a green funnel and the design of the light metal passing bridges against the mass of the stone dam.

The design of the New Croton Dam is particularly felicitous in the location of the spillway on the right bank. It is constituted by a curved stepped wall tangent to the dam. The river flows cascading over a rock formation carved with stronger steps and, therefore, spillway and natural waterfall seem to be practically the same thing. Both are bridged by a thin metal arc that extends the alignment of the dam. Underneath the bridge the curved stepped spillway pokes out to pour into an almost permanent waterfall.

Design and forestry landscape

This confers a peculiar and unusual quality to the dam, making it independent of the hillside, as if it were not supported on that side. And the issue of mass and levity is underlined by the lightness of the metal arc over the spillway, with a design of supports and very thin upper arches, which somehow highlights its condition of bridge with river and spillway below, against the powerful dam wall on the other side run to the opposite hillside. The whole is exceptional and provides a characteristic image made up of bridge, spillway, and waterfall that distinguishes immediately this dam form any other, making irrelevant the rest of its qualities.

A few meters downstream, the river is overcome by the road of access to the dam by a remarkable bridge. It is also a metal arch, but the deck accompanies its extrados in the curvature, with carefully designed tubular rails. Its graceful jump over the obstacle of the river contrasts with the powerful straight alignment of the crown of the dam located immediately behind. It is highlighted by four dice of carved stone in the abutments with well carved and shaped edges surrounding the rough, uncut stone, in the manner of the Roman blocks that frame the natural stone within the artificial edges. It is a somewhat brutalist treatment, also present in Kensico Dam and other bridges in the area, as a sort of trademark or identity stamp of the Croton System.



New Croton Dam (1907)





Kensico Dam
(1884, 1917)

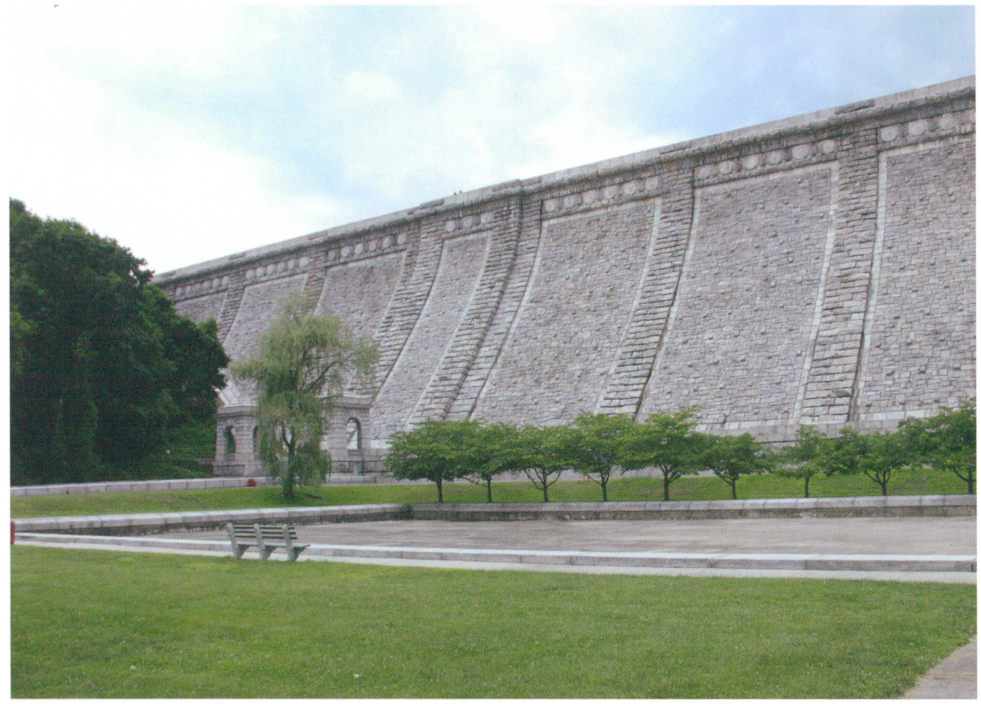
Of utmost importance is the Kensico Dam (1884, 1917) as reservoir that receives and collects other tributaries and canals to join all contributions and lead them to the city. It is heart of the system, and from the outset its design received far superior attention than the others in what regards the materials, finishing touches, and environment.

The current dam dates from 1917 and was built by civil engineer Frank E. Winsor (1870-1939) on an earlier dam, called Old Kensico Dam (1884), demolished starting in 1911 to house the new. The current Kensico Dam visible today is 94 m (307 ft) high over foundations and 556 m (1,825 ft) of crown length, and it generates a reservoir of 110 hm3 (30 billion gallons) that collects the waters from the three systems Croton, Catskill, and Delaware, to be sent directly from there to the deposits of the City of New York.





Kensico Dam (1884)



Winsor had participated in the design and construction of other dams before starting to work for New York City in 1903, where he also built Hillview Reservoir and about 50 km (32 mi) of the Catskill Aqueduct. In 1915 he became head of the Scituate Reservoir in Providence, later called Winsor Dam in his honor, and later on he was appointed chief engineer of the water supply of the district of Massachusetts, where he built two other large dams.

Monumental design

The design and above all, the finish of the dam and its surroundings reflect a strong sense of monumentality, with the use of large and carefully placed blocks of carved granite. The downstream surface of the dam is segmented by vertical stripes to adjust

and give rhythm to the significant rise. There is a large, elongated central pond, and two sets of ponds, waterfalls, and stairways at both ends, forming a terraced set on the cleared area downstream.

On each of the abutments, Winsor placed solid colonnades as a curved access portico to the crown, which inevitably recall the access portico to the Manhattan Bridge. In principle, the passage over the crown was part of the scenic route to enjoy the water view from the car. The device was used to effectively incorporate the water supply to the aesthetic experience of the Bronx River Parkway, whose route ended precisely at the Kensico Dam. The unavoidable safety precautions ended up shutting out the car traffic, and access to the crown is now limited to pedestrians, who are rewarded by splendid views.

Kensico Dam Park Plaza

Downstream of the dam the NYC Watershed Commission purchased in 1963 a large plot of land where it built a park of monumental design, with large spaces and avenues, which was later incorporated into the NYC Department of Environmental Protection (DEP). The whole shows the clear will to emphasize the role of the dam as the key element for the supply system of New York, using all ornamental and scenic resources.

The result is at once attractive and excessive in its combination of an element of massive scale with ornamental resources characteristic of the classical vocabulary, rarely used for these purposes. The plinths, cornices, medallions and other devices employed for adornment and reinforcement of the main lines of the dam are treated with a brutalist aesthetic, appropriate to the size of the set but somewhat extrapolated.

The visual relief provided by the landscaped esplanade, as seen from the slightly raised foot of the dam, and with the rear guard of the great stone dam, has an almost Versaillesque flare. Its popular acceptance is huge, with high attendance and multiple entertainment offerings.

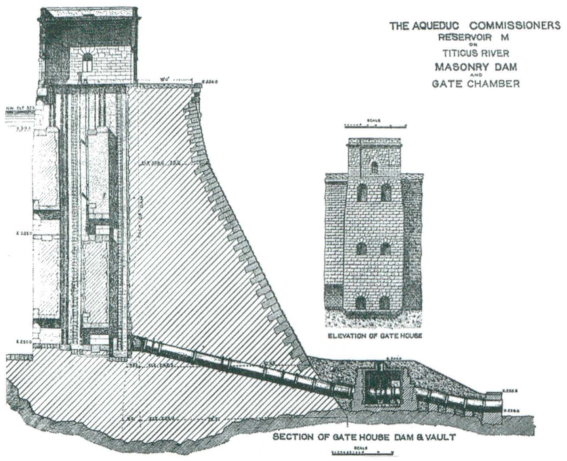
Art for the public

Therefore, the design of the whole ensemble takes part in the general trend of public art, or art for the public, sought after in many works of engineering of the time. It introduces the world of Hydraulic Works in the general system of representation of the public, closer to the urban culture tan the rest of the dams and hydraulic works of the three supply systems, which participate more in the landscape of woods and lakes of upstate New York.

At another scale, with different use and treatment, the ensamble of Kensico Dam and Kensico Park is an urban Public Work as significant for the people as the great suspension bridges, the parks or the railway station. Somehow, and from the distance of its usage and location, the Kensico Dam is part of the lineage of Grand Central Terminal, the Brooklyn Bridge and Central Park in the meaning of the large Public Works of New York City.

Titicus Dam (1878)

In the Croton system and upstream of the New Croton Dam is the Titicus Dam (1878), with a reservoir of only 2.7 hm3 (7.2 billion gal), which serves as a collection reservoir to balance the contributions of the Delaware Aqueduct. The dam is 33 m (109 ft) high and 463 m (1,519 ft) in length at its crown, and it is mixed, part gravity wall and part land wall. It is characterized by a very organic design, because the land is not arranged in a fixed slope, but in a variable slope, undulating and planted with trees. The design is decidedly landscape-oriented and governs the overall look of the dam. The ma-



Titicus Dam

sonry wall itself does not end in an abrupt chop, but with a broken wing towards the slope, to smooth the encounter of the grass-covered undulations with the mass of the dam in a very careful manner.

Downstream, the access road to the dam was designed with a very marked curve and counter-curve, surrounding a mass of maple and beech, arranged with a landscape-oriented design to establish a path to approach the dam that gains depth before it appears in sight. The attuned treatment of the slope and the downstream area, from the perspective of landscape architecture, is well suited to the land, and its maintenance is impeccable. In every corner, not just at the junction of the wall slopes, there is no bush in sight, and the drains have no vegetation or soil dragging.

East Branch Dam (1891)

In addition, the East Branch Reservoir (1891) located in the Croton River, is connected by a tunnel to another called reservoir called Bog Brook Reservoir to regulate the joined input of contributions and of a set of small reservoirs located upstream of the New Croton Reservoir.





West Branch Dam (1891)

Cross River Dam (1908)





The Rondout Reservoir (1891) was built to receive the waters of the West Branch Reservoir (1891) was built to receive the waters of the West Branch Reservoir. In fact, they are two reservoirs, located on either side of a dike over which runs the State Road 301. It is part of the Delaware System and has a capacity of 30 hm3 (8 billion gal), destined to collect water from the Rondout Reservoir arrived through the Delaware Aqueduct. It has also been used to pump water from the Hudson River during periods of drought.

West Branch Dam (1891)

The Cross River Reservoir (1908) is part of the Croton system and its hydraulic function is to regulate the minimum river flow upstream of the New Croton Reservoir. It is a dam 52 m (170 ft) high and 300 m (986 ft) of crown, built with cyclopean masonry.

Cross River Dam (1908)





Croton Falls Dam (1911)

Downstream of the dam there is an octagonal collection pond made with a well-made jetty and a formal treatment that suits well its embedding with the wooded nature of the environment, much along the lines of Frederick Law Olmsted.

Crotons Falls Dam (1911)

The Crotons Falls Dam (1911) shares a similar design with the above-mentioned, with a lateral stepped spillway onto the river, and the prolonged dam aligned with a low-span arched bridge. At first glance, it seems made of concrete but it proves to be a beam of concrete beam with a covering plate of arched edge. The spillway is practically at a right angle to the alignment of the dam. There is a much more recent high parapet with a tubular railing with a design similar to the one employed in other dams, but much more recent. At its end is marked the date 2009, perhaps corresponding to a recent repair, or perhaps a renewal of the whole crown, although there is no other indication of it except the date of 2009.

High Bridge (1848)

The High Bridge (officially Aqueduct Bridge) is the oldest extant bridge in New York City. Completed in May 1848 (six years after the aqueduct), the 1,450-foot (448 m) long and 140-foot (43 m) high structure originally consisted of fifteen stone masonry arches across the Harlem River valley, eight of which had spans of 80 feet (24 m) and seven of which had spans of 50 feet (15 m). Before the High Bridge was completed, water in the aqueduct crossed the Harlem River valley in a temporary 36-inch (91 cm) diameter inverted siphon.

Water was not carried in a masonry conduit across the bridge to prevent leakage because the freezing and expansion of water could damage the structure below. Two 36-inch (91 cm) diameter cast iron pipes were initially used on the bridge; a 90-inch (229 cm) diameter pipe was added in December 1861 to provide increased capacity.







High Bridge Aqueduct (1848) and Tower (1848)

Distribution network

The distribution, sanitation, and gas networks uptown Manhattan, progressively consolidated, were led by chief engineer Edward H. Tracy, who had previously worked for Jervis in the aqueduct. The work incorporated technological innovations brought from Europe by civil engineer Alfred Craven, who had been sent to review the main sanitation systems, building a coordinated and systematic underground network [27: 930]. In Brooklyn, the networks were built by civil engineers James P. Kirkwood (1807-1877) and Julius W. Adams (1812-1899), first president and vice president of the American Society of Civil Engineers (ASCE), created in 1867 to defend and organize the profession.

Central Park Reservoir

The system already had two large deposits in the city. The York Hill Reservoir was between Fifth and Sixth Ave. with 86th and 96th streets, in a place later encompassed by Central Park, the reason why it was closed in 1925. It was a rectangular collection reservoir with an area of 13 ha (31 ac) and a capacity of 585,000 m3 (150 million gal). Two cast iron pipes of 91 cm (3 ft) in diameter led the water under Fifth Ave. to the South.

For long years it was debated whether or not to maintain a water tank in the middle of the park. Finally, Robert Moses closed it in 1930 and cleaned up the soil through an interesting drainage network with ceramic pieces. In its place, he built a large green area with a pond, called respectively Great Lawn and Turtle Pond, and a controversial playground.

Murray Hill Reservoir

The second, called Murray Hill Reservoir, was a distribution deposit located in Bryant Park, the very heart of the city, west of Fifth Ave., between 40th and 42nd St. and closed in 1890. It was an enclosed and elevated tank, of 16,000 m2 (4 ac) surface and a capacity of 76,000 m3 (20 million gal) built with stone walls 14 meters (45 ft) high above the street, decorated with Egyptian motifs. From there water was distributed throughout the city with a pipeline network of 275 km (170 miles).

Catskill/Delaware System

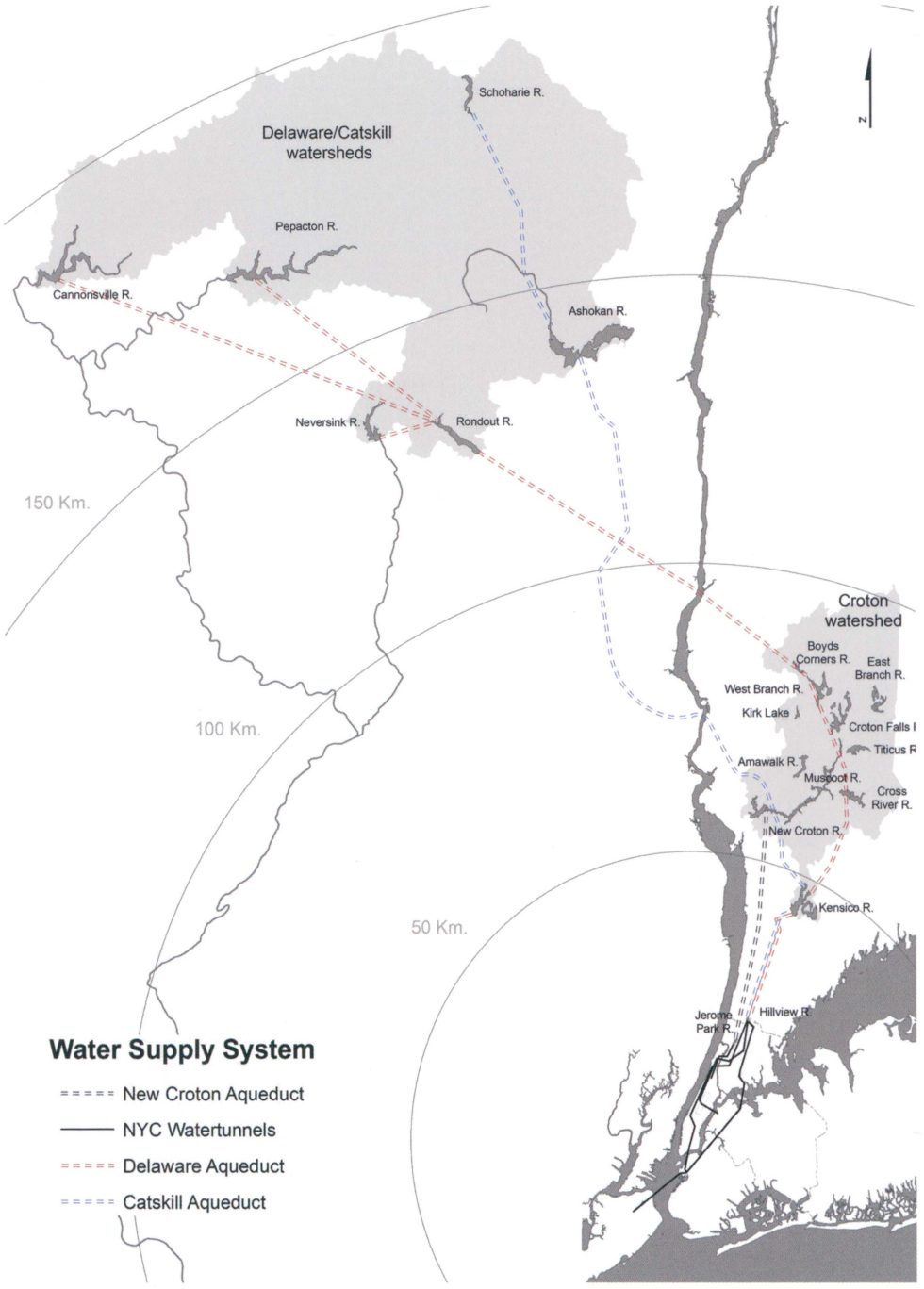
Enlargement



Ashokan Reservoir

The Croton Aqueduct was designed to meet the water needs of New York over a period of at least 30 years. But in the early 1860s it was already necessary to change the original cast iron pipes of 91 cm (36 inch) in diameter by others of 229 cm (90 inch) to increase the flow rate from 160,000 to 275,000 m3 (42 to 72 mg). And in 1862 an additional reservoir was added in Central Park, adjacent to the previous one. In 1880, the system could not cope and in 1883 the idea arose to take advantage of a greater watershed of the Croton, increasing the capacity of the pipes in a new system called New Croton Aqueduct, completed in 1893. In it the aforementioned dam, alongside some smaller ones, are included.

Demand was substantially increased by the continued growth of population of the metropolis, and by the new consumption patterns of a more opulent city, with more green areas and single-family houses. It was necessary to go further in order to obtain sufficient water, adding two other watersheds, those of Catskill and Delaware.







Ashokan Reservoir

General system of water supply.
Drawing by Ana Rubio-Gavilán

The watershed of the Croton is home to the first water supply of the city from upstate and is entirely located east of the Hudson River in Westchester, Putnam and Dutchess, with a small part in the State of Connecticut. Historically, the Croton system has provided 10% of the average daily water demand of the city, although in times of drought, it can provide significantly far more. Starting in 2013, the system will be temporarily disconnected while a water purification plant to filter the supply from the Croton is built. Once completed, the Croton water will be filtered and disinfected before being discharged into the Jerome Park Reservoir in the Bronx.

Catskill system (1924)



Rondout Reservoir





Neversink Reservoir

Delaware System (1945)

The Catskill system began to operate in 1916 and was completed in 1924. It consists of two reservoires —Schoharie and Ashokan— located west of the Hudson River in the counties of Ulster, Schoharie, Delaware and Greene. The water leaves the Schoharie Reservoir through the Shandaken Tunnel of 29 km (18 miles) and empties into the Esopus Creek. It then travels 35 km (22 miles) down the river to the Ashokan Reservoir, at an altitude of about 300 m (1,000 ft). The water leaves the Ashokan Reservoir through the Catskill Aqueduct, 120 km (75 miles) long, until the Kensico Reservoir in Westchester County. The Catskill system delivers, on average, 40% of the daily water supply of the city [106: 207].

The Delaware system consists of four reservoirs west of the Hudson River: Cannonsville, Pepacton and Neversink in the Delaware River Basin, and Rondout in the Hudson River basin. The outflow of the first three reservoirs reaches Rondout through three separate tunnels. Then, the water leaves Rondout and travels through the Rondout / West Branch Tunnel 145 km (90 miles) to the West Branch Reservoir in Putnam County. West Branch water then flows through the Delaware Aqueduct to Kensico Reservoir. The Delaware system delivers an average of 50% of the daily demand of the city.

Since the water from the Catskill and Delaware watersheds are mixed in the Kensico Reservoir, they are often referred to as a single system: the Catskill / Delaware system. In 2012 the construction of an UV disinfection plant was completed to improve and ensure the water quality of the Catskill / Delaware system. This facility provides secondary disinfection of the Catskill and Delaware water before it arrives at the Hillview Reservoir in Yonkers [106: 208].

Water Tunnels #1, #2 and #3

The City Water Tunnel No. 1, completed in 1917, starts at the southern edge of the Hill View Reservoir in Yonkers and continues at the maximum elevation through the Bronx, crosses the Harlem River just south of High Bridge and continues through Manhattan under Central Park until Clinton St. After that, it crosses under the East River towards Brooklyn, where it ends at Third Av. with Schermerhorn

St. It is a pressure gallery in all its length, with a capacity of 1900-2300 million liters/day (500-600 million gal/day). The City Water Tunnel #2, completed in 1936, was started with the Delaware system, and has a capacity of 2650-3000 MLD (700-800 million gal/day).

For over 30 years, the City has been building City Water Tunnel No. 3. Being built in stages, City Water Tunnel No. 3 is one of the largest capital projects in New York City's history. Begun in 1970, City Water Tunnel No. 3 will enhance and improve New York City's water delivery system and create redundancy to allow the City to inspect and repair City Water Tunnels Nos. 1 and 2 for the first time since they were put into service in 1917 and 1936, respectively. The 13-mile Stage 1 section of City Water Tunnel No. 3 went into service in August 1998. It runs from Hillview Reservoir in Yonkers, through the Bronx, down Manhattan across Central Park, and into Astoria, Queens. The Stage 2 of City Water Tunnel No. 3 consists of the Manhattan leg and the Brooklyn/Queens leg [107:4].

Tunneling on the 9-mile Manhattan leg of Stage 2 began in 2003 and was completed in 2008. Since 2008, ten new supply shafts have been constructed that will integrate the new tunnel section with the existing distribution system. The Manhattan leg was activated on October 16, 2013.

The water is distributed from Hillview Reservoir and Jerome Park Reservoir to the final users throughout the city through the more than 7,000 miles of the distribution grid at a sufficient pressure, in most cases without lifting pumps except in buildings over six floors. The 7,000 miles of water distribution pipelines throughout the five boroughs are buried and pressurized, to prevent the infiltration of water with a different origin. The system also possesses the required redundancy to have different paths of movement of water within the system, to ensure supply against any breakage.

The combined sewer and sanitary sewer systems convey wastewater to the City's 14 wastewater treatment plants. At these plants, wastewater undergoes five major processes: preliminary treatment; primary treatment; secondary treatment; disinfection; and, finally, sludge treatment. Preliminary treatment screens debris and litter to protect the main sewage pumps and other equipment. The main sewage pumps then lift the wastewater to the surface level for primary and secondary treatment. Primary and secondary treatments remove on average between 85 and 95 percent of all pollutants from wastewater (up to 40 percent removed in primary treatment and up to another 60 percent in secondary treatment).

Once the treated water is disinfected, it is returned to the city's waterways. Meanwhile, the remaining sludge is treated, with the resulting material, known as biosolids, frequently shipped elsewhere for disposal in landfills, or for use as compost or fertilizer [106:209].

Fifty years of works



Wastewater treatment plants
Drawing by Ana Rubio-Gavilán.

Sanitation

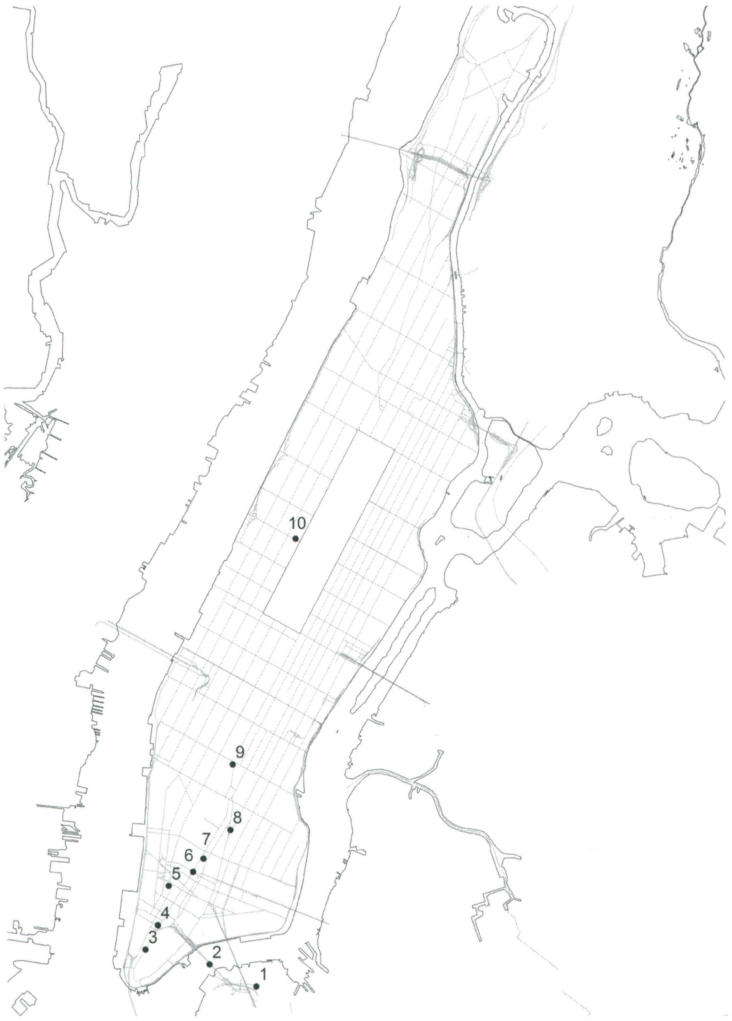


Ultraviolet Disinfection Facility


1875

4 | Roebling

Incorporating the new
The new
Electricity
Iron
Cast-iron facades
Reinforced concrete
Automobile
Appraisal of the critics
Modernity and metropolis
Origin of modernity
Metropolis
Size does not matter
Modern man
Roebling in the East River
Dreams of grandeur
A place to tame
Available technology
The chimeric and the pecuniary
Brooklyn Bridge (Roebling, 1883)
Symbolic monumentality
Achievement, fame and awe
Attitude of the critics
Flatiron Building (Burnham, 1901)
An architect builder
A photograph
Central location / Business
Typology of the buildings
Modern prow of a ship
The strength of the written word
Adoration of the public
Breath of the new art
Museums and exhibitions
Paintings and photographs
The soul of the city



1 New York Eskimo Pie Corporation Building
2 Brooklyn Bridge
3 American Surety Building
4 Woolworth Building
5 White Street Building
6 Haughwout Building
7 Havenmeyer Building
8 Cooper Union Building
9 Flatiron Building
10 American Institute of Natural History

John A. Roebling (1806-1869)
Incorporating the New

The New

At the beginning of the 20th century, America was ripe for architectural innovations. Her wealth, her lack of old buildings and her need for new ones, her abundance of steel —the new material allowing rapid building for specific purposes, her youth, unbound by traditions, and the ease with which she adapts herself to new methods and conditions, all these play a part in the new architecture she is producing. Her prosperity enables architects to see their projects realized. The competition that exist among her various activities is a spur, which urges architects to employ the most recent methods and devices [42:700].

Electricity

Electricity created a revolution in American society, changing the lives of people who got access to it. In 1880, Thomas Edison (1847-1931) founded the Edison Electric Illuminating Company of New York and a franchise to provide consumers of lower Manhattan with incandescent light. He built the first plant in Pearl St. and started supplying on September 4, 1882, but for nearly 30 years energy remained a luxury for the few [136: 50]. Meanwhile, Nikola Tesla (1856-1943) and the Westinghouse engineers used high voltage AC and managed to efficiently transport energy to all cities in the country.

Electricity was a substantial part of assumed new way of life in New York. In 1901, Gerald Stanley Lee identified it as one of the new forms waiting to be beautiful. The silent crowd trusts those inventions. *We have the electricity —the life-current of the republican ideal— characteristically our foremost invention, because it takes all power that belongs to individual places and puts it on a wire and carries it to all places [...] We have the elevator, an invention for making the many as well off as the few, an approximate arrangement for giving first floors to everybody, and putting all men on a level for the same price* [84:245].

Electricity was seen simultaneously from two perspectives. On the one hand, it was a technical innovation with immediate practical derivations. On the other, it was seen at a metaphorical level to mean the new, excitement, modernity and awareness [104: 276].

Iron

From the point of view of construction, the greatest innovation was the use of iron. The great period of iron as a building material began in Europe in the late eighteenth century, with the Coalbrookdale Bridge (Derby, 1779). It was introduced in the United States by Benjamin Latrobe (1764-1820). His first attempt was in Christ Church, Washington in 1808. A few years later, between 1820 and 1822, he built a theater designed by William Strickland in Philadelphia. It would take longer to arrive to New York, but the great fire of December 16, 1835 (repeated again ten years later) rapidly multiplied its use.

The first building in New York that used iron seems to have been the Lyceum of Natural History (Davis & Town, 1835), later called American Institute of Natural History, in Spring St., Broadway. It was designed by Alexander Jackson Davis (1803-1892), with iron columns on the ground floor and brick walls on top of them, a pattern repeated time and again in the following years. But its real development took off thanks to the industrial approach to manufacturing cast components, undertaken independently and competitively by smelters James Bogardus (1800-1874) and Daniel D. Badger (1806-1884).

Bogardus had a sober and technical profile, and he established his columns and facade modules foundry in 1848, in New York. It was a building made of cast-iron elements located at the intersection of Centre and Duane Streets, which served as brand image of his products. Badger was more commercial and did not hesitate to incorporate decorative patterns in the elements manufactured under the signature Architectural Iron Works, located at the intersection of Duane and 13th Streets.

A classic example of the buildings with cast-iron facades produced by Badger is the Haughwout Building on Broadway with 440 Broome St. (John P. Gaynor, 1857). In this building, Elisha Otis installed the first passenger elevator with automatic brake. These structures for commercial buildings made by Badger used to be two to six stories high and their facades displayed uniform rows of cast-iron columns, arches and spandrels, spaced at about 1.8 m (6 ft), with glass windows in the vain. Inside, hollow columns or pillars supported cast-iron, or, more rarely, wooden beams and purlins [41:82 to 84].

Cast-iron facades

In much of the area now known as SoHo, designers built many commercial foundry buildings, with elements from these two workshops, and others arrived later. Henry Fernbach, for example, born in Silesia and trained at the Bauakademie in Berlin, founded in 1836 and built by Karl Friedrich Schinkel, established himself in New York in the mid-1850s and built more than twenty cast-iron buildings in the section of Greene St. between Canal and Houston Streets. Before, he had built five in Walker St.

Haughwout Building in Broadway and 440 Broome St. (John P. Gaynor, 1857)











White Street Building (Fernbach, 1870)



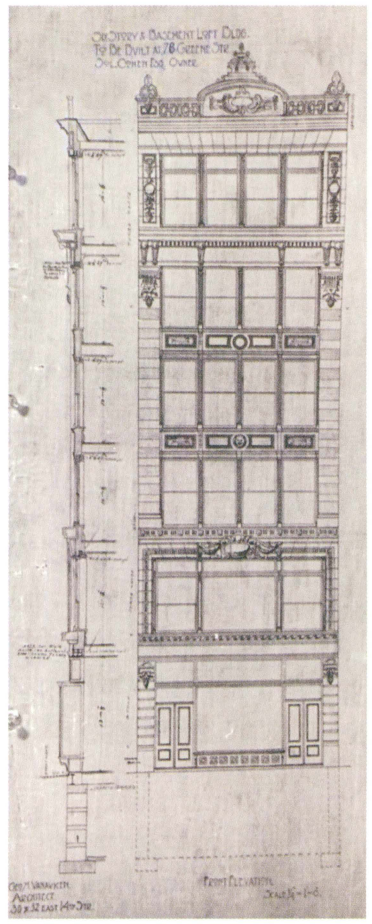


West 23th St Home Depot

Hugh O'Neil 655-6 Ave



Cooper Union Bldg.
(Cooper & Peterson, 1858)



78 Greene Street (1901)

decorated in Italian or Second French Empire style. At 10 White St. (1870), he built a five-story commercial building 12 m (40 ft) wide with very elaborate details, including rustic arches with acanthus keystones over the windows [154: 476].

One of the first American buildings in which a complete iron frame was employed was the Cooper Union Building (1858), situated at Fourth Ave. and 7th St. A tuition-free technical and fine arts college established with a grant from the inventor, businessman and philanthropist Peter Cooper, and was built Between 1853 and 1858 [7: 103]. This structure introduced the use of wrought-iron rails 20 cm thick (7.5 in) as joists to support the rowlock brickwork that made up the nogging. The first joists were manufactured in the Trenton Iron Works in 1854 by Peter Cooper and Abram Hewitt. With iron joists so arranged greater spans, particularly suitable for the commercial buildings soon to be needed in New York, were achieved.

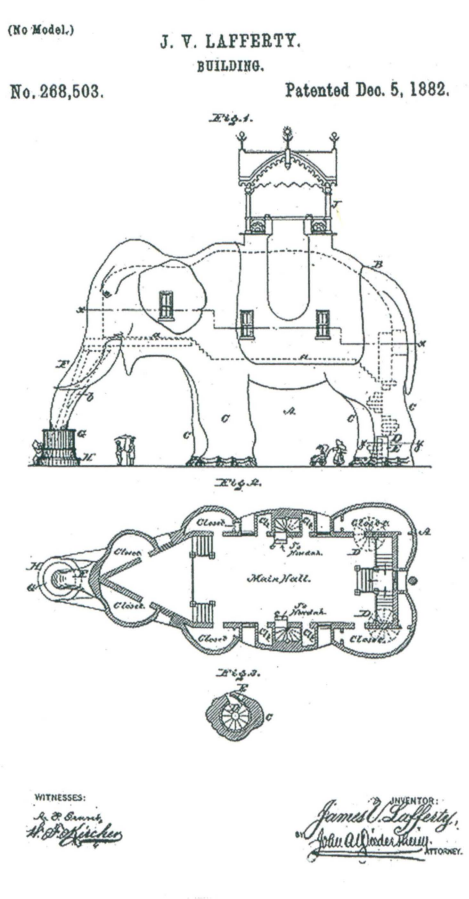
The first metal structures for tall buildings were used in the projects of the Havenmeyer Bldg.. (George B. Post, 1892), with 15 floors and America Smity Bldg. (Brice Price, 1895), with 20 floors [41: 119]. And, as Mario J. Buschiazo points out, the possibilities of steel resulted in a wild race to the clouds, fueled by new, ever taller buildings. The 55-story Woolworth Building definitively established the supremacy of the vertical in New York, through a clever adaptation of the well-known vertical thrust stamped in the Gothic cathedrals [28:81].

Reinforced concrete was also new. According to Condit, the first concrete building in the United States was the residence of William E. Ward in Port Chester, New York.

Reinforced concrete



Thomson Meter Company Building
(Louis E. Jallade, F. Hennebique, 1908)



Elephant Hotel, patent (J. V. Lafferty, 1882)

Automobile

Appraisal of the critics

Ward himself designed the structure and the reinforcements of iron, and dealt with the construction between 1871 and 1876, with the help of architect Robert Mook [41: 169]. Of greater significance was the arrival of European industry, with Hennebique and the construction of the first industrial building in reinforced concrete.

This was the Thomson Meter Company Building, later the New York Eskimo Pie Corporation Building, at 100-110 Bridge Street (aka 158-166 York Street), Brooklyn. It was built between 1908 and 1909 by architect Louis E. Jallade and the Hennebique Construction Co., as a contractor. Since the beginning of the century, the technique of reinforced concrete spread throughout the country, although its use is not tied to the great achievements of American construction, associated with large suspension bridges and with steel, ever the protagonist.

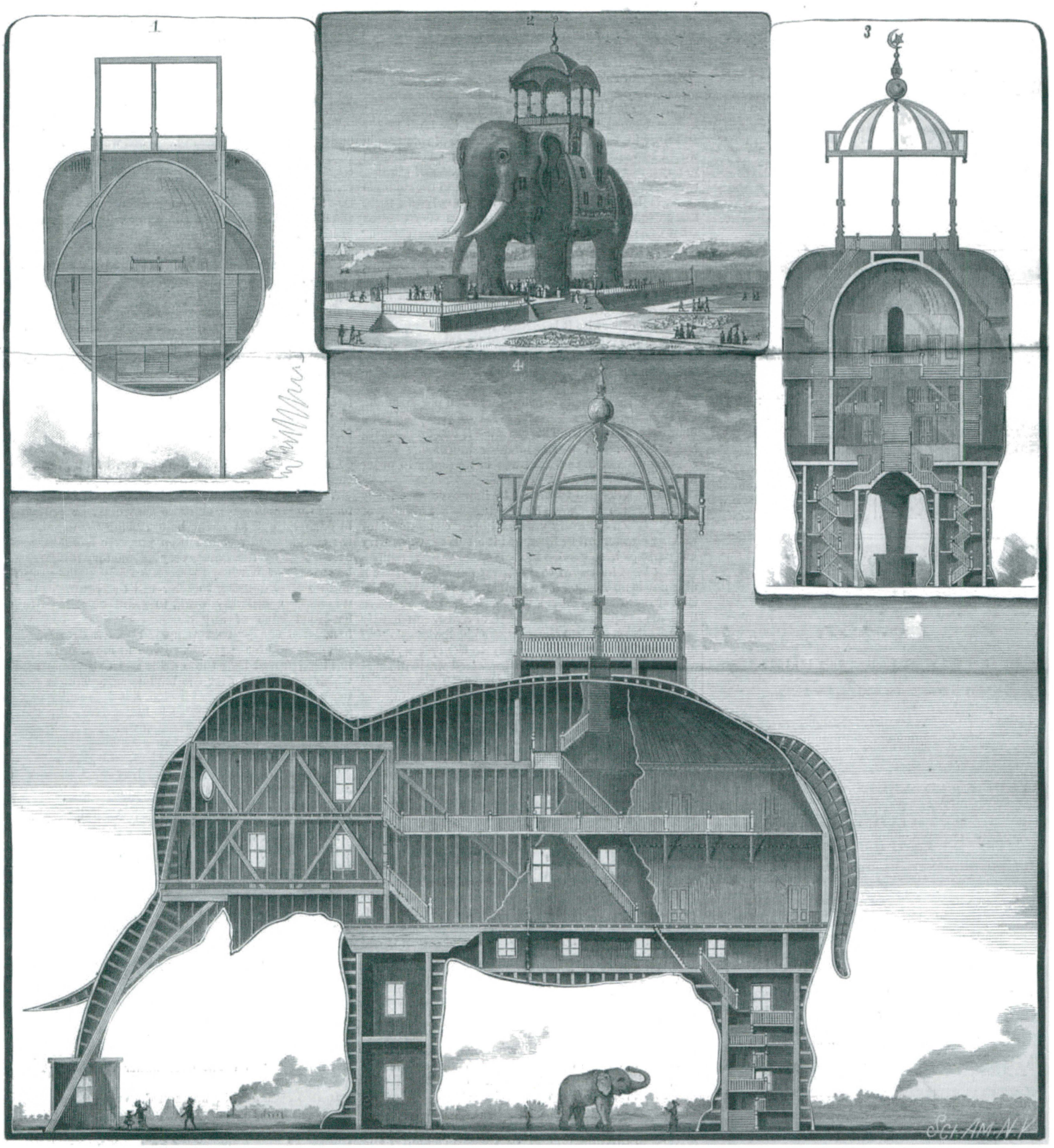
In 1904, there were some American builders able to work with reinforced concrete. The first and most important were: Ransome; the Baltimore Ferroconcrete Co. (1901), the Ferroconcrete Co. (1901) of Cincinnati; Turner Construction Co. (1902) of New York, founded by Henry C. Turner, a former Ransome employee; and Trussed Concrete-Steel Co. (1903) of Detroit, founded by Julius Khan. The American Concrete Institute was established in 1905 [141: 4].

Alongside iron, the other main protagonist of novelty in America was the car. The Ford Model T was put on sale in 1908. In 1914, 390,000 units were manufactured in the US, and 50,000 in Germany. The assembly line was mechanized, the market was flooded and everyone could have a car. The rigid ancient world gave way to a new, unprecedented freedom of action, thanks to the car and the road. As Walt Whitman sang: [8] *Going where I list, my own master total and absolute*. It was a believable and mediated freedom, *[...] It is safe/I have tried it/my own feet have tried it well/be not detained [...]* and everyone could take over the world.

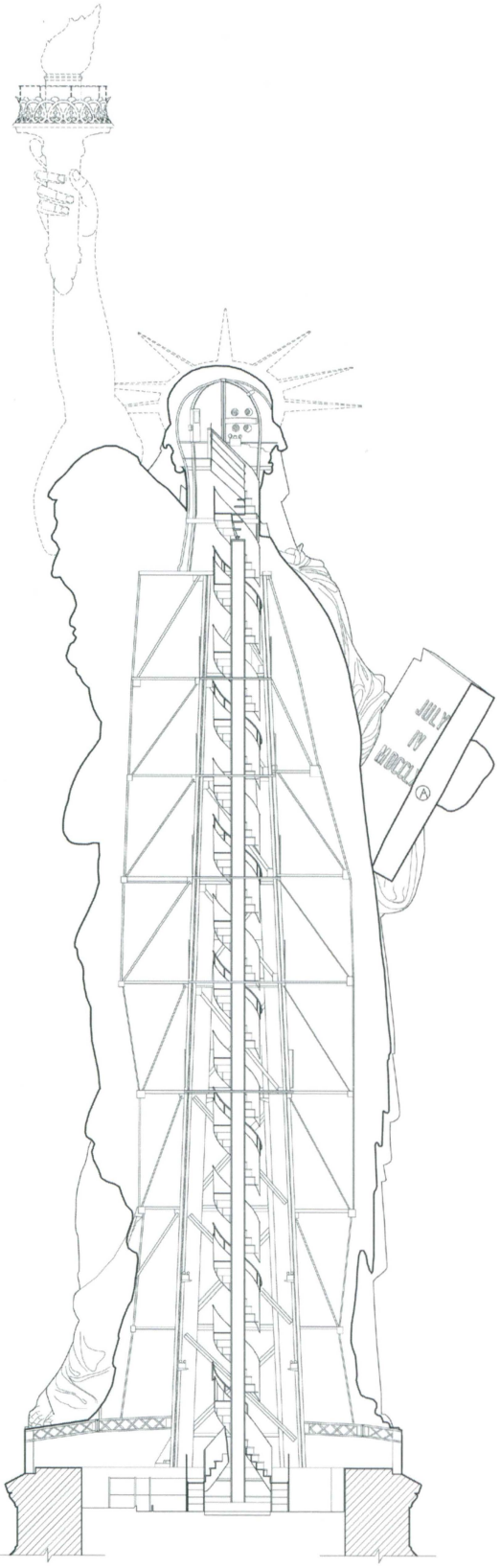
In New York, automobile development benefited greatly from the lack of coordination between railway companies, unable to reach agreements for the joint employment of stations in the city (see Chapter 7). The rapid expansion of automobile ownership favored a specific way to occupy the territory, especially significant for the growth of large cities. But at the same time, as Leo Marx noted, it kept alive the American pastoral ideal as a reaction, planned as it was unconscious, to industrialism [93:11].

These new materials, techniques and artifacts led to new ways of looking at the world, to new aesthetics that emerged often out of fascination, but not without criticism. The purposes of grandeur and monumentality, in a certain way the residue of old values, were greeted as symbols of the greatness and the growing power of a country and a city like New York, self-proclaimed as the new capital of the world. At the same time, however, they were seen as weaknesses or concessions to a time that was passing.

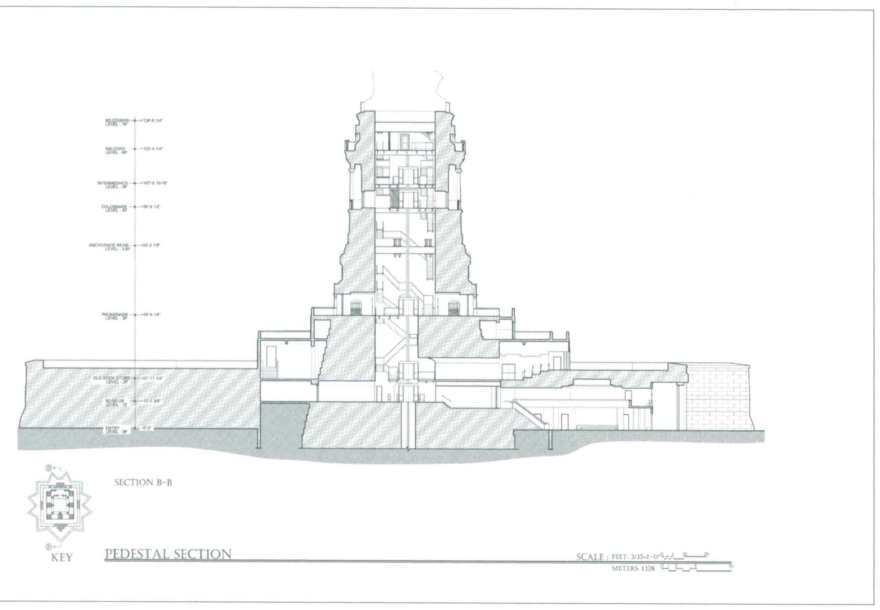
With the new skyscrapers, around 1897 the idea of the skyline appears; with electricity, city lights acquire new aesthetic nuances; the cables of suspension bridges insert dynamism and tension in painting. Genuine products of the new technology are accepted by artists and incorporated into the most avant-garde art. The painter Joseph Stella is a good example of this new vision, with his paintings Coney Island, The Battle of Lights (Joseph Stella, 1914) or New York Interpreted (Joseph Stella, 1922), consisting of four canvases in which these motifs appear.



Elephant Hotel,
Coney Island (1885-1896)







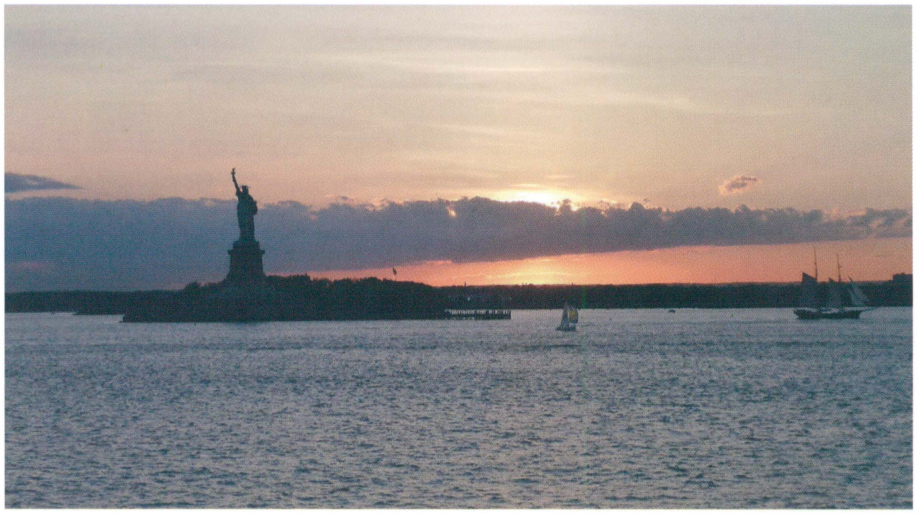
Statue of Liberty (Bartholdy & Eiffel,1886).
Sculptor Frédéric Auguste Bartholdi (1834-1904) and engineer Gustave Eiffel (1832-1923), according to Condit, it is the first use of steel in the United States after the Brooklyn Bridge [33:117]



And criticism finely discriminates between the concession to the old and the contribution of the new from the very moment of its appearance. In a 1883 essay on the opening of the Brooklyn Bridge, critic Montgomery Schuyler admires the engineering and regrets the art. He is the first to recognize the importance and significance of the structure, and imagines hypothetical ruins of the city where cables and iron have disappeared, leaving only the stone towers. But he does not neglect to assert the failure of its designer, unable to incorporate the function of the towers into his design.

Modernity and metropolis

One should understand how the new was received and assimilated in New York in the early twentieth century under the guidance of the German philosopher-sociologist Georg Simmel. His ideas about the culture of the metropolis constitute one of the earliest, and perhaps most useful inputs to the idea of modernity, a subject fully developed in his book The Philosophy of Money (1900). In his observations on his



Lower Manhattan Skyline



Murray St. (James Bogardus, 1858)

cosmopolitan Berlin, he tried to find in each of the details of life the totality of its meaning. He was attempting to understand the 'inner nature' of modernity through the contemplation of the conditions of existence of its products. For Simmel, modernity involves modes of experiencing what is 'new' in 'modern' society [57: 1].

Origin of modernity

According to him, the origins of modernity are very old. They are more linked to the generalization of money as the main medium of economic exchange in place of barter, than to the change of traditional society by industrial capitalism. This economicist background appears, in turn, to be at the origin of the subsequent overall rationalization process, when money became a pure instrumentality completely subordinated to the aims pursued. [9]

In New York, the new was linked to technological and aesthetic advances constantly introduced into the city and identified by its citizens as something reliably their own. As noted by Gerald Stanley Lee in 1901 *The bridge, which makes land across the water, and the boat, which makes land on the water, and the cable, which makes land and water alike –these are the physical forms of the spirit of modern life, the democracy of matter. But the spirit has countless forms. They are all new, and they are all waiting to be made beautiful. The dumb crowd waits in them* [84: 246].

Metropolis

In the essay *The Metropolis and Mental Life* (1903), Simmel establishes certain sociological characteristics of modern life, among which he suggests both an affinity for the new, as well as a calculating and individualist backdrop of behaviors. The basis of *the psychological foundation, upon which the metropolitan individuality is erected, is the intensification of emotional life due to the swift and continuous shift of external and internal stimuli. Man is a creature whose existence is dependent on differences*. As an example of this attitude, Simmel gives entrance to 'the new': *his mind is stimulated by the difference between present impressions and those which have preceded.*

And the most suitable context for this is undoubtedly the metropolis. T*he city sets up a deep contrast with small town and rural life with reference to the sensory foundations of psychic life. The metropolis exacts from man as a discriminating creature a different amount of consciousness than does rural life.*

Its foundation is in reason, *the most adaptable of our inner forces. In order to adjust itself to the shifts and contradictions in events, it does not require the disturbances and inner upheavals which are the only means whereby more conservative personalities are able to adapt themselves to the same rhythm of events. Thus, the metropolitan type —which naturally takes on a thousand individual modifications— creates a protective organ for itself against the profound disruption with which the fluctuations and discontinuities of the external milieu threaten it. Instead of reacting emotionally, the metropolitan type reacts primarily in a rational manner, thus creating a mental predominance through the intensification of consciousness, which is in turn caused by it* [142: 12].

Size does not matter

This directly affects the consideration of the idea of metropolis, suggested not so much by its size or its physical limits, but by its functionality, its effective ability to infuse that which is built with life, importance, and responsibility. In fact, for Simmel, *the city exists only in the totality of the effects which transcend their immediate sphere. These are the actual extent in which their existence is expressed. [...] The de-*

cisive fact here is that in the life of a city, struggle with nature for the means of live is transformed into a conflict with human beings, and the gain which is fought for is granted, not by nature, but by man [142: 17].

Frederick Law Olmsted, builder of Central Park, had already indicated that circumstance. In a 1879 article, quoted in relation to the Grid, he says that the future of the city as a metropolis is *not confined by its arbitrary administrative boundary. Well, Newark, Newport and Bridgeport are essential parts of it, as well as Brooklyn, Jersey City or Yonkers. Yale University*[10] *and its thousands of students are more active part of his intellectual life than the four universities located within its boundaries* [110].

The modernity of the metropolis influences and changes the behavior of individuals. For Simmel, *the necessity to specialize one's product in order to find a source of income which is not yet exhausted and also to specialize a function which cannot be easily supplanted is conducive to differentiation, refinement and enrichment of the needs of the public which obviously must lead to increasing personal variation within this public* [142: 18].

This, in turn, explains the ambivalent consideration of the metropolis by the afterthought, continues Simmel: *The atrophy of individual culture through the hypertrophy of objective culture lies at the root of the bitter hatred which the preachers of the most extreme individualism, in the footsteps of Nietzsche, directed against the metropolis. But it is also the explanation of why indeed they are so passionately loved in the metropolis and indeed appear to its residents as the saviors of their unsatisfied yearnings.*

The multiple and reciprocal impact of individual behavior on the metropolis, explains its role in the world: *When these two forms of individualism nourished by the quantitative relationships of the metropolis, i.e. individual independence and processing of personal peculiarities, are examined in relation to their historical position, the metropolis attains an entirely new value and meaning in the world history of the spirit* [142: 19].

Roebling in the East River

In the mid-nineteenth century, the United States, with New York at the head, began to become aware of their role as a nation in the world, and the construction of large public works awakened dreams of grandeur. John A. Roebling (18061869), builder of the Brooklyn Bridge, predicted the big change: *this change will at first be very slow, but the breadth and depth of the new commercial channel will increase with every coming year, until at last the city of New York will have become the great commercial emporium, not of this continent only, but of the world. In another half-century, the great commercial centers, from London to Liverpool will rank second to New York. America will be the continent that links East and West and New York will be the center of the world* [160: 74].

New York is an exceptional site and the island of Manhattan is a clearly privileged place. Flanked by the East and Hudson rivers, gathered in one estuary, it presides over a large urban conurbation consisting of five major areas: Manhattan (the former New York until 1898), Brooklyn, Queens, Bronx and Staten Island, linked by more than 75 bridges.



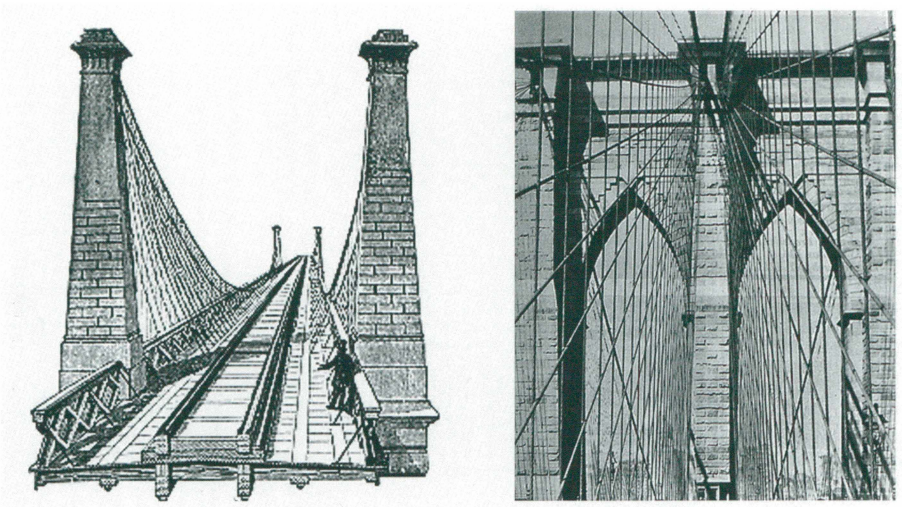
Modern man



Ellis Island

Dreams of grandeur

A place to tame



Niagara and Brooklyn Bridges (Roebling, 1855 and 1883)

The East River is actually a channel with strong currents that change direction with the tides, and of difficult navigation. The first regular boat service between New York and Brooklyn was in 1659, but bad weather and currents only allowed one trip every three days [122: 8]. Robert Fulton's steam ferries made possible a more secure connection, but the idea of having a fixed bridge across the wide river was present from very early on. In 1867 Roebling, obtained a concession that gave him total freedom to choose the setting, which he established in City Hall Park, 'to beautify and improve this part of town that seemed to need it more than any other' [127].

Already in 1811, Thomas Pope had proposed to build a bridge between Brooklyn and New York that crossed the river with a phenomenal span of 540 m (1800 ft). The bridge, clearly unachievable with the technology of the time, was not linked to any specific location; it was, just like the grid plan had been before, a proposal to tame the place. In 1829 there was a new proposal for a chain suspension bridge, and in 1835, there was another with a defined location. In 1836, a dam was proposed and in the forties a new proposal for chain suspension bridge was made. In 1856, John A. Roebling proposed a bridge with multiple spans leaning in Blackwell Island, but in 1857 he moved it closer to the municipalities of Manhattan and Brooklyn [2:71].

Available technology

John A. Roebling had already demonstrated his technological mastery of suspension bridges with an amazing railway bridge over the Niagara. Since the early nineteenth century, the recovery of the idea of suspension bridges was banned for railway bridges, due to the high concentrated loads on the deck, as well as the dynamic stresses produced by the trains. In England, Germany, France and other countries where iron was used, railway bridges were truss girders, web plate girders or cantilever, the only structural types that offered the required rigidity.

The technique developed by Roebling was ready to overcome the obstacle. The deck should contribute to achieve the required rigidity against the action of the trains, the violence of the storms and even hurricanes. The means used for this purpose should be: its own weight, rigid lattice beams and tie rods. Each of these had its role in achieving solidity and no bridge would be safe without any of these components [69: 7].

The technique developed by Roebling was ready to overcome the great obstacle. In his final report on the completion of the railway suspension bridge over the Niagara (1855), a proud and satisfied Roebling stated: *One single observation of the passage of a train over the Niagara bridge, will convince the most sceptical, that the practicability of Suspended Railway Bridges, so much doubted heretofore, has been successfully demonstrated [...] the great rivers of this continent will no longer offer an insurmountable obstacle to the formation of uninterrupted lines of Railways* [126: 3]. The cost of his suspension bridges was 10% of their European counterparts, thanks to the use of wood and iron in connection with the cables. But they also performed better against the passage of trains and against the wind.

The chimeric and the pecuniary

The Niagara Bridge showed how Roebling worked at the limit of the technological possibilities [3: 294]. According to the engineer-historian David P. Billington, Niagara was a technical 'tour de force,' never repeated. He completed a work of great dimensions, subject to heavy loads with a minimum amount of material. As Roebling himself stated in the project report, *he was in a country where the engineer's task is to make the most out of the least* [21:77].

But long before the technology was available, the need to build a bridge in New York was evident, and so was its dual character. In 1800, Jeremiah Johnson, who would be the major of the city some years after, suggested the desirability of building a bridge between Brooklyn and Manhattan across the East River, *as a means of increasing the value of the land on both sides of the river* [160: 27]. The double front of attention was established: the chimerical, as acceptance of the technological challenge, and the pecuniary, as an element of revaluation of land. Only eleven years later, in 1811, as already seen, the island of Manhattan becomes a *grid with the pure and simple intention of dividing the land into more salable plots* [160: 30] and the bridge begins to be essential for creating the dream that would be the city of New York, becoming at once something iconic and inseparable from it [1: 645].

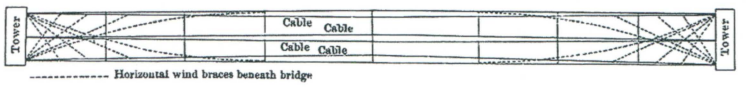
Brooklyn Bridge (Roebling, 1883)

The construction of the Brooklyn Bridge marks the point when Brooklyn and other non-Manhattan areas became part of the city's self-conception... The vast pattern of Subway system... and the expansion undertaken between 1913 and 1917 dotted the boroughs with recognizable place names and gave New Yorkers an extensive cognitive map, shaped by the stations rather than local streets or natural topography... The city was unified perceptually and practically on a Metropolitan scale for the first time [17:15 a 23].

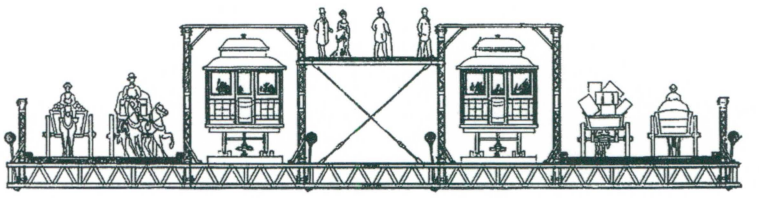
From the very beginning, John A. Roebling was aware of the significance of the bridge for the city of New York. The bridge that he planned would be, with its 486 meters (1600 ft) of span, 25% larger than the largest bridge ever built. The towers had to impress by their greatness, so that passing over the bridge meant not only to cross the river, but also to go through a monumental portico. *Its towers will become the emblem of the cities that it unites and will be true National Monuments* [127: 4]. The pointed passing arches are very high, and going through them should be more than going through an ordinary door. As Trachtenberg says *they were to add grandeur to the act of crossing the bridge* [160: 83]. Roebling was aware of the technological challenge, but also of the symbolic value of the bridge: he wanted towers as true monuments. Disregarding any functionalist qualm, he resorted to stone and built it after the model that his culture, of strong classical and European roots, offered him as the greatest exponent of symbolism and monumentality [1: 643].

Symbolic monumentality

With its 75 m (246 ft) in height, the towers had to be impressive in a New York of three and four story homes. *The towers stood out against the miserable and rickety scale of the surrounding neighborhoods as great cathedrals of the huts of the believers* [94:66]. Today they appear dwarfed by skyscrapers, but back then they would have looked like something grand, out of scale, making the bridge the center of the world. So Roebling saw it: *The towers would supply what the cities lacked, an emblem to unite and identify them, like the wall, the fortress, and the cathedral in older European cities. They would formally establish New York as the new center of the world* [160: 85].



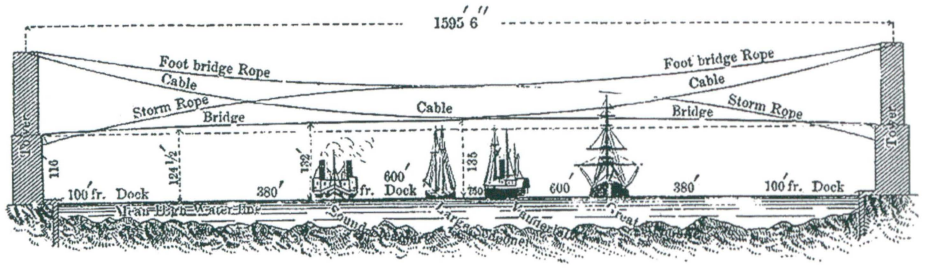
Horizontal projection of the system of cables



Brooklyn Bridge. Circulation of pedestrians, carriages and railroad

John A. Roebling died resulting from an accident laying the foundation, and it was his son Washington A. Roebling (1837-1926) who finished the bridge. But his prophecy was fulfilled and the Brooklyn Bridge won immediate recognition for its technological

Achievement, fame, and awe



Front view of the bridge showing the temporary ropes employed for the system of cables

and aesthetic [2:62] values. The Brooklyn Bridge is undoubtedly the most famous bridge and part of the heritage of the world, such as Steinman and Watson say in their famous treatise of bridges [150]. From Europe, the solution adopted for the suspension of the Brooklyn Bridge was regarded with awe and motivated engineers visiting from many countries. In fact, *The finished bridge outdistanced all other bridges in the world in length of clear span and of continuous structure* [41:154].

Spanish civil engineer Evaristo Churruca gave an early and thorough report of the project in *Revista de Obras Públicas* in 1875. From the outset, he recognizes that the gauge requirements for navigation would have been impossible to achieve in Europe. A firth of 800 m (2624 ft) and a free height of over 40 m (131 ft) under the deck was an obstacle that European engineering could not tackle.

During his visit, Churruca could only see the excavation process with caissons, already known, but whose dimensions did not fail to impress him. Noting that the wooden walls were 6.15 m (20 ft) thick and the base of the caisson measured 52 x 31 m (171 x 101 ft), he exclaimed: *Take into account the difficulties to insert in the field a caisson whose base was an area of over 1,600 m2* (34 ac). Finally, he recognized that Roebling's solution to the problem of the rigidity of the deck made the discredited suspension bridges *the only economically feasible for such long spans* [34:22].

Attitude of the critic

The Brooklyn Bridge as art

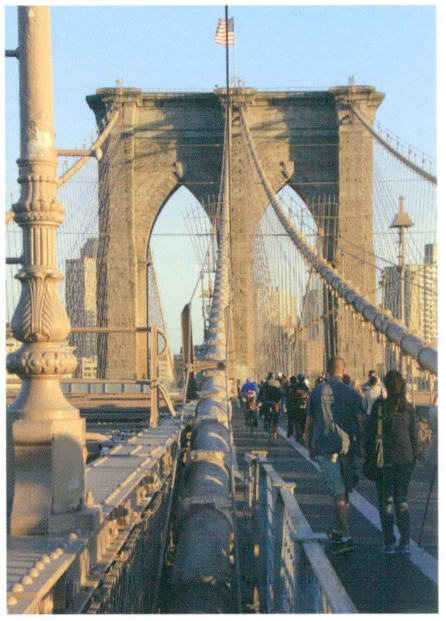
The Brooklyn Bridge soon obtained unanimous aesthetic appreciation and was posited as an example of art for the people. Lewis Mumford, after recognizing it as one of the best examples of engineering in the world, noted its existence as an artwork in its own right, for the delight of the poet and artist, but equally appreciated by the common man [99:87]. Already in 1869, before starting the work, John A. Roebling himself had *clearly seen that the bridge would be 'a great work of art,' 'the greatest engineering work of this continent and this time'* [149: 319].

In his 1901 essay *Making the Crowd Beautiful*, Gerald Stanley Lee affirmed its aesthetic value and linked it to the new democratic values. *The Brooklyn Bridge, swinging its web for immortal souls across sky and sea, comes nearer to being a work of art than almost anything we possess today, because it tells the truth, because it is the material form of a spiritual idea, because it is a sublime and beautiful expression of New York in the way that the Acropolis was a sublime and beautiful expression of Athens. The Acropolis was beautiful because it was the abode of heroes, of great individuals; and the Brooklyn Bridge, because it expresses the bringing together of millions of men. It is the architecture of crowds […] The very word "bridge" is the symbol of the future of art and of everything else, the bringing together of things that are apart, —democracy.*

Anticipating Futurism, Lee considered the expression of movement as having artistic value, not in and of itself, but democratically linked to the masses. *The mission of our modern art [is] to express the beautiful in endless change, the movement of masses, coming to its sublimity and immortality at last by revealing the beauty of the things that move and that have to do with motion, the bringing of all things and all souls together on the earth [...] the fulfillment of the world that has already been announced "Your valleys shall be exalted, and your mountains shall be made low" is by no means a beautiful process.*[11] *Democracy is the grading principle of the beautiful* [84: 245].

Brooklyn Bridge (Roebling, 1883)







The great East River suspension bridge: connecting the cities of New York and Brooklyn, looking west

The bridge as symbol

Even before the bridge was open, it had become a *symbol of something impossible to define that made New York different from any other city on earth* [94: 512], and it remained for many years the subject of endless fascination for anyone who saw it. Gradually, with the building of new bridges to Manhattan, the bridge was truly transformed into a symbol. Poets, writers, painters, and filmmakers leant meanings to it in their poems, novels, paintings and films, beyond the importance of its role, to make the bridge their own, turning it into a myth (see Chapter 17).

It transcended place and time becoming, alongside the Eiffel Tower, a symbol of modernity: The Tower and the Bridge, symbols of the triumph of Enlightenment, of a vision of the technological world both artistic and rational. Symbols that David P. Billington retains in the title of a book on structural art: *These symbols all serve*





Brooklyn Bridge





to characterize their age. They stand for certain realities of modern life, and they symbolize an artistic as well as a rationalistic vision of technological world [21:84]. To these should be added the roof of the Galerie de Machines, listed by Alfred G. Meyer as the third seminal building after the introduction of iron in the structure of the Crystal Palace [95].

The Brooklyn Bridge was completed in 1883, and for 20 years it was Manhattan's only one. The towers were the most celebrated part of the bridge, but its sight from the river was beyond any ordinary experience. The best views of the bridge are, however, from Brooklyn Heights: visually, *the bridge belongs to the Heights, more than to any other place in that territory*, and from there one can appreciate its components, cables, braces, decks, piers and abutments, as well as its relationship with the banks. One can also see how the traffic is integrated in the two cities and how the bridge

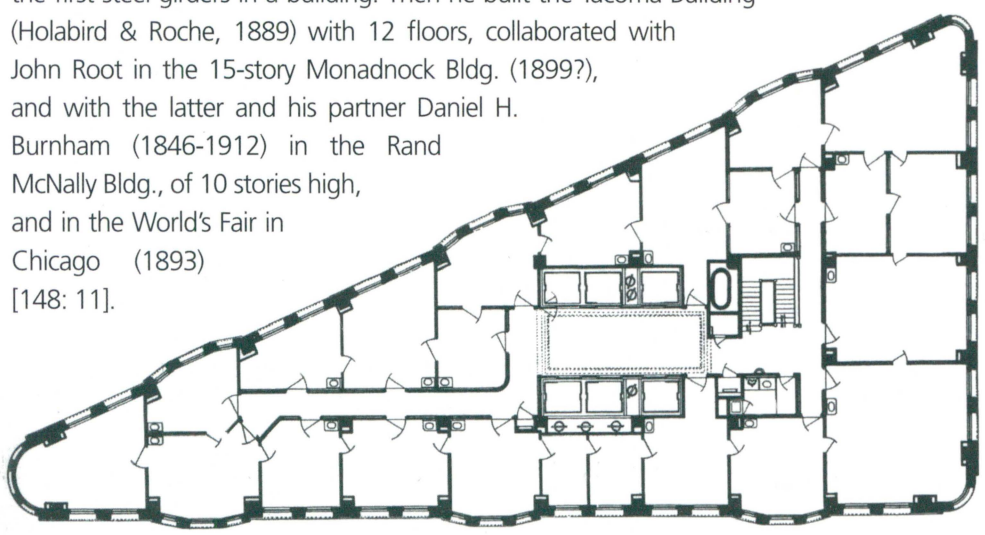
really *unites* both sides. From there one can understand why the bridge has been built. Its usefulness, no less than its greatness, is unmistakable. Below is the river and beyond, New York, as a huge model with the bridge as the way to get there [94: 513].

Flatiron Building (Burnham, 1901)

George Allon Fuller (1851-1900) arrived in New York at the age of 25. After studying architecture at MIT, he joined the firm of Robert S. Peabody and John G. Stearns, who used to build large homes in Newport, Rhode Island and other luxurious places since 1872. But Fuller was immediately excited about skyscrapers and that new material called steel [148: 2].

Flatiron Building

He moved to Chicago, where he established the Fuller Company, to construct buildings designed by other architects. One of his first assignments was the Chicago Opera House, designed by Henry Ives Cobb and Charles S. Frost, where he introduced the first steel girders in a building. Then he built the Tacoma Building (Holabird & Roche, 1889) with 12 floors, collaborated with John Root in the 15-story Monadnock Bldg. (1899?), and with the latter and his partner Daniel H. Burnham (1846-1912) in the Rand McNally Bldg., of 10 stories high, and in the World's Fair in Chicago (1893) [148: 11].



In 1896, Fuller returned to New York and opened an office with his son-in-law Harry Black, and a civil engineer named Corydon Purdy. The latter was a graduate of the University of Wisconsin, and opened his own office in the city in 1894.

Despite the signature of Daniel H. Burnham, and beyond its specific architectural interest, the Flatiron Building was born as a building destined for fame. Its triangular plan made it unique in the city of the grid, and the building created its own myth. *The Fuller Building, the ads said, was the strongest Building Ever erected. It would have its own steam and electric plants, which would furnish free heat and light to tenants. It would have six hydraulic elevators, manufactured by the world-famous Otis Company* [148:123].

But, regardless of its constructive values, the Flatiron Building became an emblem of modernity thanks to a photograph of Stieglitz (1864-1946). It aspired to be a milestone in construction, but an evocative photo transformed it into something broader. In the words of the photographer, *With the trees of Madison Square covered with fresh snow, the Flat Iron impressed to me as never before. It appeared to be moving toward me like the bow of a monster ocean steamer — a picture of a new America still in the making...*



Flatiron Building

A photograph



Flatiron Building

Fuller was not particularly fond of it, and his interest in the building declined. *Later, when I saw the Flatiron Building again, after many years of having seen other tall buildings in New York City shooting into the sky –the Woolworth Building and then still others- it did seem ugly and unattractive… It no longer represented the golden age* [108:7].

Central location

The Fifth Ave. Hotel was the most luxurious hotel in the city. It was located between 23rd and 24th streets in downtown New York. It belonged to Amos Eno, who also bought in 1857 a triangular plot South of Madison Square, at the intersection of Broadway and Fifth Avenue. Its triangular shape earned it the nickname Flatiron, because it recalled the artifacts used for ironing. There was there a four-story hotel, the St. Germaine Hotel, built in 1855. In 1880, he demolished it, and built the Cumberland Bldg., with eight floors of apartments for rent.

The Cumberland occupied only the widest part of the site, located on the South side, while the tip, of only two stories high, left a huge party wall facing North. It was an optimal surface for ads, visible from many blocks North. The most spectacular of them all was a New York Times neon, which covered the entire surface with its slogan 'All The News That's Fit to Print' [148: 28].

Business

In 1898, Fifth Avenue began to attract hotels and luxury shops and Madison Park had become the epicenter of New York. Wealthy families built their mansions nearby, making it the most coveted part of the city. In 1857, Amos Eno paid $25,000 for the triangular site of the future Flatiron. In 1901, the Cumberland Realty Corporation bought it for $2,000,000. The Cumberland Realty Corporation was formed by a group of investors gathered by Harry Black, based in New Jersey and incorporated with $700,000 of capital on March 20, 1901. Two weeks later, in April 1901, Fuller merged with Central Realty Bond and Trust, providing $3,000,000.

The merger made the Fuller Company in the largest construction company in New York, valued at $20 million. It was a company specializing in large buildings associated with the great architects of the time, with major financiers and politicians in its capital, and ready for the large construction operations that were taking place at that time in the city. It operated in New York, Washington, Boston and Chicago, where it built the Chicago Tribune Building, the most famous tower in the city. Its motto was 'Is Bigger and Bigger.' And its activity earned it the nickname of 'Skyscraper Trust'.

In 1890, Jacob Riis documented with text and photographs the miserable conditions in which half of New Yorkers lived [124]. Most houses had one room in which eight or 10 people were crammed, living and even doing much of their work, right there. The homes had no running water and, in many cases, not much ventilation, with deplorable sanitary conditions. The situation denounced by the book led to the enactment of new laws to improve rental properties, which in practice accounted for the forced demolition of many of the existing homes in the city.

Typology of the buildings

In those early years of the twentieth century, three new ways of doing this take place in New York. Firstly, skyscrapers begin to prove themselves as durable, useful and safe buildings. Secondly, the number of people who wanted to rent homes in the Lower East Side, the area of greatest density of the city, increased. Thirdly, there was an almost exponential increase in the number of corporations or large clusters of small businesses, arising from the many mergers that accompanied the economic boom of

those years. And they choose to base themselves in New York, *'the youngest of the world's great cities.'*

On 27 May 1901, the New York Times headline read 'Gotham's Building Boom.' *Ruins of what in many instances were modern buildings are to be seen on every side [...] In their place will go up structures costing many millions, which will be utilized for a variety of purposes.*

The Flatiron is a good example of the great building projects that took place in New York in the early twentieth century. Promoted by a large group of bankers, politicians and builders, the building became the symbol of an affluent society. Located in one of the most expensive and most fashionable New York sites, built with the modern techniques of skyscrapers and all the luxuries of good construction, including elevators and other services, soon becomes a real state success. The apartments and offices reached a large market value and huge real estate prestige, becoming a symbol of how building was done in the city.

But it will be an artist well connected to the cultural circles who would turn it into a cultural symbol. The photographer Alfred Stieglitz did not feel particularly attracted to the building but one day, seeing the trees of the park in full snowstorm, decided to photograph it. In 1907 and 1909 Stieglitz had been in Europe, becoming acquainted with the work of Henri Matisse and Paul Cézanne, and had visited the home of Leo and Gertrude Stein. Through exhibitions and friends, he was always aware of what was happening in Europe [69:17].

Modern prow of a ship

In his 1902 photograph of the building, it appears as a misty and aggressive bulk, as ramming the trunk of a tree in the foreground. The strength of this blurred but delicate image associated the skyscraper to another powerful emblem of modernity. In New York, the great ocean liners were continually visible to everyone and their competitive prowess of speed invaded the front pages of the newspapers.

The first photograph of the Flatiron was not by Alfred Stieglitz, but by Arthur Hewitt, friend and member of the 'Photo-secessionist Circle' of Stieglitz. He took the photo on that winter of 1902, and published it in the March 1903 issue of the weekly *Outlook*. It was later photographed by many others, such as Edward Steichen, Alvin Langdon Cuborn and Jessie Tarbox Beals, drawn by the engraver Joseph Pennell, and painted with watercolors several times by John Edward Jackson, a young illustrator from the circle of John Sloan, the Philadelphia artist arrived to New York, who painted the building at least four times. Two other artists of that Sloan group, later called The Eight, Everett Shimn and Ernest Lawson, also painted it.

The strength of the written word

Stieglitz published his photogravure in *Camera Work* in October 1903 with an essay on the Flatiron written by his friend, the art critic Sadakichi Hartmann. Son of a German father and a Japanese mother, Hartmann grew up in Germany and came to America when he was 20 where he became a journalist, author, writer, painter and photographer, always interested in issues surrounding beauty, identity and America.

It is probably a paradox to write about aesthetics, the Flatiron, and art, Hartmann wrote. Surely, no one will believe that what is at the intersection of 23rd Street and Broadway has anything to do with art. Never in the history of mankind has a small triangular piece of real state been used thus, with such artistic purposes.



Flatiron Building

But then he wondered about how beauty is understood, and specifically explored the idea of beauty in New York, still evolving, as exemplified by the bridges and skyscrapers of the city.

While the established art continued to ridicule the Flatiron, Stieglitz and his colleagues continued to produce artworks on it. The photo taken by Edward Steichen in 1904 and published in *Camera Work* in 1906 was similar to that of Alfred Stieglitz, as if it were a tribute to someone he greatly admired, but is taken on a dark rainy day with the streetlamps as the only bright spots.

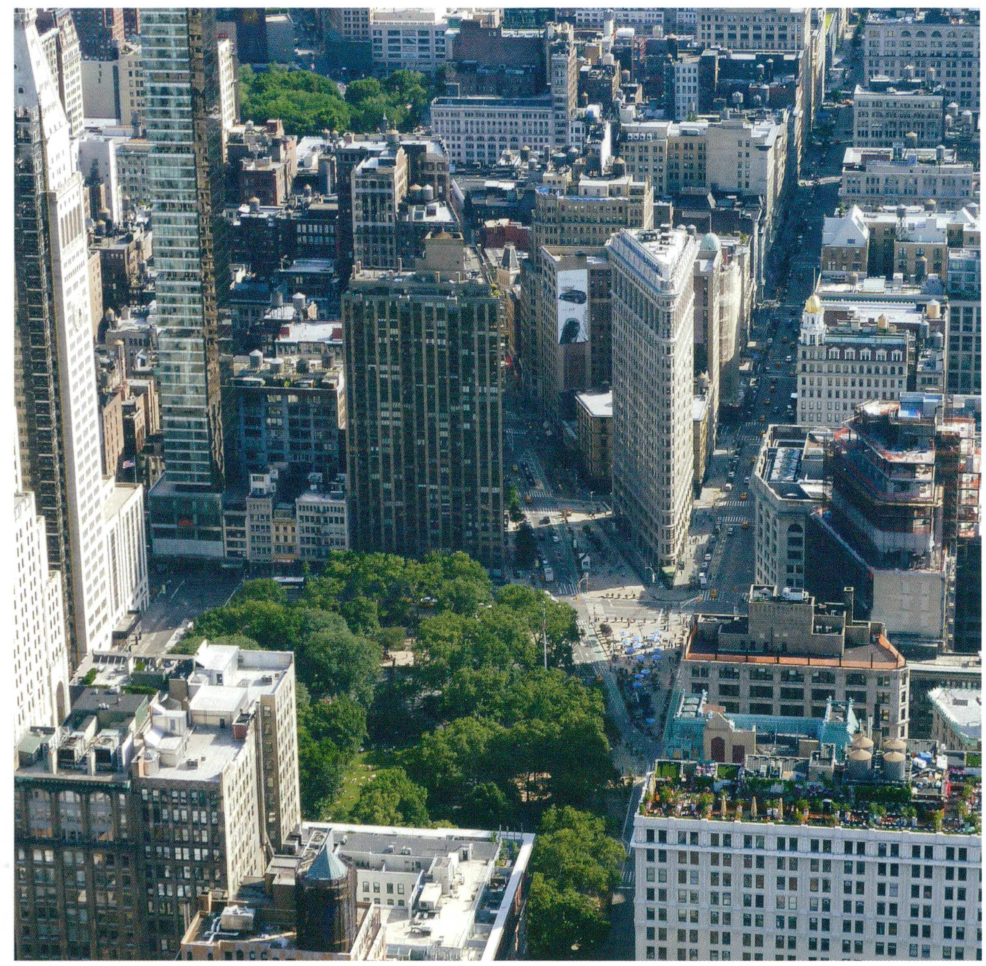
Adoration of the public

For its part, the general public loved the building. A few months after the first photo appeared in the magazine, women were rushing to buy the most coveted Easter hat, designed after the Flatiron. *It tapers over the forehead to a knife blade, tall and sharp, cutting the wind. Its likeness with the building is unmistakable It is tri-cornered, with a wide back, the sides steep and high, the jutting point more audacious than defined. The hat was made of rough straw, trimmed with velvet ribbon loops and rosettes, paintbrush quills and fancy feathers.*

As Alfred Stieglitz himself said, the Flatiron is to New York what the Parthenon was to Athens [148: 272]. Elsewhere, he altered the sentence: *the Flatiron is to America what the Parthenon was for Greece* [148: 157]. For architectural criticism, however, the building had little interest, or was a mere artistic failure.

Flatiron Building





The breath of new art

The tall office buildings in New York and the glittering bridge over the East River contrast with the old cities still impregnated by industry. In France, things are still wrapped in velvet, but in Broadway there are high office towers with narrow facades and commercial buildings wrapped in iron and glass. And amid all this, according to Hartmann, a new style was being developed, quietly but persistently.

Museums and exhibitions

In 1917, Marcel Duchamp (1887-1968) bought a urinal in a plumbing shop in New York, signed it 'R. Mutt, 1917,' and sent it to the Armory Show. It was rejected by the selection committee, but the work would end up displayed in the Museum of Modern Art (MoMA) shortly thereafter. Indeed, the work at the MoMA is not even the original from 1917, but a later 'copy.' The original piece was sent to the famous photographer Alfred Stieglitz to be photographed and it seems that, once he completed his work, Stieglitz threw it away.

After his visit to the Armory Fair in 1913, Marcel Duchamp convinced his friend, the artist Albert Gleizes (1881-1953) to visit the city again. Facing the skepticism of New Yorkers against the Cubism defended by Gleizes, Duchamp was exasperated: *That the place where skyscrapers, the ultimate expression of modernism, have been invented should be so conservative when it came to art, astounded Duchamp.*

In 1915, he replied to The New York Tribune: *America is the country of the art of the future... Look at the skyscrapers! Has Europe anything to show more beautiful than these?*. When Gleizes came to New York, Duchamp led him to Harlem to hear jazz music, which made him enthusiastic: *That and everything else about The city —the movement, the noise, the skyscrapers— moved him.*

Paintings and photographs

Gleizes painted scenes of New York, including an image of the Brooklyn Bridge, the port on the island of Manhattan, and a vaudeville theater on Broadway. And in 1916 he painted a drawing in ink and gouache on the Flatiron, of Cubist style, full of angles and intersecting planes, reflecting the violent changes that the European war was causing in the modern world [148: 236].

Stieglitz made a series of photographs of New York with a directness and clarity of vision unknown in pictorial photography. His pictures of skyscrapers, airplanes, ferry boats, and ocean liners were icons of the twentieth century, their titles bespeaking the modernity of the subject matter: The City of Ambition, 1910, and Old and New New York.

It is not only the subject matter which is strikingly modern, however, but also their style. Stieglitz expressed a strong interest in formal concerns... Its works are constructed around relations of shapes. He no longer united his composition with art nouveau arabesques, as in An Icy Night New York, 1898, o The Hand of Man, but by repeated geometrical shapes.

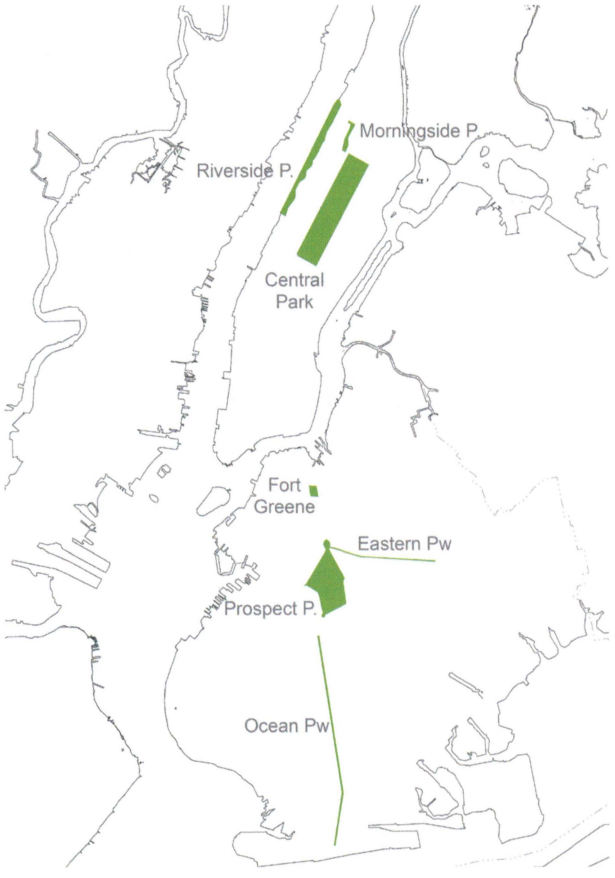
The soul of the city

In a letter to his wife Georgia O'Keeffe (1887-1986), from October 7, 1916, Alfred Stieglitz wondered:... *I wonder how I'll be when I get back —I never was so little part of N. Y. as I am now.— Hartley hates the place because the 'people has not soul' — It fascinated me for years because of that lack — I thought that the huge machine would eventually discover its soul-Will it? Machines have great souls — I know it. — Have always known it.— But they must be given a chance to show them. People interfere too much & have no faith...* [69:201].



5 | Olmsted

Countryside and city / Linked public parks
Fascination for the country / Duties of a metropolis
The future of New York / Central Park (Olmsted & Vaux, 1873)
The need/ Getting started / Olmsted
The process / Discussion as method
The result / Ideas and designs
Separation of circulations by bridges
Changes during the construction
Reforms by Robert Moses
Degradation in the 1960s
Prospect Park (Olmsted & Vaux, 1873) / Qualities of the site
Historic character of the place
Assignment to Vaux and Olmsted
Paths and bridges / Moses adds playgrounds
Fort Greene - Washington Park (1867)
Morningside Park (1895) / Escarpment and slope
Design / Paths and lakes / Olmsted & Vaux again
Eastern and Ocean Parkways (Olmsted & Vaux, 1874, 1880)
From design to planning / Parts of system of parks
Layouts / Cultural landscape
Picturesque character / Separation of traffic
The next Parkways / Decay of the notion of Parkway
Upper West Waterfront (Olmsted, 1875)
Riverside Drive & Park / Design by Olmsted in 1873
Design and later buildings / Moses Henry Hudson Parkway
Park over water treatment plant / Boat Basin and Café



Works by Olmsted
Drawing by Ana Rubio- Gavilán

Frederick Law Olmsted (1822-1903) Introducing landscape

Countryside and city

Interconnected public parks

In the mid-nineteenth century, in American cities a comprehensive system of public parks linked by arteries of vegetation was launched for the first time. This integrated concept of green areas, which incorporated urban, sociological and aesthetic aspects, was very different from the vision of previous European gardens. In New York, the Grid of 1811 had been criticized for poor provision of parks for the city and for the loss of natural topography due to the leveling carried out.

To change this situation, the landscape architect Frederick Law Olmsted (1822-1903) promoted this new movement, adapting the classic style and landscape according to each case and circumstance. He worked in the parks of New York and also made numerous parks in different American cities. Among others, he worked at the Fairmount Park in Philadelphia, the South Park of Chicago, the Capitol grounds in Washington, the Boston park system and park Mont-Royal in Montreal [50: 267].

Fascination for the countryside

Raised on a farm in Connecticut, Olmsted was in continuous contact with the countryside, but he was also a journalist, botanist, and traveler. In 1850 he traveled to England to visit public parks, writing upon his return *Walks and Talks of an American Farmer in England,* where he recounts his adventure from Liverpool to the Isle of Wight. He was fascinated by the English countryside and how generations of settlements had fused nature and society [20:16].

Olmsted was always concerned about the future of the city of New York, beyond his involvement in specific projects of parks and parkways. He was very critical of the deficient starting point of New York, especially the grid of 200 x 60 m (see Chapter 4), but he appreciated its progress and encouraged its strengths.

Duties of a metropolis

In 1879, after the completion of Central Park and many other projects, Frederick Law Olmsted still thought that New York was not ready to take over all the duties and get all the benefits of a metropolis. Boston, Philadelphia and Cincinnati had the advantage in one or another regard. He thought that, in many respects, New York was not yet as well equipped as many cities in Europe, with less than half the population and less commercial prosperity. And it was not developing as fast as it could in the cultural sphere.

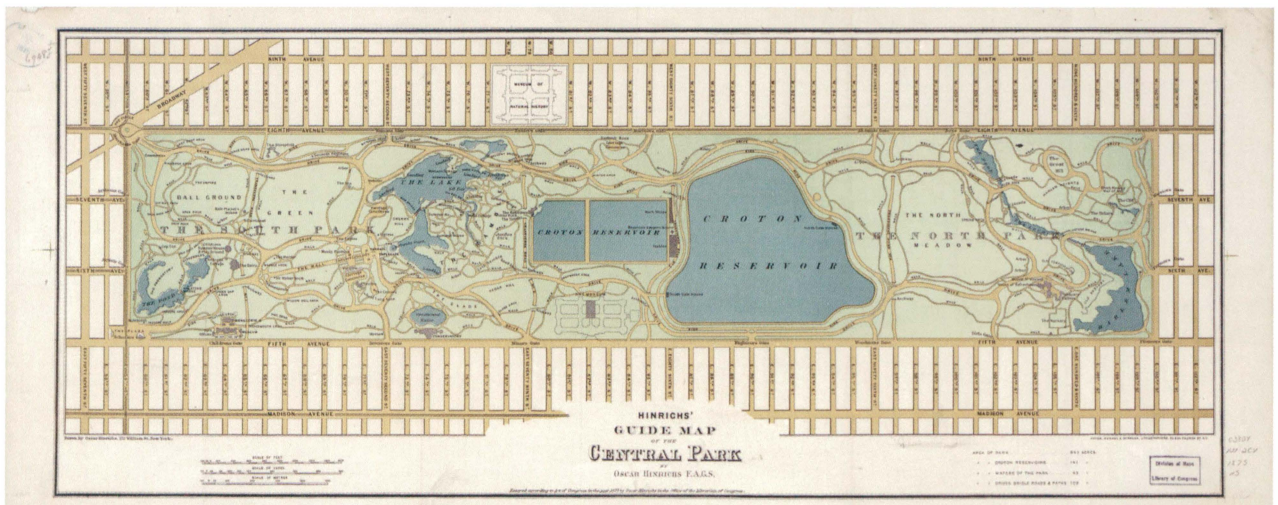
It surpassed those cities with the Museum of Natural History, Museum of Art, the Lenox Library, the Cathedral, the railways, and the large recreation center of Coney Island. The city was clearly more attractive with regards to libraries, clubs, churches and hotels, with a greatly improved variety of shops difficult to find in

Previous page: Perspective of Central Park

many older cities. It had good craftsmen and artisans. It had improved much since the Centennial Exhibition, getting since then better workers and designers, and a highly educated market.

According to Olmsted, all this had improved its metropolitan status. And he saw its great future in the creation of residential areas in the suburbs, in the manner of many other European cities like London and Paris and Boston and other cities of the American West. He thought it was necessary to improve their access, and with this they would emerge, for the benefit of the metropolis, whose growth would be driven by the influx of new residents. [110]

The future of New York



Hinrichs' guide map of the Central Park, 1875

Central Park (Olmsted & Vaux, 1873)

The need

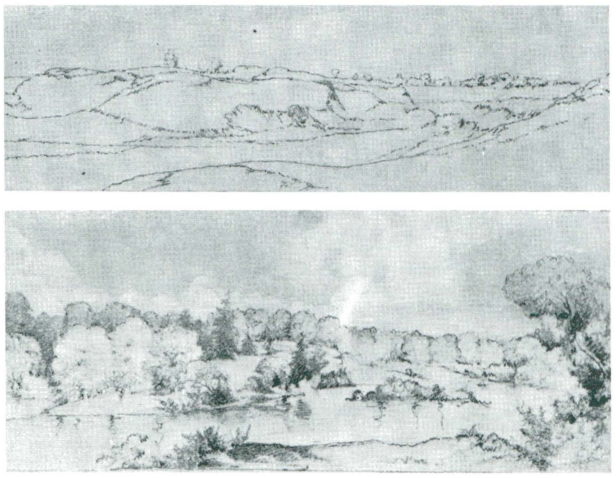
In 1850, William Cullen Bryant, poet and editor of the then *New York Evening Post* (now *New York Post*), launched the necessity to give the city a large recreational space that would bring refinement to it. This initiative, supported by other writers such as Washington Irving and George Bancroft, would allow the upper classes to take carriage rides, and would provide a space for the healthy relaxation of the working classes. In the last thirty years the New York metropolitan area had almost quadrupled its population and open spaces were scarce; often, people resorted to cemeteries to go for a walk.

In 1853, a convinced City Council bought a plot in downtown Manhattan of 283 ha, then away from the center and full of small farms and immigrants' huts. In order to turn this wide expanse of rocky marshes in a park for the city, it created the Central Park Commission, and the latter would convene a contest to build a place where the inhabitants of Manhattan could walk, play sports, picnic, socialize, and relax.

Getting Started

The first ideas about Central Park came from the outside, unprompted, from Colonel Egbert L. Viele, a West Point engineering graduate from West Point and veteran of the war in Mexico. Viele was a rough man, rude and very ambitious. While working as an engineer-surveyor for the State of New Jersey, he often visited the area where he was to settle the park, conducted a survey and designed a project [12].

Viele then managed to land the job as chief engineer of the park project. During its earliest days, there was a skeleton board of commissioners, consisting of just two members. Viele wrangled verbal okays from both of them. He then annotated his park plan with 'adopted by commissioners', dated it, and filed it as an official document. When a full eleven-person board was convened, Viele's plan was tabled for the time being. It was hoped that a better plan might emerge.



Central Park The Lake in the Lower Park. View taken near Fifth Av. And 59th St. Greensward, Sketch n.º 1.
(In Olmsted, 1973, p. 224)



Central Park Mixed Traffic on a Transverse Road in 1859. Third Annual Report, Central Park Commissioners.
(In Olmsted, 1973, p. 48)

Olmsted

Olmsted began his work as superintendent in the autumn of 1857. It was his modest duty to cart away stones and drain swamps, clearing the way for a park design, perhaps even the one drawn up by his boss, the odious and grandiose Colonel Egbert L. Viele. [92:131].

The process

Finally, in 1858, the Commission awarded the project to Frederick Law Olmsted as landscaper and Calvert Vaux (1824-1895) and Jacob Wrey Mould (1825-1886) as architects. Thereafter, follows a real string of successive projects, according to the various interventions of the designers, of influential characters in the city, of the Commissioners, and of the newspapers, out of which emerges the proposal, never final and progressively modified as the park was being built.

Central Park is a good example of how ideas and projects in specific buildings materialize in the city of New York. It is a long and rich process of interventions, justifications, changes of opinion, debates, campaigns, during times of splendor or shortages, electoral or political stability periods. Olmsted and the Commissioners reflected each and every one of these details in the archives of their meetings and in personal diaries, while the newspapers regularly reported what was going on.[13]

Discussion as method

All this was not exempt from confrontation, both theoretical, such as the discussion about the nature of the future park, always oscillating between rural and urban [96: 198]; practical, regarding the specifics of the project; and even personal, with in-fighting among the staff.

Examples of these fights are plentiful: Vaux fired Viele on account of his lack of aesthetic education. Olmsted minimizes the contribution of Vaux, giving greater public impact to the administration and management of the park, of which he is superintendent. Both have a very different theoretical vision of how the taste of the public should be considered, something decisive in any urban project. But later Vaux requests Olmstead's collaboration again in the design of Prospect Park in Brooklyn, because he needs his political skills.

We cannot deal here in detail with the process of the progressive definition of the park, but it is exciting as a demonstration of the practical results of the habitual confrontation in New York about the building of the city, on many fronts and between different actors. The ideas and plans are one more tool in the process, perhaps important or essential, but never definitive, and always under discussion.

The result

The Central Park (1873) became the first public park in the United States. It attempted to imitate the great European parks, such as Hyde Park in London or the Bois de Boulogne in Paris. Olmsted saw it as a park for the people in the heart of the city, a large collaborative effort in and for a democratic community [111: V]. And indeed it is considered the first and best example of modern park at the service of a great city.

The actual plot of 341 ha, whose shape is an elongated rectangle 4 km long and 800 m wide, between the Fith Av. and Central Park West St., from 59th St. to 110th St., is in the middle of the island, completely surrounded by buildings. The winning proposal by Olmsted and Vaux was modeled after the English landscape parks (Birkenhead Park in Liverpool, Blenheim, etc.) and the cemeteries as idyllic and naturalistic landscapes (Green-Wood in Brooklyn and Mount Auburn in Cambridge, Massachusetts).

Ideas and Models

To reinforce the seemingly natural and rustic appearance, vegetation is distributed in apparent disorder, seeking after the effect of 'spontaneous' naturalness and variety, and alternating large open spaces of tree-dotted meadows with dense bushy and wooded areas. The natural qualities of the place are fostered without razing the ground by leveling it, trying to take advantage of the existing topography. An attitude in line with landscaper Lancelot Brown (1716-1753), known as Capability Brown for his efforts to exploit the potential or capacity of the territory to develop any kind of plan or project, be it a park, road, or any public work.

Water motifs are placed in the hollows, a large lake on one end, and in its proximity two rectangular ponds, in fact, two large reservoirs to supply Manhattan. With the intention of creating a contrast with the city, some primitive outcrops of granitic rocks are maintained and emphasized, and roads, tunnels, bridges and water tanks are incorporated in the design, to be part of the landscape.

Separation of circulations by bridges

In Central Park, Frederick Law Olmsted uses the great innovation of separating the different traffics, creating a system of independent circulations. To not affect cross-traffic of vehicles between the two sides of the city, he projected four major roads crossing the park that ran entirely independently of the circulation inside the park. These four sunken roads required blasting in the ground of solid rock and a tunnel crossing 79th St. The internal circulation of the park is also separated in paths for pedestrians, horse riders and great ring circuit for carriages. The set totals more than 100 km of winding pathways, with the exception of the Mall. Currently, the use of bicycles is limited to paved areas, running mainly through the inner ring.

The materialization of intersections at different levels is solved by an interesting collection of about thirty bridges of all kinds. After rejecting a proposal by Richard Morris Hunt (1827-1895) in 1863, most of them were designed by Calvert Vaux and built in stone or iron, with some prominent and famous examples, such as the Bow Bridge.

Changes during the construction

The construction lasted twenty years: the swamps were drained, rocky outcrops were dynamited, reservoirs were excavated, over 14,000 m3 of earth were brought from New Jersey, and more than four million trees and 816 varieties of plants were planted. All this, in a context of continuing confrontations between Olmsted and the Commissioner. In 1860, Frederick Law Olmsted was relieved of his position as superintendent of Central Park and replaced by Andrew Haskell Green, former chairman of the Board of Education of New York. He managed to expedite the construction and closed the negotiations for the purchase of additional land at the north end of the park between 106th St. and 110th St.

The park opened in 1895 before completion of the works. At first, mainly the rich and their carriages used the park, as the strict rules forbid group activities, such as picnics. But gradually the rules relaxed until they disappeared, and all social classes could enjoy the park.

Reforms by Robert Moses

In 1934, Robert Moses was appointed Commissioner of the park and began to berate the degradation of Central Park due to lack of maintenance, vandalism and pollution caused by the access of automobiles. He also denounced its poor adaptation to the demands of its new users: children, athletes and seniors, which required a new balance between active and passive leisure activities, far from the nineteenth-century approaches of Olmsted and Vaux.

Moses obtained federal funds for the restoration of many degraded parks and damaged structures; he was intent on equipping these spaces to meet the new needs of the population. The reforms of Central Park prior to World War II sought to maintain the experience of the landscape alongside the new uses and the cultural and recreational facilities scattered around the grounds (meadows for sports, playgrounds, music and exhibition pavilions, conservatory, tower with observatory, etc.).

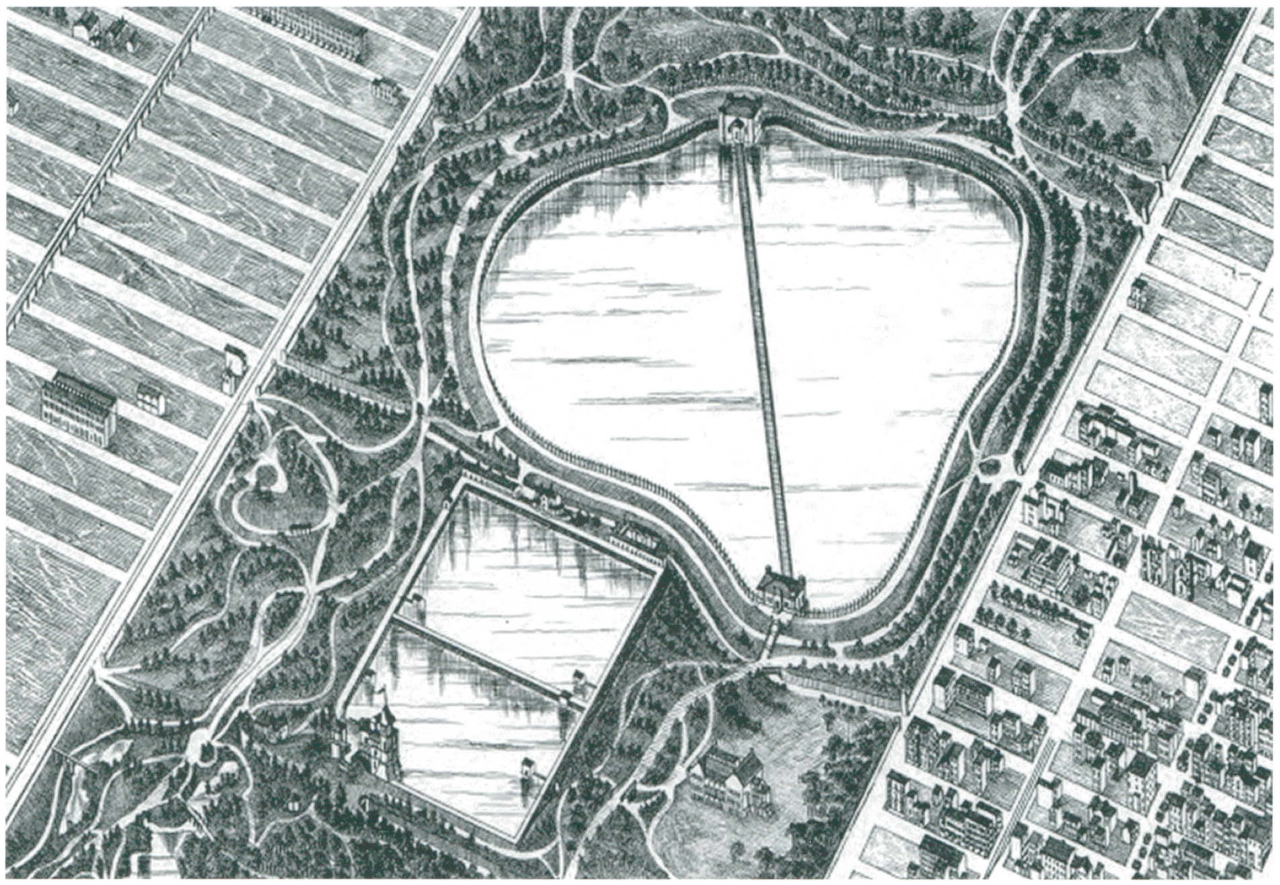
He managed to reorganize the park replacing the affected species and repairing damaged public works. But his performance was much less respectful from the 1950s and until 1962, when he destroyed some scenic spots and added new facilities that altered the original project. The original Croton reservoir was replaced by a meadow, the Great Lawn; the new wings of the Metropolitan Museum of Art invaded the space, together with new buildings, such as playgrounds, tennis courts and skating rinks, and the restaurant Tavern on the Green.

Degradation in the 1960s

When Robert Moses left office in 1960, the park entered a second period of decline that lasted two decades. There was neither a management strategy for maintenance nor a program to educate park visitors. To remedy this situation, George Soros and Richard Gilder underwrote a management study for the park in 1974, carried out by E. S. Savas, professor at Columbia University.

This study proposed two major initiatives: the Director General should be given clear and unambiguous authority for all park operations. And a board should be created, the Central Park Board of Guardians, to oversee strategic planning and policy, thus instituting private participation in a public park. In 1979 Elizabeth 'Betsy' Barlow (now Rogers), urban planner and writer, became the new director, and created a revolutionary public-private partnership for the maintenance of the park. A monitoring board, the Central Park Conservancy, was created, and the park was gradually restored under a conservation master plan funded through various campaigns. The Nature Conservancy subsequently created an endowment to ensure the future of the park. It is currently the most popular park in the city and hosts approximately twenty-five million annual visitors. It is a National Historic Landmark in the United States since 1963.

Texts: Patricia Hernández Lamas, architect

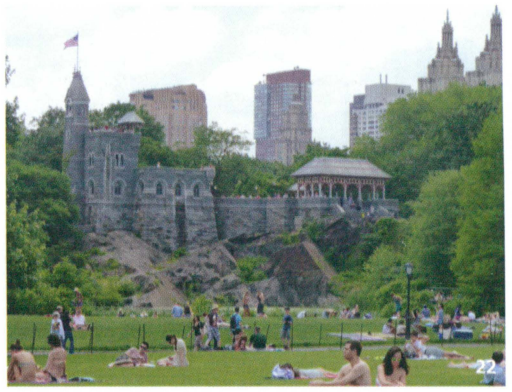


Central Park, detail of the water reservoirs. Taylor, 1879

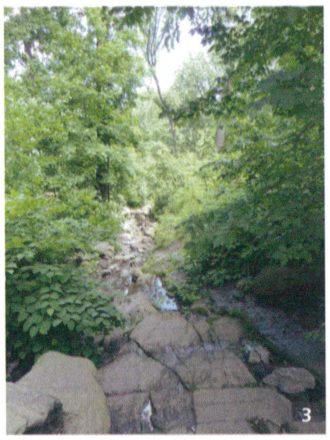


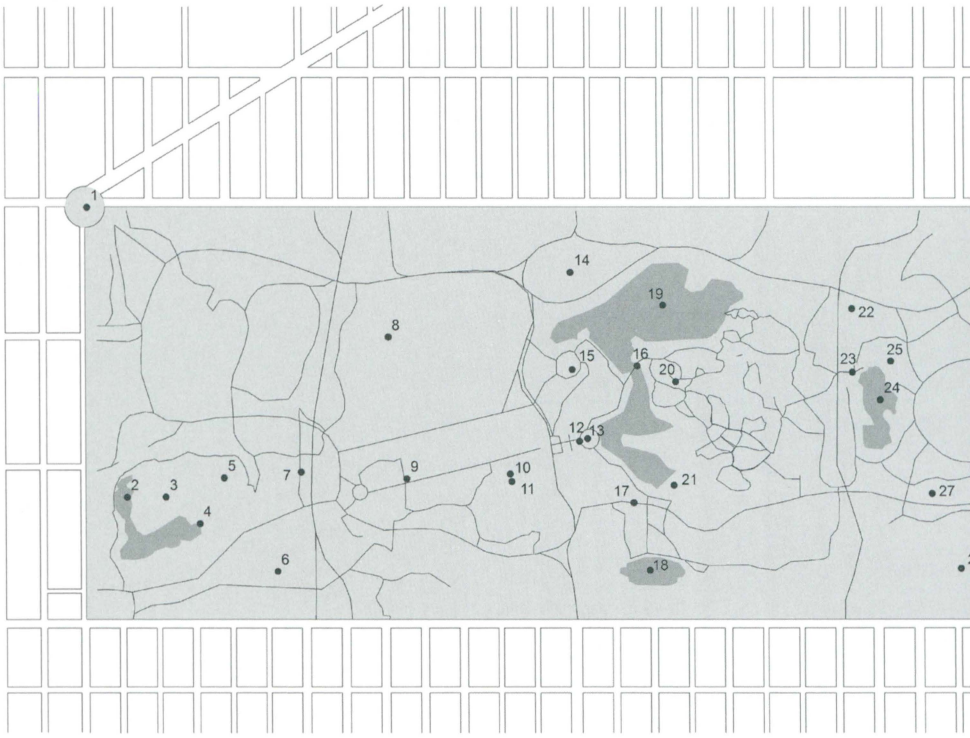


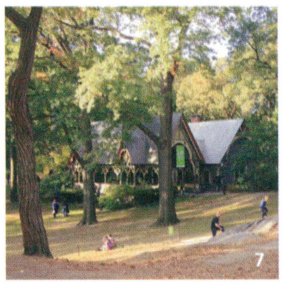


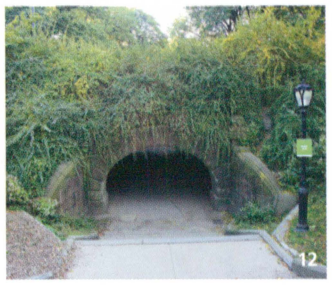




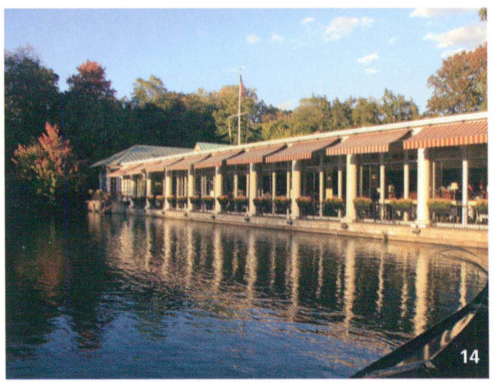














1. GRAND ARMY PLAZA
2. THE POND
3. HALLETT NATURE SANCTUARY
4. GAPSTOW BRIDGE
5. TRUMP WOLLMAN RINK
6. ZOO - CENTRAL PARK WILDLIFE CONSERVATION CENTER
7. THE DIARY
8. SHEEP MEADOW
9. THE MALL
10. NAUMBURG BANDSHELL
11. THE PERGOLA
12. BETHESDA TERRACE
13. ANGEL OF THE WATERS FOUNTAIN
14. STRAWBERRY FIELDS
15. CHERRY HILL
16. BOW BRIDGE
17. TREFOIL ARCH
18. CONSERVATORY WATER
19. THE LAKE
20. RAMBLE
21. LOEB BOATHOUSE
22. SWEDISH COTTAGE
23. BELVEDERE CASTLE - HENRY LUCE NATURE OBSERVATORY
24. TURTLE POND
25. DELACORTE THEATRE
26. GREAT LAWN
27. OBELISCO
28. METROPOLITAN MUSEUM OF ART

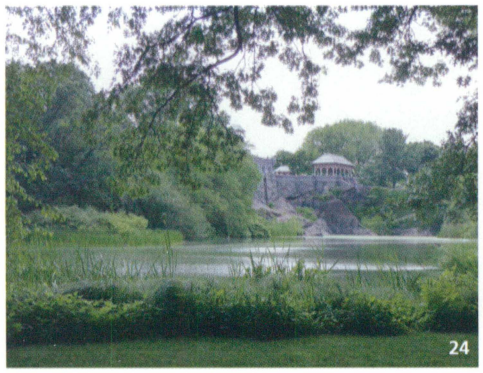











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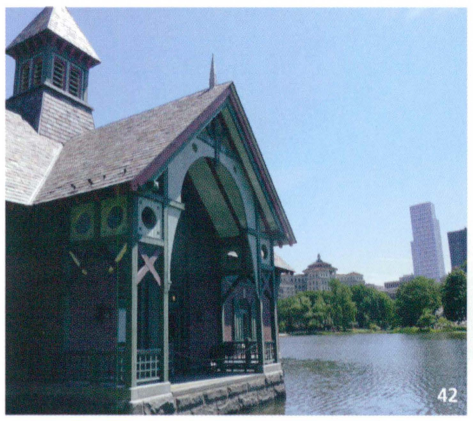

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29. JACQUELINE KENNEDY ONASSIS RESERVOIR
30. TENNIS HOUSE
31. NORTH MEADOW
31. BRIDGE NO. 28 O GOTHIC BRIDGE
33. THE POOL
34. GLEEN SPAWN ARCH
35. CONSERVATORY GARDEN - ENGLISH
36. CONSERVATORY GARDEN - ITALIAN
37. CONSERVATORY GARDEN - FRENCH
38. GREAT HILL
39. HUDDLESTONE ARCH
40. LOULA D. LASKER POOL-RINK
41. HARLEM MEER
42. CHARLES A. DANA DISCOVERY CENTER
43. BLOCKHOUSE
44. NORTH WOODS


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Central Park from the rooftop of the Rockefeller Center

Jacqueline Kennedy Onassis Reservoir



Conservatory Water, a small neo-Renaissance oval pond made of concrete. It is named after the greenhouse (conservatory) that was to be built on its East bank, but never came to fruition. Currently it is used for competitions with small remote control boats





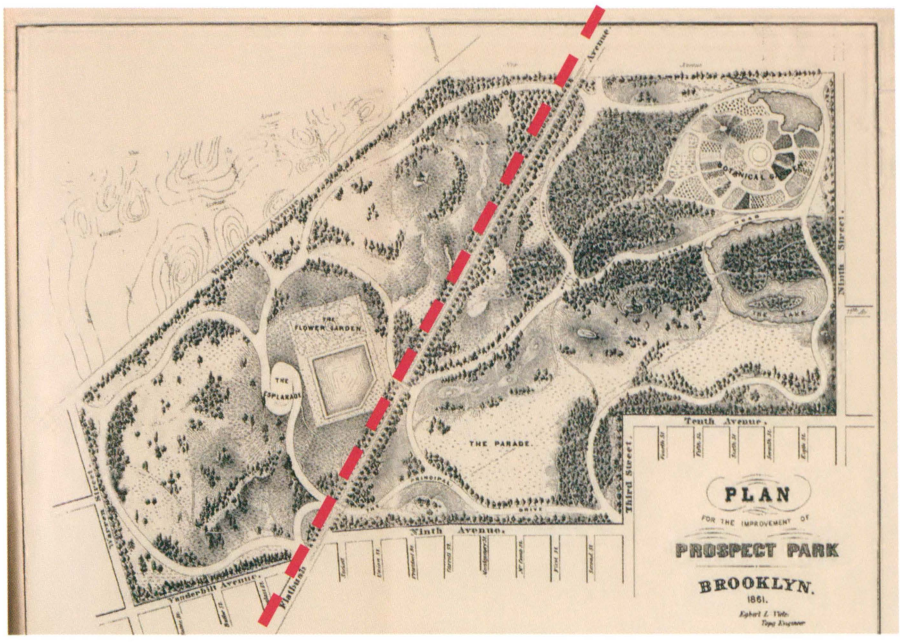
Harlem Meer, lake with natural character and a sandy beach. Its name, Meer (lake in Dutch) refers to the neighborhood of Harlem, where European colonists settled in the seventeenth century, located in the northern part of the park. It is a real habitat for wildlife fauna (fish, turtles and waterfowl) and flora (oak, cypress, beech and ginkgo)

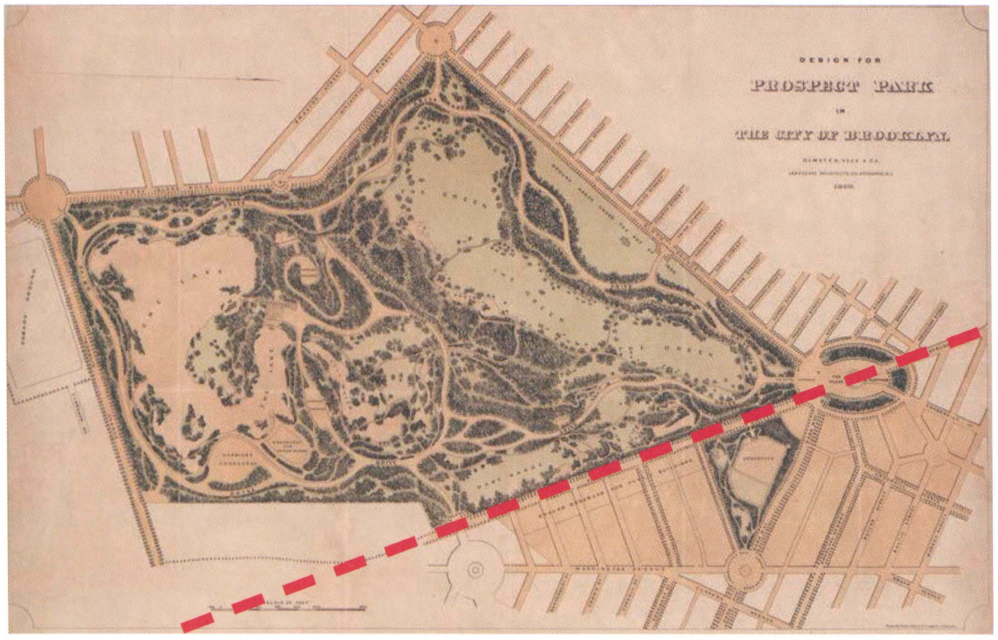




Annular internal circulation circuit with separation of traffic

To reinforce the seemingly natural and rustic appearance, vegetation is distributed in apparent disorder, seeking the effect of spontaneous naturalness and variety, alternating wide open spaces of tree-dotted meadows with dense bushy and wooded areas to isolate the noise of the city





Prospect Park, 1861.

Design for Prospect Park in the City of Brooklyn by Hayward, States & Koch, 1869.

Prospect Park (Olmsted & Vaux, 1873)

The First Annual Report of The Commissioners of Prospect Park, Brooklyn, dated January 28, 1861, contains a report by engineer Egbert L. Viele on the topography and improvements in Prospect Park, along with maps and drawings. Viele had prepared the first surveys and schemes for Central Park, later replaced by those of Olmsted and Vaux, and also sought to intervene in Brooklyn.

Qualities of the Site

Among the reasons for choosing the site for the park, set in the Act of the State Legislature approved April 17, 1860, Viele cites its scenic qualities: *Nearly in the center lies the new Distributing Reservoir, from which a panoramic view is obtained of the cities of New York and Brooklyn, the inner and outer harbors, with their fleets of ships and steamers, a large portion of New Jersey, Staten Island and Long Island, with the Atlantic ocean beyond, stretching far away in the distance* [53:36].

Apart from this privileged position, Viele continues pointing out the advantages proper to the site: *Within the park itself, a succession of beautifully wooded hills and broad green meadows, interrupted here and there by a natural pond of water, offers features of attraction, which require but little aid from art to fit it for all the purposes of health and recreation, to which it is to be devoted.*

Plenty of water and moved land had to be provided in Central Park, while in Brooklyn they were given. The height of 60 m (200 ft) of the escarpment located around the water reservoir enjoys the best view of the entire region. The only problem with the site chosen by the city to build the park was its diagonal partition by Flatbush Av., with its 30 m (100 ft) wide. To avoid this, Viele proposed abandoning the land located northeast of Flatbush, and the avenue remained as the well-defined north boundary of the park from the outset.

Historic character of the place

In the report, Egbert L. Viele does not neglect to mention the historic character of the place as a strong argument for its preservation as a park. *The very heart of the park... was once the scene of a desperate and bloody and desperate conflict during the War of Independence. The whole pass was a scene of carnage, resounding with the clash of the arms, the tramp of the horses, the volleying of fire-arms and the cries of the combatants* [53:39] Two battalions under General Sullivan prevented the passage of the English over New York on August 27, 1776.

The design proposed by Egbert L. Viele was approved by the Commission, but it was stalled by the Civil War in 1861 and the subsequent difficulties of the city to sell bonds. After the war, the Commission planned to enlarge the park, so as to attract wealthy and influential citizens to Brooklyn to help pay for its construction. To achieve this, Brooklyn should propose a park that could match and even surpass Central Park in each of its aspects. As Central Park had a surface area of 843 acres, Prospect Park should have well over 320 acres originally authorized.

Assignment to Vaux and Olmsted

Accordingly, in June 1865, the Commission Chairman James ST Stranaham[14] requested an alternative design from the architect Calvert Vaux, co-designer of Central Park with Frederick Law Olmsted. Vaux got back in touch with Olmsted, who after being begged for a while, agreed to collaborate with him in the design and construction of Prospect Park, signing the contract in May 1866 [87:23].

With an area of 236 ha, the design of Prospect Park includes a number of wild spaces to encourage contemplation, such as a large curved meander, a dense wooded area and a tranquil lake. The circulation of carriages, equestrian trails and pedestrian paths are completely separated from one another, forming three separate circulation systems. The carriages surround the park in its perimeter, and the equestrian trails are intertwined with them, leaving the interior of the park, with its large free spaces of meadows, to pedestrians, who access them through vaulted passages under the carriage roads [87:26].

Paths and bridges

The main entrance is from the northwest, from the Grand Army Plaza, through a symmetrical composition of pillars and arches, one of Gothic style, and another one double in two directions composed of barrel vaults that leads to the onset of Long Meadow, the large popular prairie with ripples and topographical variations in which multiple sports activities take place. In the southeast zone are the three Nethermead Arches (Calvert Vaux, 1870) where the stream, the footpath and the bridle path separately cross under the path of Central Drive, approximately at the midpoint of the park. The bridge is supported by brick, granite and sandstone barrel vaults, and the arches are crowned with a sandstone balustrade in clover-leaf shape.

Along the route, open meadows alternate with more intimate spaces. The great Lake, Prospect Lake, irregular in contour and natural-looking, is located in the south, with the Boathouse, built in 1905 by Helmle, Huberty & Hudswell in neoclassical Palladian style. Nearby, there is a bridge over a waterfall, and another one, of stone and cast iron (1889), over a pond. After a series of pagodas and kiosks, is the Cleft Ridge Bridge (Calvert Vaux, 1872), with a barrel vault decorated inside by bi-colored tiles, known for being the first concrete bridge of its kind built in situ.

Moses adds playgrounds

When Robert Moses Park was named Commissioner (1934-1961), he immediately sent workers to clean and renovate the park. He installed seven new playgrounds, in addition to the zoo, an auditorium under an acoustic shell and seats for 2,000 spectators, baseball fields, and an ice-skating rink, following his idea of adapting the park to new uses. The reforms of the park were followed by abandonment, due to the lack of provisions for its maintenance, which resulted in a large neglect in the 1960s. In recent years, the organization Friends of Prospect Park has restored the park, successfully integrating the work of Olmsted and Vaux with the innovations of Moses.

In Prospect Park are some buildings with ceramic domes by architect Rafael Guastavino (see Chapter 6), particularly the cover of the Boat House. Subsequently, architects McKim, Mead & White added some porticos, doors and the Croquet Shelter (MM & W, 1906), a Corinthian-style pavilion located at the southern end of the park, also covered with vaults of reddish pottery by Rafael Guastavino, which has been restored in 1967 [166: 727].

Texts: Patricia Hernández Lamas, architect



Croquet Shelter (Stanford White-MM&W, 1906)



Croquet Shelter. Vaults by Rafael Guastavino


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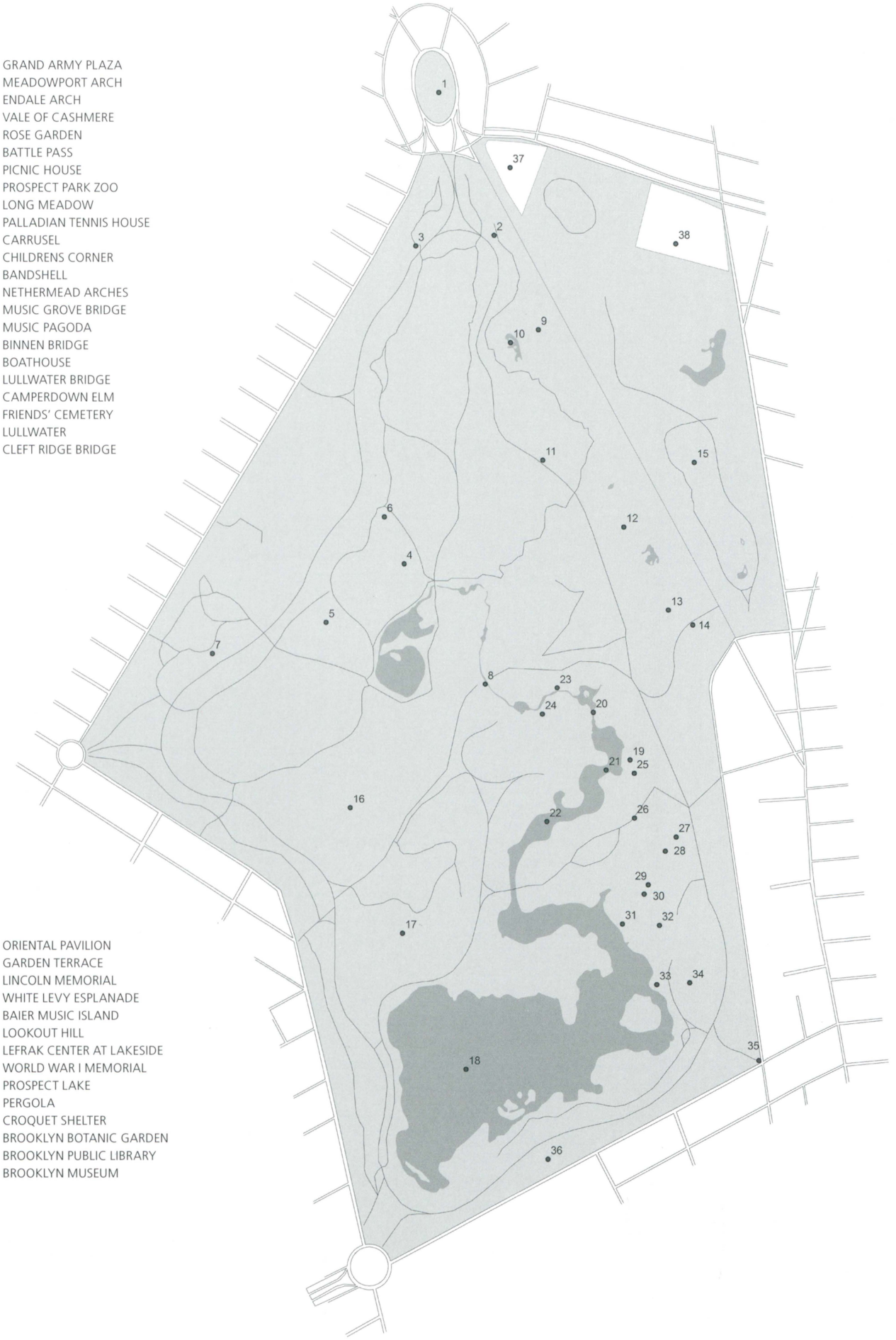

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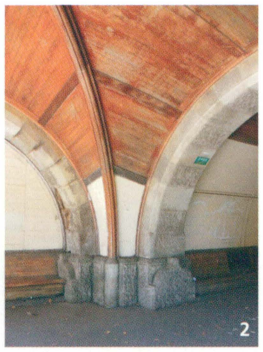

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1. GRAND ARMY PLAZA
2. MEADOWPORT ARCH
3. ENDALE ARCH
4. VALE OF CASHMERE
5. ROSE GARDEN
6. BATTLE PASS
7. PICNIC HOUSE
8. PROSPECT PARK ZOO
9. LONG MEADOW
10. PALLADIAN TENNIS HOUSE
11. CARRUSEL
12. CHILDRENS CORNER
13. BANDSHELL
14. NETHERMEAD ARCHES
15. MUSIC GROVE BRIDGE
16. MUSIC PAGODA
17. BINNEN BRIDGE
18. BOATHOUSE
19. LULLWATER BRIDGE
20. CAMPERDOWN ELM
21. FRIENDS' CEMETERY
22. LULLWATER
23. CLEFT RIDGE BRIDGE



24. ORIENTAL PAVILION
25. GARDEN TERRACE
26. LINCOLN MEMORIAL
27. WHITE LEVY ESPLANADE
28. BAIER MUSIC ISLAND
29. LOOKOUT HILL
30. LEFRAK CENTER AT LAKESIDE
31. WORLD WAR I MEMORIAL
32. PROSPECT LAKE
33. PERGOLA
34. CROQUET SHELTER
35. BROOKLYN BOTANIC GARDEN
36. BROOKLYN PUBLIC LIBRARY
37. BROOKLYN MUSEUM

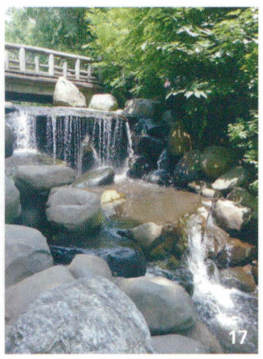

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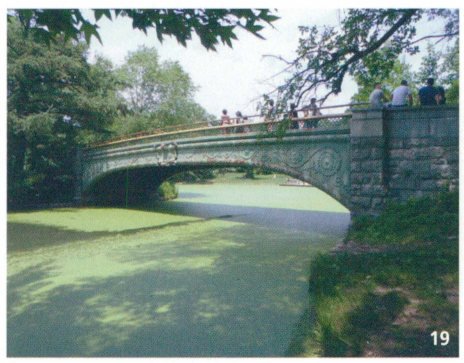

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Prospect Park



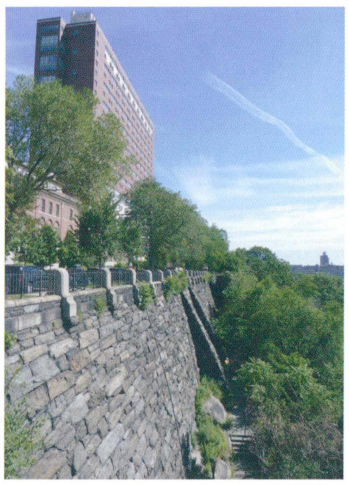


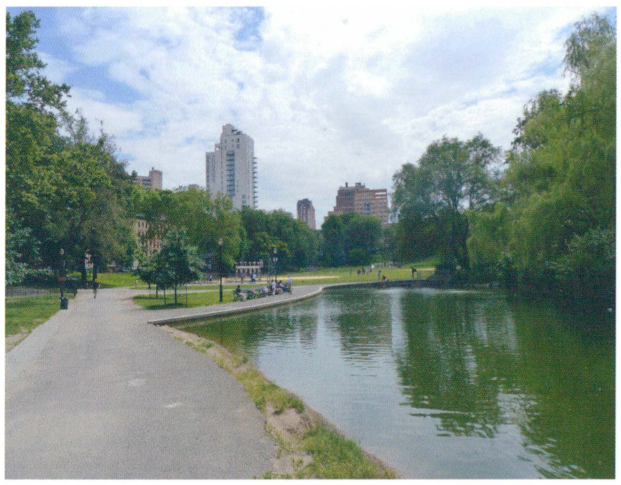


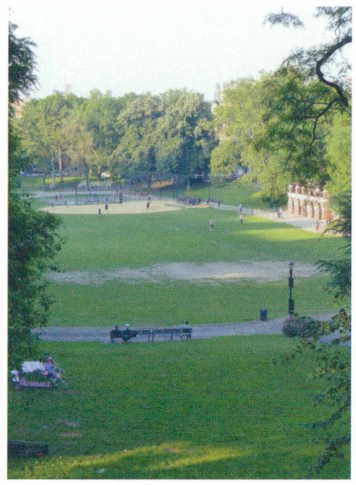




Fort Greene Park, Brooklyn



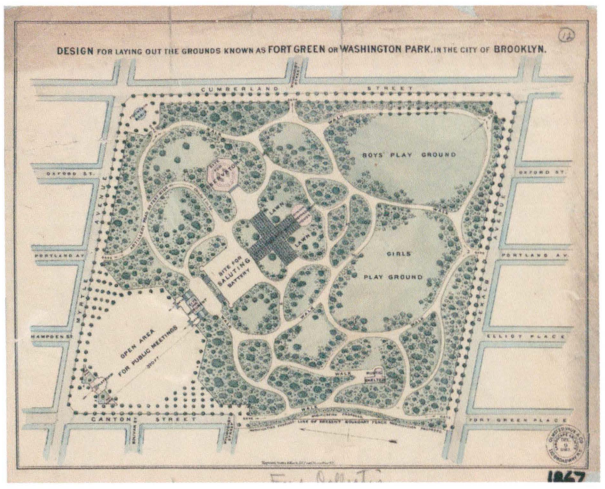






Great escarpment and gap between the Harlem Plain lowlands to the East and Morningside Heights. Retaining wall of reinforced masonry as park boundary along Morningside Drive. Morningside Park

Pond, paths, and sports fields in Morningside Park



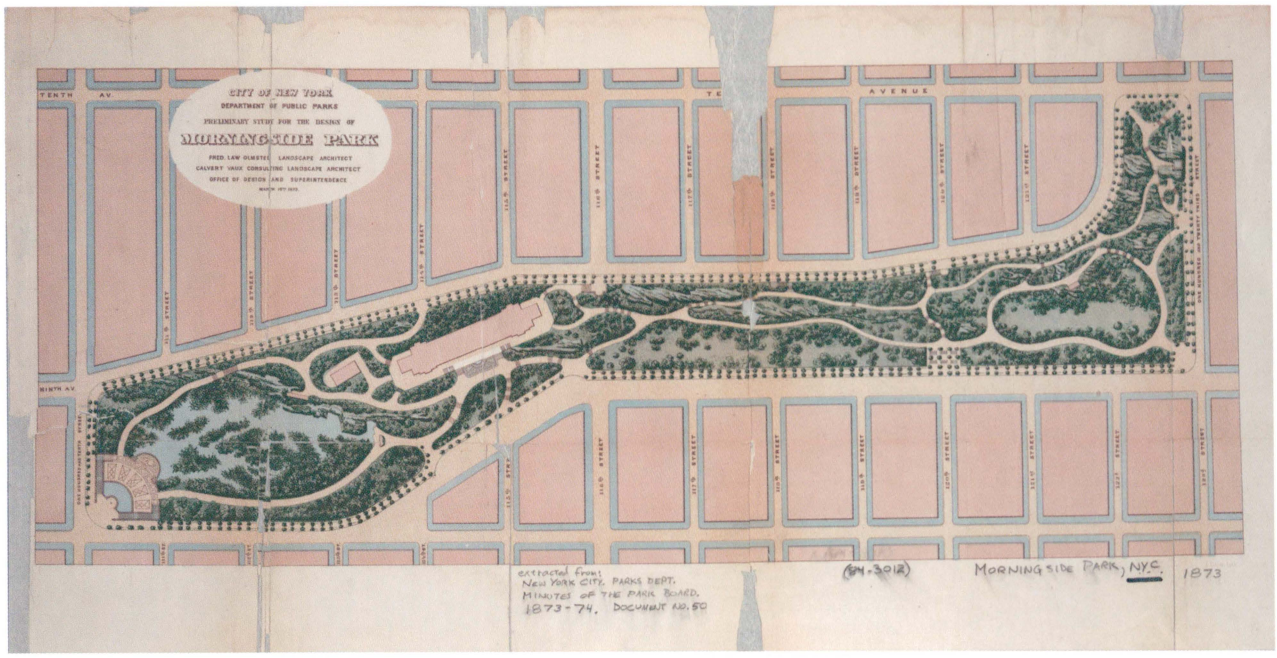
Design for Laying out the Grounds Known as Fort Greene or Washington Park, in the City of Brooklyn

Fort Greene - Washington Park (1867)

Also in Brooklyn is Fort Green or Washington Park of 122 ha, East of the old Brooklyn Hospital Center. It is named after the fortification built in these highlands in 1776 for the Battle of Long Island during the American Revolutionary War, later rebuilt and renamed in the war of 1812 against the English invasion.

When Walt Whitman served as editor of the *Brooklyn Eagle*, he proclaimed the need for a public park in Brooklyn, and won the popular support to achieve it. Between 1847-1850, the works of the then called Washington Park were carried out, but in 1867 a new design was commissioned to Frederick Law Olmsted and Calvert Vaux. Its landscape style alternates hills and open meadows among masses of trees that shade the winding roads. In 1897 the park was renamed Fort Greene Park.

Text: Patricia Hernández Lamas, architect.



Preliminary Study for the Design of Morningside Park by Olmsted y Vaux [1873]

Morningside Park (1895)

The Morningside Park is located in the area formerly called the *golden ghetto*, where the wealthiest Jewish families had moved from the downtown in search of tranquility. It is separated from Riverside Park by Columbia University, adjacent to its West side. Its 12 ha (29 ac) cover a narrow strip of thirteen blocks delimited by Morningside Drive, Morningside Av. and 110th St. and 123nd St.

Escarpment and slope

Built on a steep slope, it bridges a significant drop between the two avenues, produced by the shale escarpment located between the lowlands of Harlem Plain to the East and the heights of Morningside Heights to the West. Its name refers to the sunrise in the East, as seen from the heights of the park. In 1867 Andrew Haswell Green, Commissioner of Central Park, recommends building a park in Morningside Heights, remarking how difficult and costly it would be to extend the street grid in this area of Manhattan, of steep topography. The construction was delayed when the Board of Commissioners for Public Parks rejected the proposals submitted by the Head of Parks, engineer M. A. Kellogg in 1871, and by the team of Frederick Law Olmsted and Calvert Vaux two years later.

Design

Although the proposal by Olmsted and Vaux maintained the landscape aesthetic of previous parks, with winding paths lined with flowers among meadows and woodlands, they tried to create a park different from the near Central Park. They proposed two ponds: tropical lakes in the Southeast entrance, and another lake in the North. They emphasized the slope with steep hills, a steep mountain in the Northwest, and a scenic path along the edge of the cliff, unique in the city and with spectacular views.

They took special care to connect the park with Morningside Heights, analyzing the different streets, entrances, stairs and views to achieve a good communication. They designed in detail the nearest entrance to Central Park, with a balcony at the street level and a double staircase to descend to the park. Under this space and on the South side of the courtyard, water from various sources on the wall ran down towards a large semicircular pond.

Paths and lakes

On the other side, they proposed a series of lakes with islands with aquatic plants, forming a true tropical garden that ended in an esplanade of 152 x 30 m (492 x 98 ft) at 114th St. Due to the nature of the soil, they proposed to use the alpine species used in the rest of the park, as well as vines, to cover the walls. The more formal layout was reserved for The Mall, a walk with a double row of trees and seats, dotted with lampposts to promote safety [36: sp].

In 1880, architect Jacob Wrey Mould, former partner in Central Park, was hired to rework the proposal of Olmsted and Vaux. He designed the Promenade and a retaining wall of reinforced masonry as park boundary along Morningside Drive. The Promenade of 9 m (30 ft) wide has a succession of esplanades topped by octagonal bastions, elevated three steps, as a resting place, thanks to a continuous bench on its perimeter, with extensive views due to its elevated position.

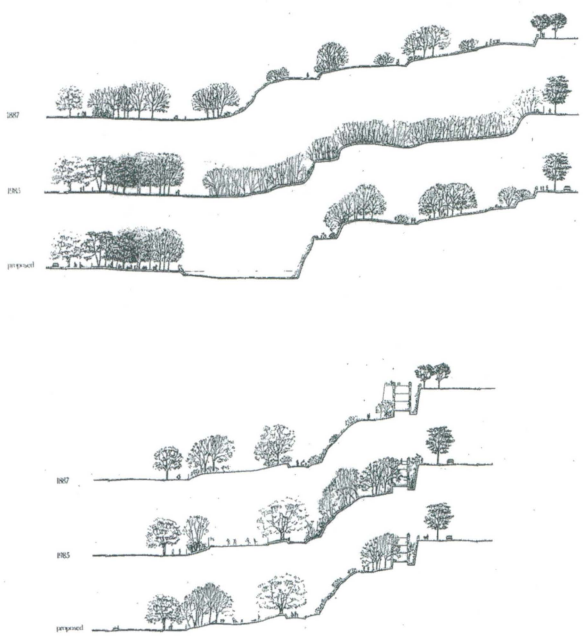
Olmsted & Vaux again

Although construction was awarded in 1883, Mould died three years later without completing the work, and Frederick Law Olmsted and Calvert Vaux were rehired in 1887 to continue the improvements. Resilient species were planted in this dry and rocky environment; and two paths, one wide and another one winding through the lower part of the park, were built. The work was completed in 1895, overseen by Vaux, who would drown later that year in Gravesend Bay, as consultant. The superintendent of parks, Samuel Parsons Jr., regarded Morningside Park as the most outstanding work of art created by Vaux.

Its urban function is that of neighborhood park, and it is listed as Historic Harlem Park. Between 1930 and 1950 children's playgrounds, baseball fields and basketball courts were built East and South of the lower zone, sculptures were installed throughout the park. Currently, it hosts an outdoor market where local farmers sell their produce on Saturdays.

The pond and waterfall were built in 1989-1990, taking advantage of the crater of the foundation of a huge gym projected for Columbia University and the neighborhood, whose construction was paralyzed by protests from students and the community in 1968. In 1968, a conceptual directing plan was developed with new play areas, picnic areas, planting of new trees, and reconstruction of the sports fields.

Texts: Patricia Hernández Lamas, architect



Sections east-west between 112nd and 113d streets (where the construction of the gym was planned) and near the entrance of 118th street, showing the evolution of 1887, 1985 and the proposal.
Conceptual Plan for Morningside Park. City of New York. Department of Parks & Recreation, 1985

Eastern and Ocean Parkways (Olmsted & Vaux, 1874, 1880)

From design to planning

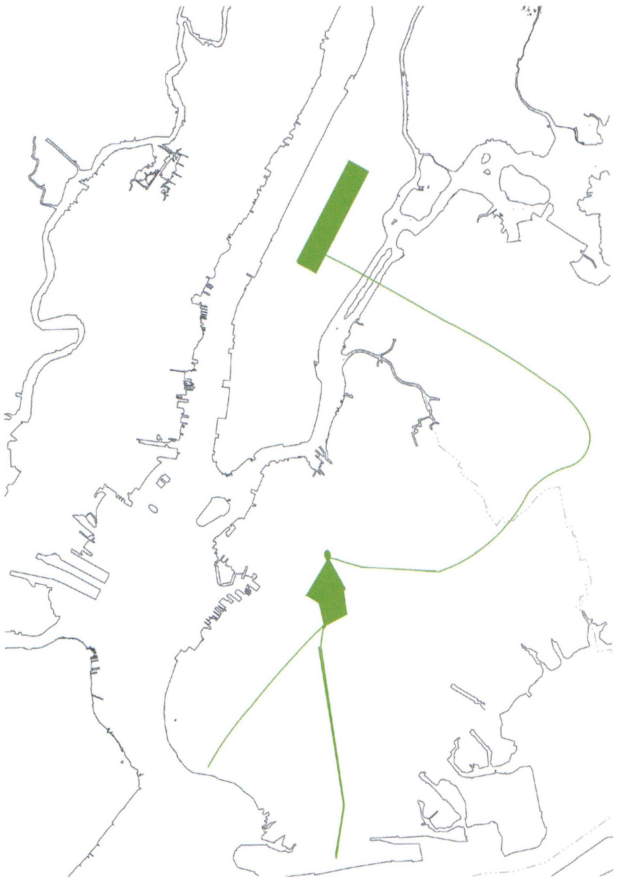
For Frederick Law Olmsted and Calvert Vaux, the realization of Prospect Park was less confrontational and more fruitful than that of Central Park. The president of the Board of Commissioners of Central Park, Andrew Haswell Green, got into many fights about the costs and efficiency of the work with the designers. In Brooklyn, his counterpart James S. T. Stranaham was a tireless advocate of the ideas of Olmsted and Vaux and his relationship with them for eight years was of full support and cooperation.

During the early years, Olmsted and Vaux were primarily devoted to designing Prospect Park, but Olmsted later developed a broader planning vision, evidenced in the annual reports to the Commission. They worked together, but with different functions: Vaux drew and Olmsted wrote and supervised the work. With several books to his credit and an eloquent and visionary writing, sometimes very theoretical, Olmsted gradually became the spokesman of the project. And people saw him as the designer of Prospect Park, as had happened in Central Park [87:25].

Parts of a system of parks

Already in his first report of 1866, Olmsted conceived Prospect Park as a piece of a system of connected regional parks, not as an isolated green area. Brooklyn Bridge had not been built yet, but Olmsted regarded Brooklyn as an integral part of the modern metropolis, and as a future center of world trade. He saw the parks of Manhattan and Brooklyn as elements of a system of spaces designed for the enjoyment of the residents of both cities, and of visitors from around the world.

From this perspective, accesses should be *picturesque and shady walks* of pleasure of a certain scope. His first proposal of outline from 1866 went South to Coney Island and returned to the Northeast along the coast towards Queens, where it turned Northwest to cross the river over Blackwell Island, to reach Central Park.



First plans for the Parkways system (Olmsted, 1866 and 1867) [73:29, 31]. Drawing by Ana Rubio-Gavilán

Layouts

In 1867, he amended the plan to include three entrances: to the South, with identical layout to the original, later called Ocean Parkway; to the Northeast, to reach directly the same point of Queens of the first plan, following it until Central Park, later called Eastern Parkway, and a third to the Southwest, with the same origin of the first access to reach the coast at Fort Hamilton. They would all *add value to the park because citizens could reach the park through accesses that were convenient and pleasant for walking, riding, or by carriage, in all their extension* [87:31].

Cultural landscape

The layouts of Eastern Parkway (1874) and Ocean Parkway (1880), the only ones that were constructed, have been classified as scenic landmarks. The Landmarks Preservation Commission values their character, specific history, and aesthetic interest as elements of the heritage and the cultural development of New York City. In addition, these large outdoor spaces become true greenbelts, as their large alignments of trees allow the strolling and enjoyment of the residents of the neighboring districts.

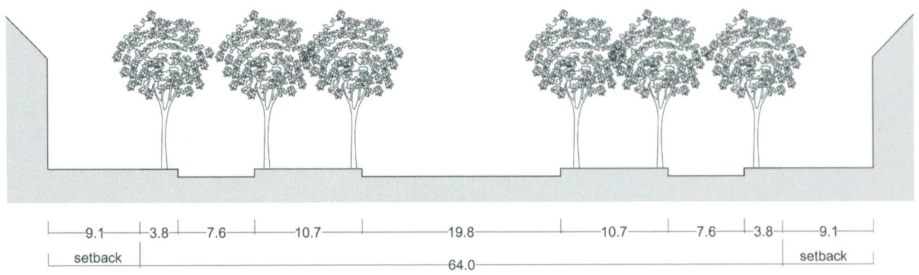
Picturesque character

The layout should show a picturesque character, neither very straight nor very even, with a walkway lined with a small fringe of trees and shrubs. Frederick Law Olmsted defends and emphasizes in his design the existing qualities of the terrain, as he had done in his parks. He takes advantage of the topography and the slopes, adapting to the landforms to avoid monotony. Even existing small streams or watercourses were included in the design, as in the city of Boston, preserving the most attractive natural features and characteristics of each place for public enjoyment.

Two years later they developed this scheme in another report, in which they first coined the term 'Parkway.' The concept was influenced by the Avenue de l'Impératrice (now Foch) of Baron Haussmann, visited on a trip to Paris in 1859, and the Berlin boulevard Unter den Linden (Under the Lime Trees), which connects the palace with the hunting preserve in the Tiergarten. However, they believed they were proposing an improvement over these European boulevards, with a road divided by a central boulevard used for riding or driving in carriage.

Separation of traffic

According to their concern with separating traffic, this middle lane was lightly paved for the passage of light carriages, while the roads for heavy traffic of access to the houses located along the Parkway should run along the outside. There should be sidewalks with room for benches and alignments of trees along both sides of each path. In 1869 their plan was authorized. The first phase, to Kings Highway, was completed from 1874 to 1875, followed by the second phase a year later.



The cross section of 64 m (210 ft) wide, consists of a central walkway 21.3 m (70 ft), two lanes of 6 m (20 ft), two side streets both 7.6 (25 ft) and two lateral sidewalks of 4.5 m (15 ft) each. Originally, the Parks Commission had control over an additional band of 9.1 m (30 feet) on each side of the Parkway. In this area *buildings and other structures were not allowed, except porches, parking, fences, fountains and statuary can remain or be placed at any time; [...] The space could only be used for patios and should be planted with trees, shrubs, and adorned at the discretion of the respective owners or occupiers; but such ornamentation should be under the direction of the Commissioners.*[15]

The alignments are composed of deciduous trees (maple, oak, sycamore, elm and some ginkgo) and the walkways are equipped with benches, table games and bike paths, widely used by residents. For many years, there was also a riding path on the

west side. The footpath was divided in 1894 to create a bike path, the first in the country.

Although the central road can not currently be considered as a pleasant drive, due to the 1950 merger with the Prospect Expressway, the intentions of the original project were largely met. For many people in Brooklyn this is the only open space with easily accessible vegetation, a true green path to walk.

The Eastern Parkway first, and later the Ocean Parkway were primarily conceived as access to the large urban parks, Prospect Park and Central Park, and secondarily as connecting elements between them and Coney Island, home to an entire regional system of leisure and recreation. They demonstrated a will to occupy and unite the territory similar to that of Brooklyn Bridge and the great bridges built afterwards. But it is important to emphasize their differences from other roads. They were unusual, both in their purpose and in their specific characteristics.

The next Parkways

By 1910, the sides of both parkways were filled with houses and their use gradually changed; from trails for horseback riding or driving, they became central elements of residential neighborhoods, and access ways. The landscaped public space assumed the functions of a local park, as everyday playground for kids, and social space for older people, and less frequently as a walking path. And for the people from nearby neighborhoods suburbs, the Parkways offered greater convenience for daily trips to work in Manhattan or Brooklyn, and passing traffic increased.

The car multiplied mobility and altered the characteristics of roads and highways. The first Parkways of urban boulevards with many trees gave way to new roads, very wooded in their margins, landscaped design and scenic views. They were also oriented to pleasure driving, but in rural and peripheral areas, which allowed faster speeds and more controlled access. Achievements like the Henry Hudson Parkway (1908, 1925) or the Merritt Parkway (1940), in the neighboring state of Connecticut, are indebted to the primitive spirit of Frederick Law Olmsted with new travel parameters (see Chapter 8).

Decay of the notion of Parkway

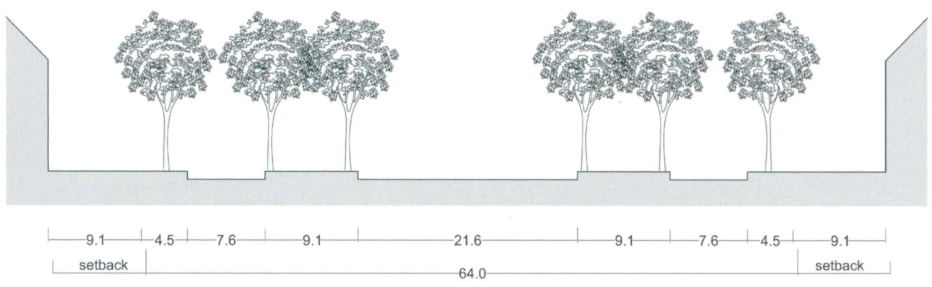
By the 1930s, the Parkways had proved very useful to promote the decentralization of population and were often used as camouflage to facilitate the construction of roads of general purpose. From the 1930s, Robert Moses blurred the boundaries or differences between Parkway, Freeway, Highway and Expressway, imposing the name to minimize opposition to new roads barely related to recreation and enjoyment. The alibi of the parks allowed him to avoid jurisdictional disputes with other branches of the administration and to reduce potential protests of those affected by the construction of roads (see chapter 11)..



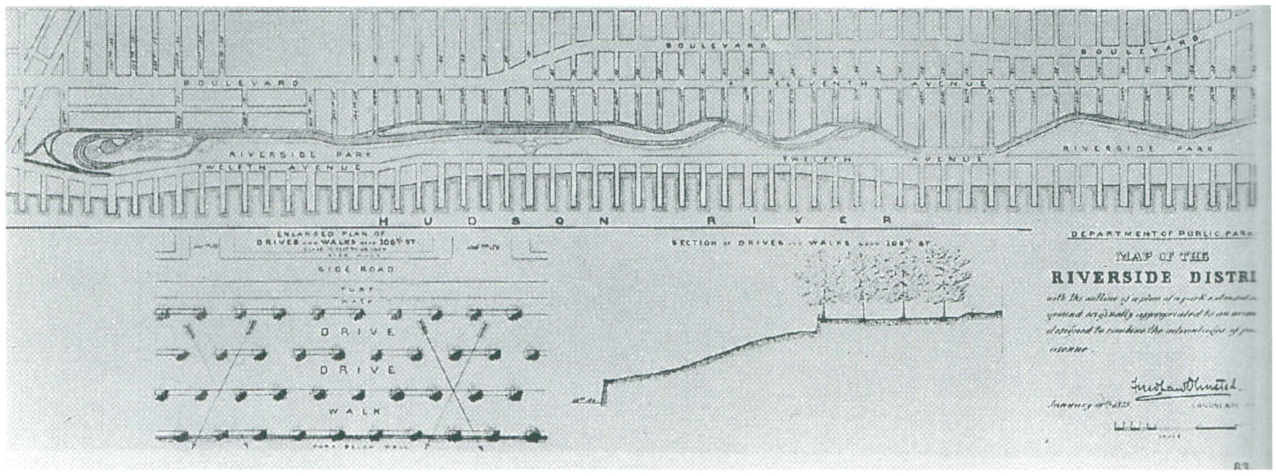




Ocean Parkway



Sections of Eastern Parkway and Ocean Parkway proposed for Brooklyn [17:47]



Riverside Park (Olmsted, 1875) [80:200]

Upper West Waterfront
Riverside Drive & Park (Olmsted, 1875)

The Riverside Park is an urban park located in the northwestern edge of Manhattan on the banks of the Hudson River. It is located in a thin strip of land of about 6,000 x 100-200 m (110-120 yd x 6500 d) that slopes towards the Hudson River between 72nd St. and 153rd St., bound by Riverside Drive on the east side. Currently the park is crossed from north to south by the Henry Hudson Parkway, one of the main coastal highways of the island of Manhattan built by Robert Moses (1937) (see Chapter 11).

Design by Olmsted in 1873

In 1865, the Commissioner of Central Park, William R. Martin, proposed to build a park and landscaped promenade in the Upper West Side of Manhattan to service the northern expansion of the city. This is an area of cliffs and rocky outcrops covered by forest until 1846, when the Hudson River Railroad was built. The design of the park was commissioned to Frederick Law Olmsted in 1873, who presented a plan two years later, combining a park and parkway, promptly turned into mythical examples of the lifestyle of the mansions built there [131: 625].

This new landscape adheres to the topographic contours of the land and nurtures coexistence of the surrounding buildings and cars. The proposal was intended to lay the groundwork for a similar treatment of the waterfront in Upper Manhattan and the Bronx with a continuous coastal element, but failed to obtain budgetary support. Olmsted had the opportunity to develop Riverside Plan in Chicago in 1868, a complete urban district on the edge of water equivalent to the lakes of the landscaped parks [96: 200]. In Manhattan, Olmsted prepared a comprehensive design: a riverside park, winding streets, a boulevard with trees and buildings elegantly curved. With its winding forms and views over the Hudson, it has become one of the best boulevards in the world.

Design and later buildings

Over the next 25 years several landscapers were involved in the design, such as Samuel Parsons (1844-1923) and Calvert Vaux. According to the landscape aesthetics, the park contains rocky cliffs, selvatic meadows and forests of mature elms. Trees and shrubs are arranged informally, in contrast to natural enclosures and open views, as in the English rustic parks. The development of the park encouraged the construction of large mansions of City Beautiful style along Riverside Drive, and especially between 125th and 155th St.

Further south, at the level of Lincoln Center, some towers have been recently built by Donald Trump and Extell. Along its way, there are several monuments such as the *Soldiers' and Sailors' Monument* (Stoughton & Stoughton, Paul EM Duboy, 1897), located on Riverside Drive at 89th St., which honors the fallen in the Civil War; the tomb of former President Ulysses Grant (John H. Duncan, 1897); the Firemen's Memorial (1913) and Joan of Arc (1915).

Moses Henry Hudson Parkway

The first stage of construction was completed in 1910, but it suffered later a period of neglect. The ambitious system of parks (1934) by Robert Moses comprised the extension of Riverside Park, using the materials removed from the excavation of the Eighth Avenue subway. This was part of a major operation to condition the western part of the island, and included two operations.

The first one, to bury the railroad of the New York Central RR and the Hudson Line, drawn parallel to the river, and which prevented access to the shore. The second, the creation of the Henry Hudson Parkway, a highway that runs north-south, parallel to the river crossing the park longitudinally. The park is divided into three terraces that descend from Riverside Drive to the riverside

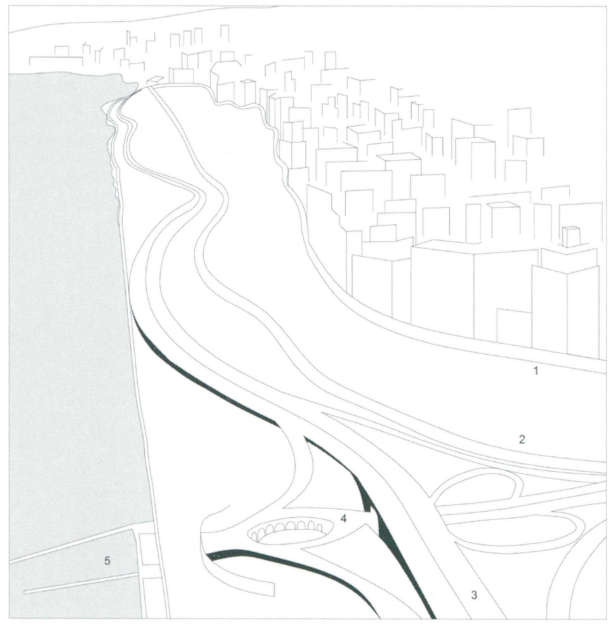


The Hudson River and Riverside Park,
North from 93rd St., 1910



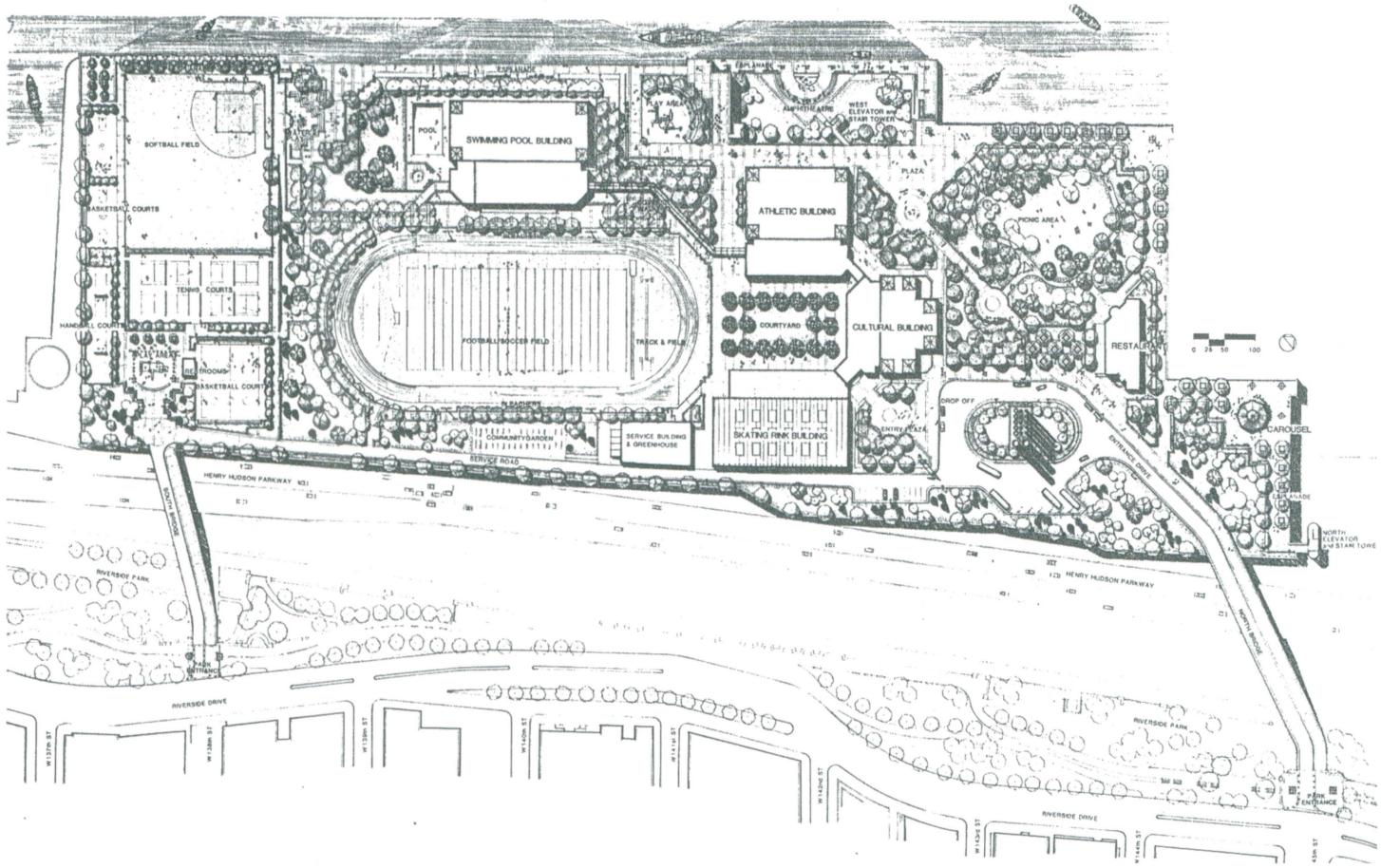
Outline of the section of Riverside Park.
By Jose de la Paz

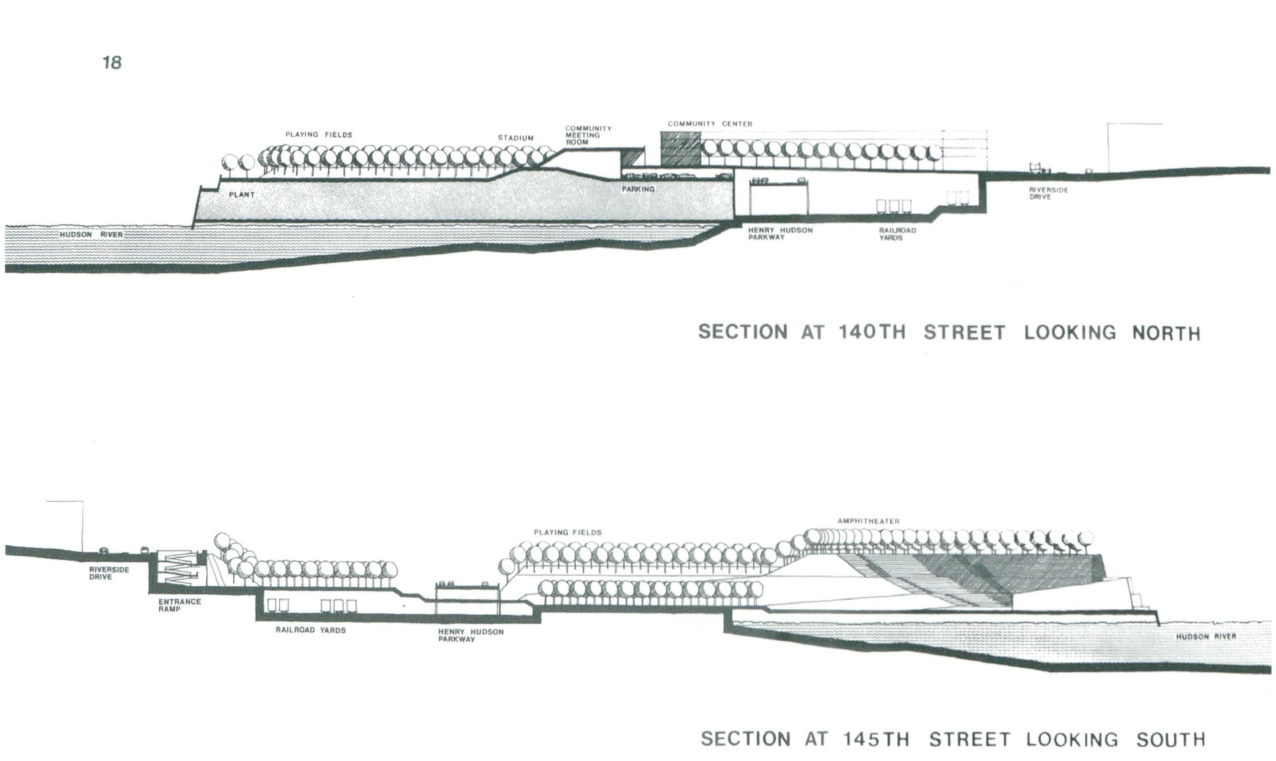




Riverside
1. Riverside Drive
2. Hudson River Greenway
3. Henry Hudson Pkwy
4. Boat Basin Rotunda
5. Seventyninth Street Boat Basin
By Ana Rubio-Gavilán

Project realized for the Riverbank State Park of Dattner, 1969





Proposal of section at 140th St. and 145th St. for the Riverbank State Park (Gruzen & Partners, 1969)

promenade. With the parkway, architect Clinton Lloyd and lanscaper Gilmore Clarke expanded the riverside promenade (1937, 1941) with 60 ha of park to the west, and built 22 leisure facilities including sports fields, an esplanade, and a marina.

The ensemble represents a major north-south artery full of life, where recreation and scenic areas follow one another, and where pedestrians, automobiles and railways coexist. Transversely, it is articulated in different levels of houses, gardens, highway, park and river to form a calm neighborhood at a human scale, with extensive views over the Hudson River and New Jersey shore. Park and parkway have more than two million visitors a year and have been designated scenic heritage in 1980.

Park over water treatment plant

Between 135th and 153rd St., Riverside Drive is limited by a retaining wall of granite, topped with a balustrade and with several scenic platforms. In this section stand out the old line of the Hudson River Railroad, and a new water treatment plant, the North River Water Pollution Control Plant (Theodore Long, 1991), over whose roof stands the Riverbank State Park (Richard Dattner, 1993).

The new park overlooking the Hudson River, the Palisades, and the George Washington Bridge was the subject of several proposals for its 9 ha (22 ac), 21 m (70 ft) high.







Philip Johnson unsuccessfully proposed large decorative fountains, misinterpreted as aerators of residual waters, and other proposals also failed. Finally, a recreational complex was built, connected to Riverside Drive and Harlem by two bridges over the Henry Hudson Parkway and inspired by Japanese designs. The project is developed at various levels with services housed in five buildings: Olympic pool, indoor skating rink —ice-skating in winter—, small theater, stadium with 2,500 seats and a restaurant; in addition to the large outdoor sports facilities of all kinds. At the water level, there is an amphitheater with 400 seats, piers for recreational and fishing boats, two children's areas, a water playground area, and several picnic areas.

Between 100th and 125th St., Riverside Drive runs for a while alien to traffic and flanked by cherry trees on both sides of the Henry Hudson Parkway, usually frequented by thousands of walkers and finally paved and called Cherry Walk. Most of the route is no more than 9 m wide and is dotted with granite rocks arranged as stops and lookouts to see the river. It has its peak with the spring bloom. Between 83rd and 91st St. is a garden with roses, daffodils and lady's mantles, The Flower Garden, planted and maintained by local residents, with great views over the Hudson [76: 114].

Boat Basin and Café

At 79th St., there is a complex structured on three levels and built in 1937 by civil engineer and architect Gilmore Clarke (1892-1982), designer of Central Park Zoo and the landscaping of the Merrit Parkway, and of the New York Fair's in 1939 and 1964. Upstairs, in a level below the Henry Hudson Parkway, there is a roundabout that connects with 79th St. Below is a café-restaurant and terrace towards the river and a masonry arch around a circular fountain at the center of the roundabout, all surrounded by footpaths between the river and the parkway.

Arcade, café and terrace are covered by a series of vaults built by Rafael Guastavino (1937); and at the bottom level is a parking for users of the 79th St. Boat Basin. The marina was built by Robert Moses (1937) and has floating pontoons, fixed piers and docking areas, plus a vertical dam for large yachts.

In 2000, park and parkway were expanded in 2.8 ha (6.4 ac) southwards, forming the Riverside Park South, between 68th and 72nd St. It includes a soccer field, three basketball courts and a public pier, made due to the construction of new sections of the West Side Highway —currently Joe DiMaggio Highway— and the Trump New World.

Texts: Patricia Hernández Lamas, architect



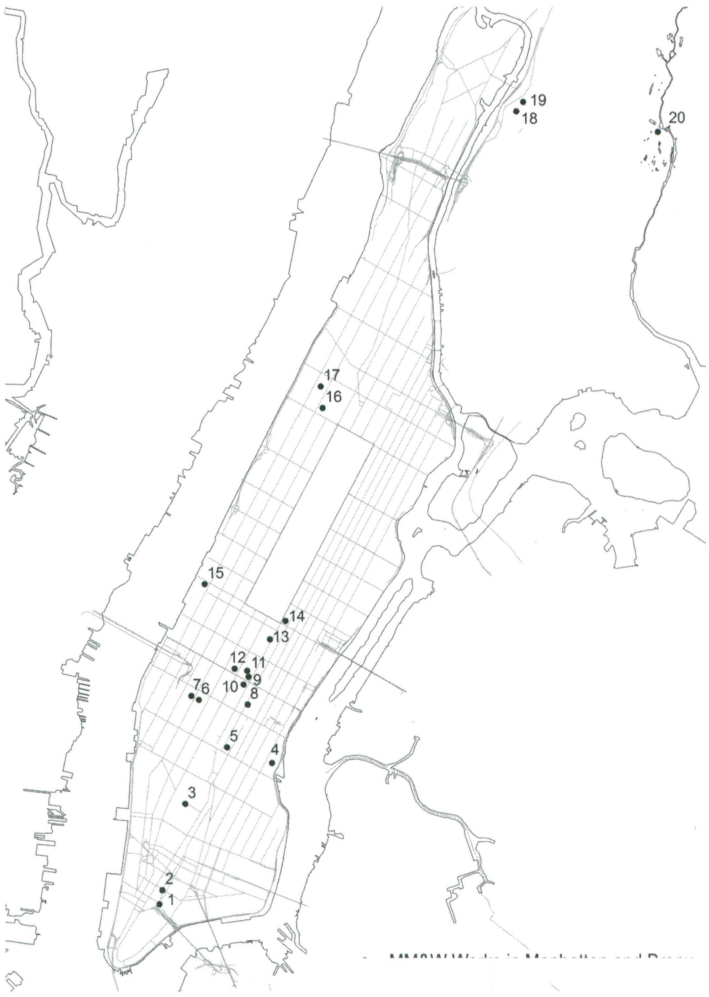
W 79th St. Boat Basin

W 79th St. Boat Basin (Guastavino, 1937)



6 | MM&W

Far-reaching firms
Institutional buildings
Heins and LaFarge and other firms
Cass Gilbert / Washington Bridge (1889)
Bearings design
Washington Square Arch (White, 1889)
Threats and character of the square
Columbia University
Additions by Moneo and Tschumi
The plot of the Institute Park
Brooklyn Museum of Art (1895)
Lescaze Reform (1930)
Polshek Reform (2004)
Brooklyn Botanical Garden
Brooklyn Grand Army Plaza
Met Life Building and Tower
Pennsylvania Station (1910)
Impress, overwhelm and dignify
Modernity and tradition
Post Office (1913) / Alterations in the 1930s
IRT Powerhouse (1904)
The Town Hall / Manhattan Municipal Building
Central arch, arcade and rotunda
Rafael Guastavino in New York
Ceramic vaults / Four new bridges
Williamsburg Bridge (1903)
Manhattan Bridge (1909)
Innovation in flexible piers
Queensboro Bridge (1909)
Controversy over shape and resistance
Hell Gate Bridge (1916)
Debate on the stone towers
Stance of the critics / Access and foundation



MM&W in Manhattan and Bronx
1 Manhattan Municipal Building
2 City Hall Loop
3 Washington Arch
4 Bellevue Hospital Center
5 MetLife North
6 Pennsylvania Station
7 Post Office
8 Morgan Library & Museum
9 New York Public Library
10 Century Club
11 Harvard Club of New York
12 Town Hall
13 University Club
14 Metropolitan Club
15 Consolidated Edison Company Powerhouse
16 St. John the Divine
17 Columbia University
18 Hall of Fame for Great Americans
19 New York University
20 Astor Court, Bronx Zoo

Institutional buildings

MM&W. McKim, Mead & White (1872-1961)
Housing the Institutions

Far-reaching firms

Charles F. McKim (1847-1909) and William Mead (1846-1928) got together in 1872, and Stanford White (1853-1906) joined them in 1879 to make architecture. Very different in character, the three partners shared the roles necessary for the firm to play an important part in building the city. Only Charles F. McKim had a complete academic training at Harvard, and later in Paris, but they all traveled to Europe, where they could see firsthand what was done there in the late nineteenth century. McKim came from an abolitionist family with strong ties with prominent people in the city, such as Frederick Law Olmsted and President Franklin D. Roosevelt. William Mead, the oldest and most serious of the three, assumed the role of helmsman of the firm and of partner in charge of their financial sustainability.

Stanford White had excellent family relationships and was responsible for most of the private projects. He built mansions, *châteaux* and *cottages* for prominent families in Long Island, Newport and Rhode Island, as well as important residences in Fifth Avenue for notable families, such as the Astors and Vanderbilts. He also built numerous clubs for New York society, most notably the Atlantic Yacht Club (White, 1894). Handsome, rich and a ladies' man, he was killed during a theater performance by a jealous millionaire whose wife he had seduced [26: passim].

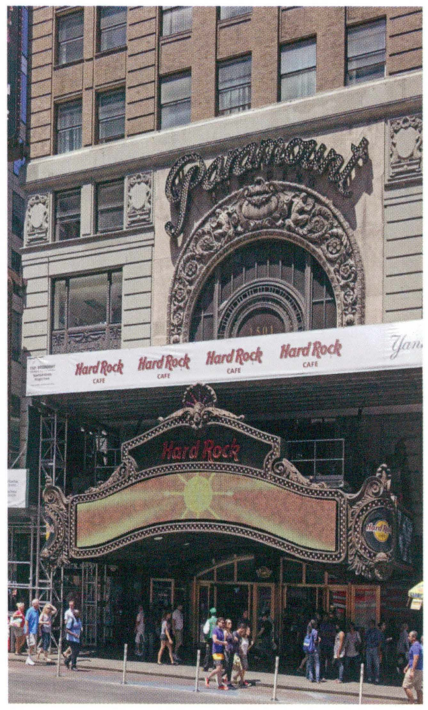
The firm built many well-known institutional buildings, such as the Columbia University campus in Morningside Heights (1890), that of New York University Heights (1900) and the Hall of Fame for Great Americans (1900) (now Bronx Community College) in Bronx; major museums and libraries, Brooklyn Museum (1895), Morgan Library & Museum (1903), New York Public Library (1914) and several of its subsidiaries in the city; and some prestigious clubs, Harvard Club of New York (1884), Century Club (1891), Metropolitan Club (1893) and the University Club (1899).

They were responsible for some of the most representative buildings of the city, such as the Pennsylvania Station (1910, destroyed in 1961) and its twin building the Post Office (1913), the Madison Square Garden II (1890, destroyed in 1925), the second of four built, the Manhattan Municipal Building (1915) and the Town Hall (1921). Their work includes monuments and buildings as diverse as relevant to the city, such as the Washington Arch in Washington Square (1892), the power plant IRT Powerhouse (1904), the Bellevue Hospital Center (1912) or the Liggett Hall of Governors Island (1929).

The firm transcended the last of its founders until 1961, when the lead partner James Kellum Smith died. Their workers remained united under the name Steinmann, Cain and White, in turn converted into Walker O. Cain and Associates in 1971.



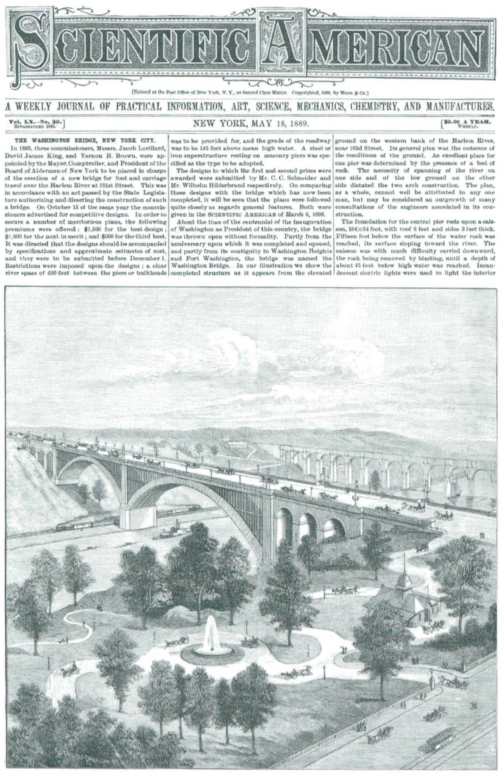




Paramount Building, 1501 Broadway Ave. (1927, Rapp & Rapp)

There are many other architectural firms with large institutional buildings among their works. Among them stands out, Heins and LaFarge, an architecture firm based in New York, composed of the Philadelphia-born architects George Lewis Heins (1860-1907) and Christopher Grant LaFarge (1862-1938). The two young men were reunited at the Massachusetts Institute of Technology and were trained together in the studio of Henry H. Richardson in Boston. In 1886, they opened their own studio and divided the functions with LaFarge as lead designer and Heins as project manager.

Heins and LaFarge and other firms



SCIENTIFIC AMERICAN

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A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. LX.—No. 20.] NEW YORK, MAY 18, 1889. [$3.00 A YEAR.

THE WASHINGTON BRIDGE, NEW YORK CITY.

In 1885, three commissioners, Messrs. Jacob Lorilliard, David James King, and Vernon H. Brown, were appointed by the Mayor, Comptroller, and President of the Board of Aldermen of New York to be placed in charge of the erection of a new bridge for foot and carriage travel over the Harlem River at 181st Street. This was in accordance with an act passed by the State Legislature authorizing and directing the construction of such a bridge. On October 15 of the same year the commissioners advertised for competitive designs. In order to secure a number of meritorious plans, the following premiums were offered: $1,500 for the best design, $1,000 for the next in merit; and $500 for the third best. It was directed that the designs should be accompanied by specifications and approximate estimates of cost, and they were to be submitted before December 1. Restrictions were imposed upon the designs; a clear river space of 400 feet between the piers or buildends was to be provided for, and the grade of the roadway was to be 145 feet above mean high water. A steel or iron superstructure resting on masonry piers was specified as the type to be adopted.

The designs to which the first and second prizes were awarded were submitted by Mr. C. C. Schneider and Mr. Wilhelm Hildebrand respectively. On comparing these designs with the bridge which has now been completed, it will be seen that the plans were followed quite closely as regards general features. Both were given in the SCIENTIFIC AMERICAN of March 6, 1886.

About the time of the centennial of the inauguration of Washington as President of this country, the bridge was thrown open without formality. Partly from the anniversary upon which it was completed and opened, and partly from its contiguity to Washington Heights and Fort Washington, the bridge was named the Washington Bridge. In our illustration we show the completed structure as it appears from the elevated ground on the western bank of the Harlem River, near 192d Street. Its general plan was the outcome of the conditions of the ground. An excellent place for one pier was determined by the presence of a bed of rock. The necessity of spanning of the river on one side and of the low ground on the other side dictated the two arch construction. The plan, as a whole, cannot well be attributed to any one man, but may be considered an outgrowth of many consultations of the engineers associated in its construction.

The foundation for the central pier rests upon a caisson, 104x54 feet, with roof 6 feet and sides 3 feet thick. Fifteen feet below the surface of the water rock was reached, its surface sloping toward the river. The caisson was with much difficulty carried downward, the rock being removed by blasting, until a depth of about 45 feet below high water was reached. Incandescent electric lights were used to light the interior



They were responsible for the apse and transept of the Cathedral of St. John the Divine, and the Astor Court buildings in the Bronx Zoo, a complex that is a good example of the original aesthetics of the City Beautiful movement. Heins and Lafarge also designed the architecture and details of the Interborough Rapid Transit Company, the first subway system of New York. They designed many buildings and subway stations around the city, most notably the City Hall Loop, with the collaboration of the Spanish architect Rafael Guastavino.

Cass Gilbert

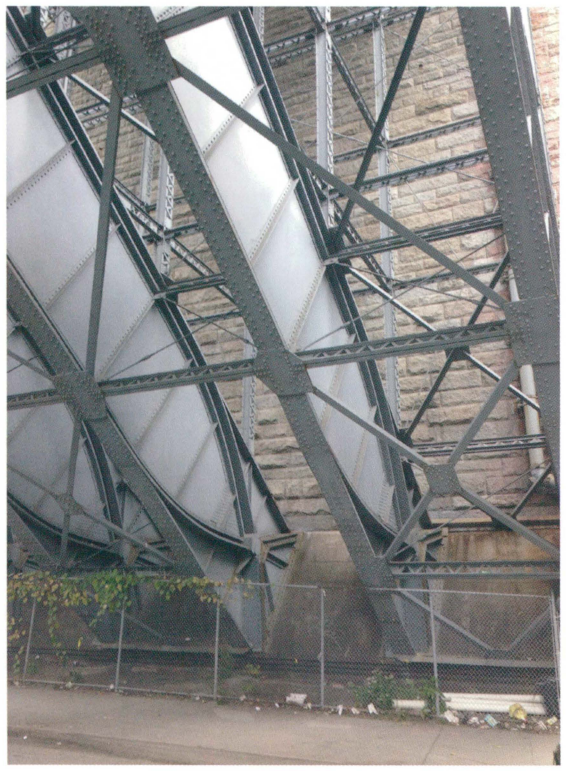
Among the disciples of Charles F. McKim is Cass Gilbert (1859-1934), author of Woolworth Bldg., the second high-rise building in New York, with 55 floors in Gothic style, completed in 1913. The steel structure of 238 m high required foundations more than 30 m deep, overcoming clay and alluvial soils with footings and concrete walls. It was constituted by great section pillars braced with toggle anchors [39:12].

Cass Gilbert assisted in the design of towers, piles, abutments and access to all the important bridges of New York, such as the Hell Gate, George Washington, Bayonne and many others, working in team with Gustav Lindenthal and Othmar Ammann (see Chapter 12).

Washington Bridge (1889)

Washington Bridge (Schneider, 1889) was built at the beginning of this period. It was the first bridge of some importance for traffic over the Harlem River, and the third bridge in Manhattan, after the aqueduct and pedestrian High Bridge (1848) and the Brooklyn Bridge (1883). The place chosen, at 181st St., foreshadowed one of the strategic enclaves of the budding metropolis, subsequently used by Othmar Ammann as the axis of circulation to locate his George Washington Bridge in the early 1920s (see Chapter 8).





Washington Bridge (Schneider, 1889)

The Washington Bridge is little known, but truly remarkable both on account of its strategic location and its structural design of arch and tympana, due to engineer Charles C. Schneider (1843-1916), with an excellent formal outcome.[16] Schneider had designed the cantilever bridge over the Niagara (1883), and was a civil engineer concerned about the overall work of the profession, editor of various specifications for bridges and structures, and later president of the ASCE in 1905.

Schneider solved the junction with two large two-hinge arches of 160 m (510 ft) of span, of solid metal, and enough edge to assert its main role. The tympanum, however, is a fine network of small and light metalic elements. Tympanum and arch stay away from the prevailing technological aesthetic, monopolized by the strong triangular lattice, used by the great engineers for all bridges of a certain span, from Gustave Eiffel to Gustav Lindenthal, closer to home, and all the Americans creators.

The design of the transition from the solid section into the joints that support the arc is met with great success and in a very modern way, so to speak. It solves correctly the concentrated flow of compressions, unfolding the top and bottom base plates with a graceful curve facing the hinge, while maintaining its outer straight extension in the stretch that is free of stress.

Bearings design

Thus, it conjures the visual effect of strangulation typical of two-hinged arches, usually too thin precisely at the point of greatest concentration of stress. From afar, the arch seems solidly built-in the supports, but closer, the device of the joint appears perfectly solved, both in terms of resistance and of visual display. With this solution, the hinge does not need to have a great dimension to explain its importance, and it is integrated into the arch itself.

In 1900, critic Montgomery Schuyler applauded it as *an admirable and exemplary work, perhaps the most conspicuously successful monument that American engineering has produced... The bridge proper... difficult to over praise. The completed work so perfectly and evidently fulfills its function and fills its place that the general scheme seems to the spectator a matter of course* [154:121].

Washington Square Arch (White, 1889)

In the monumental domain, one of the first and most emblematic works of the firm McKim, Mead & White is the Triumphal Arch located in Washington Square, common place of protest and demonstration in the City of New York, alongside Union Square. It was designed in 1889 following the Paris Triumphal Arch of 1806, in white marble with figures of war and peace, to celebrate the centenary of the proclamation of George Washington as president, to whom it was dedicated in 1895.

Although much smaller than its French model, the arch is well proportioned with the long and landscaped buildings North of the square, the only vestiges of the young University. Subsequently NYU has emerged as one of the greatest speculators of the city, with a fringe of bulky and unfortunate buildings surrounding the East and South of the square. Further South, NYU promoted and built two long landscaped blocks of modernist style and three huge towers of dormitories for students, quite alien to the character of the Village.

Threats and character of the square

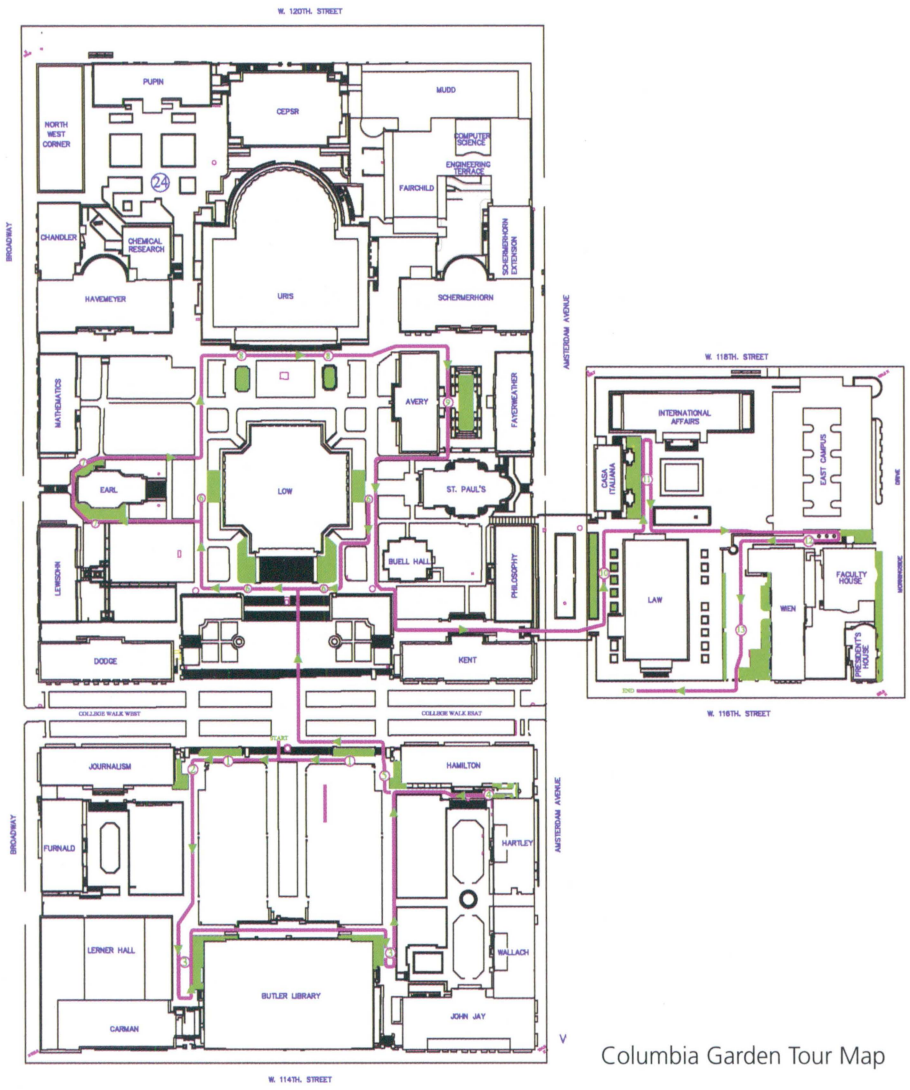
The square itself was also subject to many changes and trials. Before finally becoming a park, the square housed a cemetery, a mass grave, a place for temporary executions with a pitchfork and an esplanade for military parades. In the mid-nineteenth century, it was decorated with a geometric design, a wrought iron like the Georgian squares in London, and a circular fountain.

Traffic crossed the square for over one hundred years, until it was finally declared pedestrian in 1965, but not before suffering two attacks by Robert Moses. The first occurred in 1935, when Moses proposed turning the square into a giant roundabout for vehicular traffic. This new resort to his Parisian model was derailed by popular protest and the advent of World War II, but the threat re-emerged with an even more aggressive scheme for the city in the late 1940s.

For fifteen years, Moses multiplied the alternatives to prolong Fifth Ave. to the South, but the protest, coordinated by Jane Jacobs, managed to stop the destruction of the square and of an important part of Greenwich Village. Many of the consequences of this are still visible, both in the form of excessive construction, such as the above-mentioned by NYU, and the remnants of the demolitions undertaken to widen the streets (see Chapter 14).

Columbia University

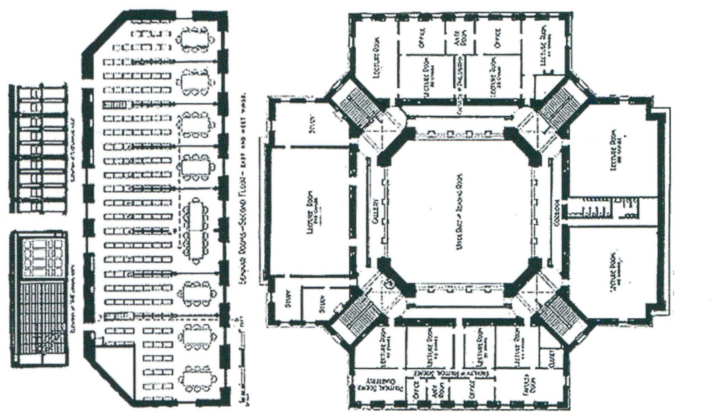
The campus of Columbia University occupies two blocks and is crossed by 116th St., now pedestrianized, with the older buildings to the North, and located on a terrace with a grand staircase of two sections. The set of classic buildings with some modern additions are located along the perimeter, leaving a central plaza with sculptures and gardens, dominated by the dome of the Low Library (Charles F. McKim, 1897). Currently, the monumental library is used as venue for performances and ceremonies. At the top of the stairs to the terrace in front of the portico with Corinthian columns of the library, perhaps the most emblematic of the campus, is the famous bronze statue *Alma Mater,* by sculptor Daniel Chester French (1903), a figure with open arms raised, crowned with laurel, and covered in sumptuous robes of rich folds.

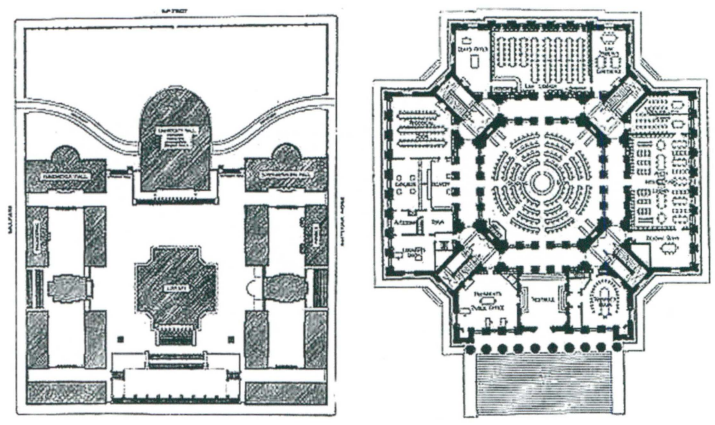


Columbia Garden Tour Map



Columbia University, 1910. Success Postal Card Co.
New York Public Library





Low Memorial Library, Columbia University, 1898-1899. McKim, Mead & White architects. Inland Architect, Ryerson and Burnham Archives, The Art Institute of Chicago.

Worthy of mention is also the small and exquisite St. Paul's Chapel (Howell & Stokes, 1907) located at its East side, with a beautiful dome by Rafael Guastavino. And further North is the Avery Hall (McKim-MM & W, 1912) which houses the School of Architecture and the Avery Library, one of the best architecture libraries in the world, that extends beneath the entrance plaza and its surroundings [166: 467].

Currently small lawns and multiple courtyards surround the various old buildings, forming squares and lounge areas within the atmosphere of the university. Schermerhorn Square, between Avery and St. Paul's Chapel, stands out, delimited by high planters with shrubs and ground vegetation, from which some maples emerge, and an old basin at its center. A smaller and less crowded courtyard is located opposite the Urish Hall, behind Low, in which Curl's sculpture of black tubes is located.

Across Amsterdam Ave., which can be crossed through an elevated pedestrian crossway which overlooks the Revson plaza in front of Law, are the gardens in front of the Casa Italiana and Wien Courtyard between Law and Wien. This crossing allows a





Low Library (McKim-MM&W, 1897)





St. Paul's Chapel (Howell & Stokes, 1907)





Northwest Corner Building (Moneo, 2010)

Connections of the Northwest Corner Bldg. with Chandler Bldg.

continuity in the tour of the gardens. All these green spaces were enriched with planters containing flower mixed plantations of perennials and flowering shrubs (laurel, cherry, barberry, hydrangeas, dogwood, etc.), providing seasonal coloring, by Lynden B. Miller, well-known landscape architect hired by Columbia in 1996 to conduct improvements on the occasion of the 100th anniversary of the University, including the plantations of the main central square, known as Centennial Beds.

Unlike other universities scattered throughout the city, Columbia has a well-defined campus and generates life around it, concentrating students, teachers and administrators. This urban 'island' maintains its monumental and stately character with regard to the adjoining neighborhoods. Subsequently the university, owner of the adjacent land, gradually expanded, occupying contiguous blocks with various residences and seminars.

Additions by Moneo and Tschumi

Many additions to the campus are located outside of it, with the exception of the student center Alfred Lerner Hall (Bernard Tschumi, 1999) and the Northwest Corner Building (Rafael Moneo, 2010), built over the previous Francis S. Levien Gymnasium, leaving a small gap with stairs and elevators, which remains as a transparent space of visual communication between the entrances and the inner square of the Campus.[17]

The Institute Park Plot

The Brooklyn Museum (MM & W, 1895) is located next to the Brooklyn Botanic Garden (MM & W, 1918) in the elongated triangle defined by Flatbush Ave., Eastern Ave. and Washington Ave., and excluded from the limits of Prospect Park by Frederick Law Olmstead to prevent it being crossed by Flatbush Ave. The triangle excluded from

the park was acquired for the construction of the museum by the Brooklyn Institute of Arts and Sciences, founded in 1890, and received the name of Institute Park. This predecessor of the museum, in full rivalry with the Metropolitan Museum in New York, commissioned the project to Charles F. McKim. The consolidation of the five boroughs in the single city of New York delayed construction until 1925 and reduced its surface to one fifth of the original.

Brooklyn Museum of Art (1895)

The Brooklyn Museum of Art is a classical building with a large central hall surmounted by a dome, two prismatic wings on the sides and a portico of six purportedly Ionic columns of twisted shaft, with an ornate pediment above. The most remarkable feature of the building was its elevated position, enhanced by Charles F. McKim with a staircase in two sections, that allows it to dominate over Eastern Ave. from the entrance. Its back opens towards the Botanical Gardens and the large park, located at a lower level, and on terrain that stretches to the South (see Chapter 5).

Reform by Lescaze (1930)

By 1930, the building was completely transformed with funds from the Works Progress Administration (WPA), taking the natural sciences department to another building so as to dedicate the old one to the Arts, reforming the whole interior with a rather bland solution. The project of reform by William Lescaze moved the main entrance to the ground floor, making an opening under the staircase itself, so that the main reason for the building lost its meaning. The lobby is currently a neutral hall of low ceiling devoid of any interest [166: 729].

In the late 1980s, the museum considered another remodeling and held a competition won by Arata Isozaki and James Stewart Polshek with a proposal centered around a truncated pyramid of 50 m height, placed in the center of the plot, behind the primitive dome and sheltered by a new West wing. The proposal reinstated the grand staircase of the building by Charles F. McKim and added two lateral ramps. In the back, it opened towards the park with walkways at an angle and it recovered a large pond on the site of an old, extinct water tank.

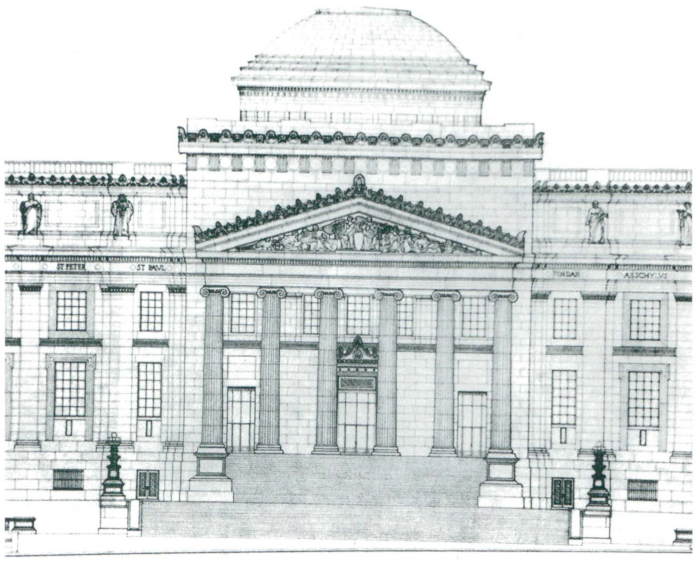
Reform by Polshek (2004)

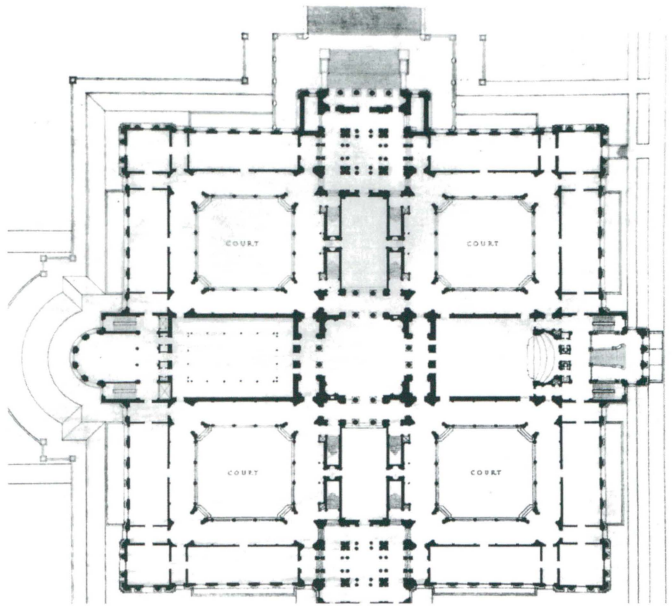
New budget constraints forced to reduce the initial plan to a number of separate interventions. The idea of recovering the entrance staircase was lost, new teams of architects intervened, and a controversy developed with the involvement of the New York Landmarks Conservancy, which finally authorized the new entrance plaza with glass entrance proposed by James Stewart Polshek after the withdrawal of his earlier idea.

The old monumentality is recalled by a semicircular plaza attached to the building and equipped with ascending landscaped ramps, with stairs to the side. The entrance to the building remains at the ground level, sheltered under a very technological curved glass canopy supported on columns. The entrance hall is now more spacious and bright thanks to a tapered skylight of the same slope as the stairs.

Brooklyn Botanical Garden

Meanwhile, the Brooklyn Botanic Garden was successively enriched with a Japanese garden, a rose garden, an esplanade of cherry trees and in 1984 with three octagonal pavilions and a rectangular glass conservatory. The enlargement is located South and aligned with the administrative building and the original conservatory of Charles F. McKim, parallel to Washington Ave., and where the entrance currently is (see Chapter 14).





Brooklyn Museum
(McKim, Mead & White, 1895)





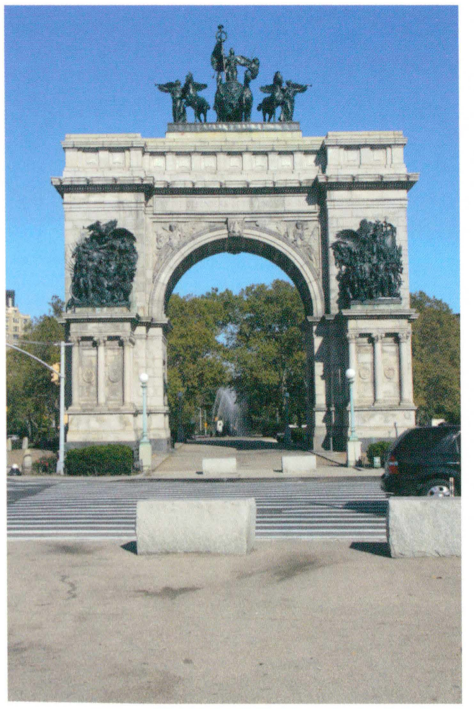




Brooklyn Museum of Arts, new entrance

Brooklyn Botanical Garden, pool and conservatories (1914, 1984)

Brooklyn Grand Army Plaza





Brooklyn Grand Army Plaza

The northern end of the plot of the Institute Park opens to the Grand Army Plaza, (Olmsted & Vaux, 1870; White-MM & W, 1901) and contains the Brooklyn Public Library, another classical building also conceived at the end of the century but postponed until the 1930s, when it was realized with the same WPA funds and a new draft by Githens & Kelly from 1937, partially built in 1941. The foundation of one of the wings was already done, and the new project adopted a cheaper modernist scheme, leaving an eclectic result in the most emblematic site of the city [152: 139].

Precisely there, in the southeast corner of the Grand Army Plaza, began the Eastern Parkway designed by Frederick Law Olmsted and Calvert Vaux to link Prospect Park to Central Park, crossing half of Brooklyn and the whole of Queens (see Chapter 5). The oval design of the square was also made by Olmsted and Vaux with a large axis oriented to Prospect Park, highlighted by a triumphal arch built by John H. Duncan in 1901, with various reliefs and spectacular chariot above planned by Stanford White [166: 723].

Met Life Building and Tower

The Metropolitan Life Building (Napoleon Lebrun, 1883) (now known as MetLife North, to distinguish it from the one located above Central station at Park Ave., formerly known as the PanAm Bldg.) is a huge, roughly horizontal building, which was later (1903) provided with a tower. It occupies an entire city block of large volume, but the facade is modulated into six units and retracted to mitigate its massive presence. Every six or eight stories there is a break or a change and the facade is projected inward at an angle in the more narrow street and outward onto the square. On the ground floor, the corners are opened with gate arches to accommodate a porch under the gates, contributing to 'lighten' the block.

Thomas Bender sees a change in the aesthetic acceptance of verticality as a monumental element towards 1915. In 1961, the entire building underwent a major rehabilitation and the tower was visually separated from the building to which it seemed



Met Life North (Napoleon Lebrun, 1883 y 1903)



Metropolitan Life Insurance Co. Buildings.
Herbert Gehr/ The LIFE Collection/Getty Images









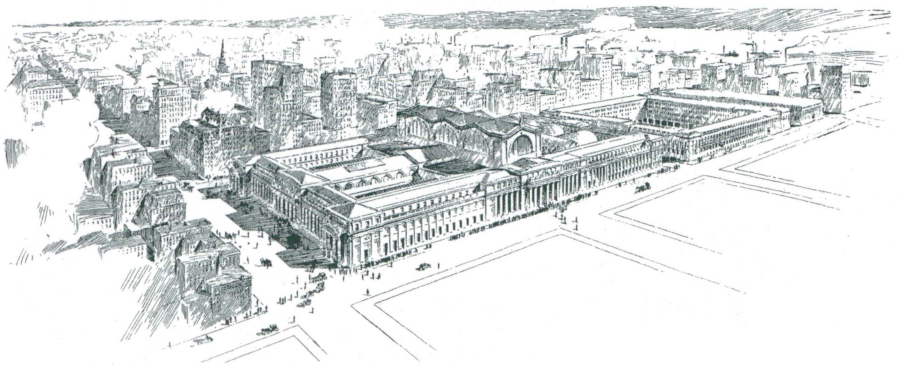
Met Life North

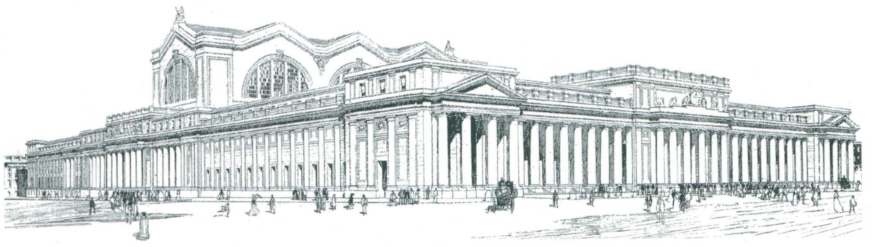
to belong. That would have been unthinkable before 1930, when the monumentalism was still identified with horizontality, and such a slender tower separated from the building was unacceptable [17:45].

Architects Carrère and Hastings, designers of the New York Public Library (1911), had studied at the École des Beaux Arts in Paris and were very familiar with French architectural ideas. They took the ideas of the Opera and other public buildings and adapted them to New York to create this masterpiece.

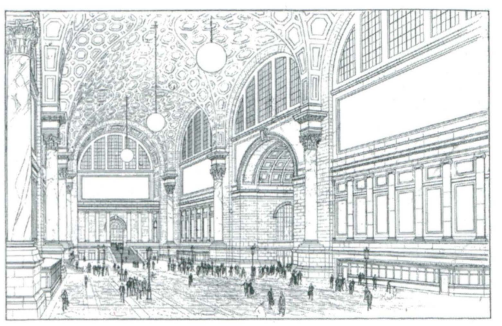
The building spans over more than two full blocks. It is built in marble from Vermont, with the intention of being a magnificent and imposing building, one meant to make one reflect on the greatness of New York and of the great library

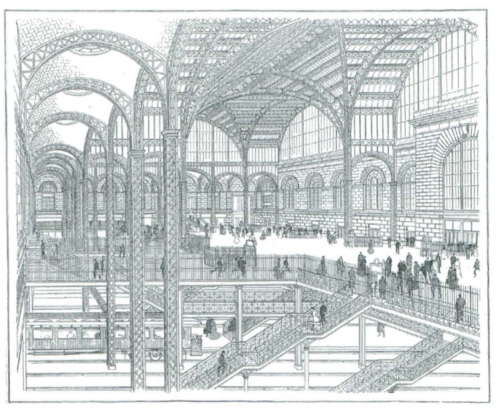












West End of South (31st Street) Facade. Pennsylvania Station. Courtesy of the Library of Congress.

Concourse from Southeast, Pennsylvania Station. Courtesy of the Library of Congress.

Pennsylvania Station, perspective and bird's eye views, 1907. McKim, Mead & White architects. Inland Architect, Ryerson and Burnham Archives, The Art Institute of Chicago.

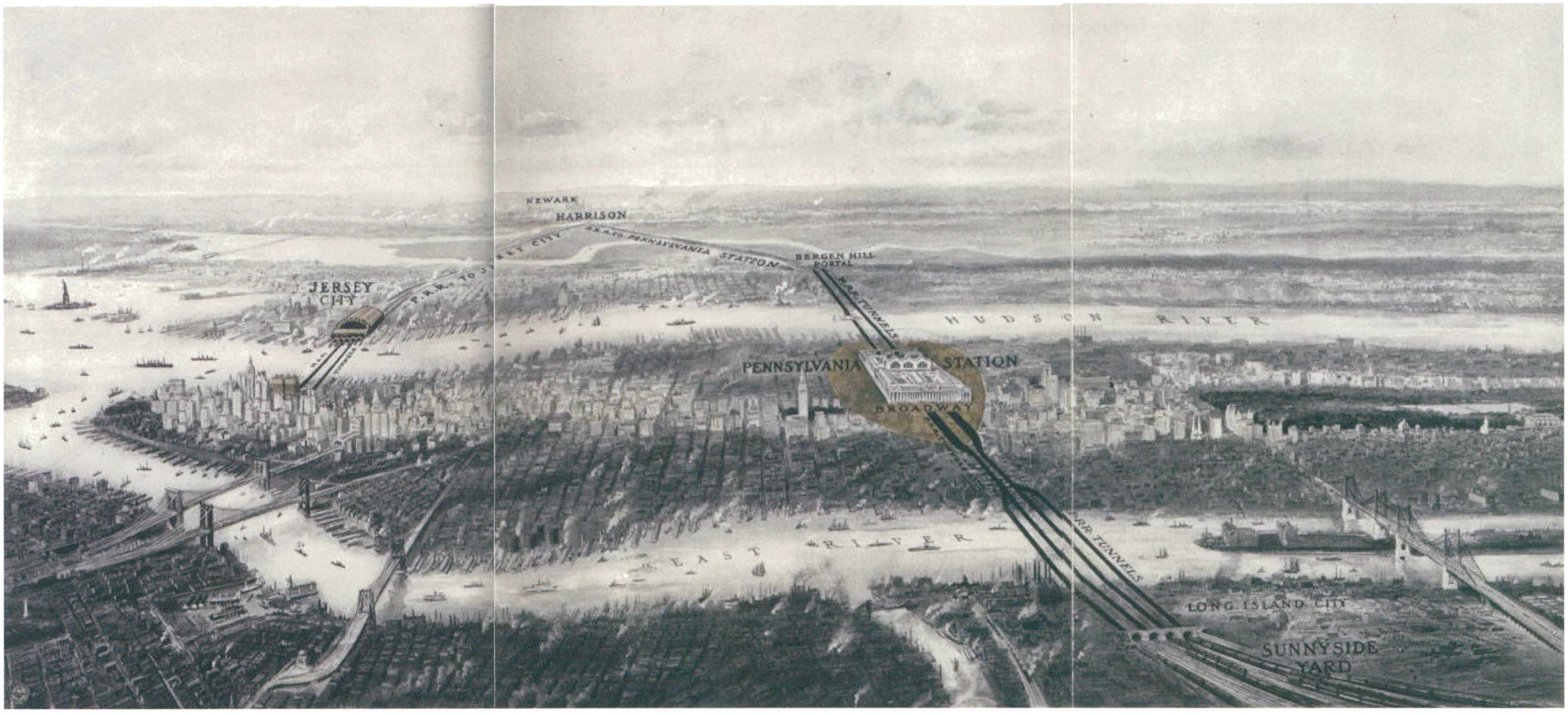
Views of Waiting Room and concourse and tracks, 1907. McKim, Mead & White architects. Inland Architect, Ryerson and Burnham Archives, The Art Institute of Chicago.

that it aspired to be. It is also a public library, planned to welcome the public. In fact, of all the great libraries of the world, is the only public library where anyone can come in and order a book without having to seek permission or obtain a library card to use it.

As mentioned, this book can not enter into the study of what was destroyed or proposed but, due to its connections with other important buildings, it is necessary to mention here the Pennsylvania Station, demolished in 1963.

The station was born in 1910, as the result of competition between the railroads of Pennsylvania and New York Central, and the design of both is very intermingled. In July 1902, Charles F. McKim, MM & W was commissioned to design the Pennsylvania

Pennsylvania Station (1910)



Pennsylvania Station in the Heart of New York City: Looking from Long Island.

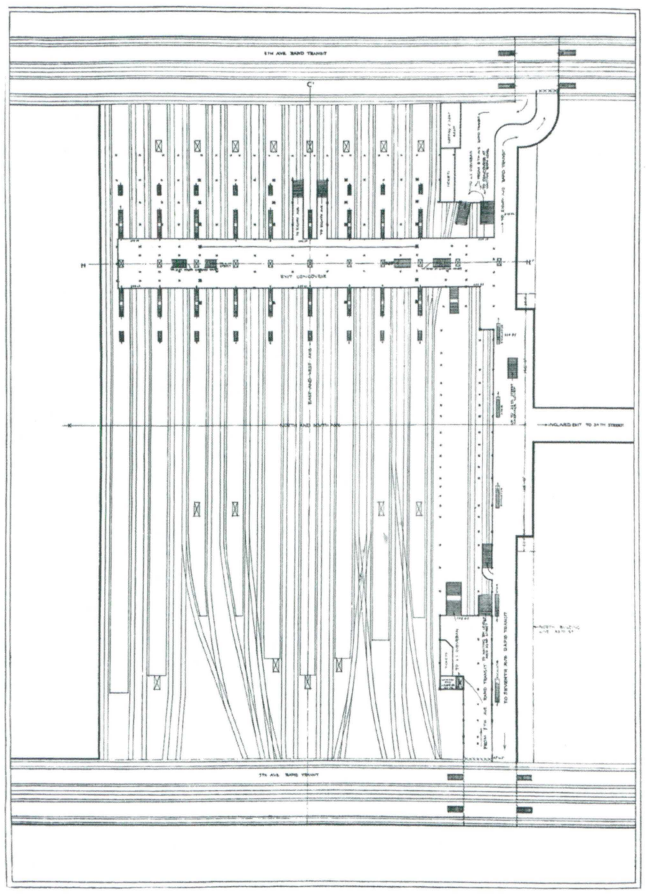
Station and eight months later the other railroad decided to remodel its station, Grand Central Terminal (see Chapter 7), calling for a contest the following month, in January 1903 [116].

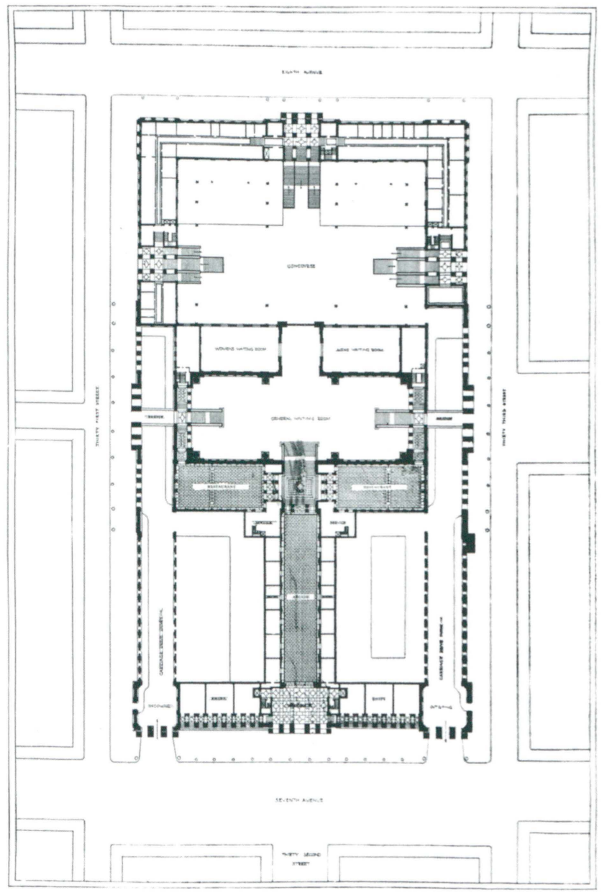
In both cases, it was already decided to electrify the lines to put them underground, so that the main function of the stations was to channel the flow of passengers into the underground tracks. However, both railroads wanted large buildings to display their power and each of them modified its designs, as its competitor advanced.

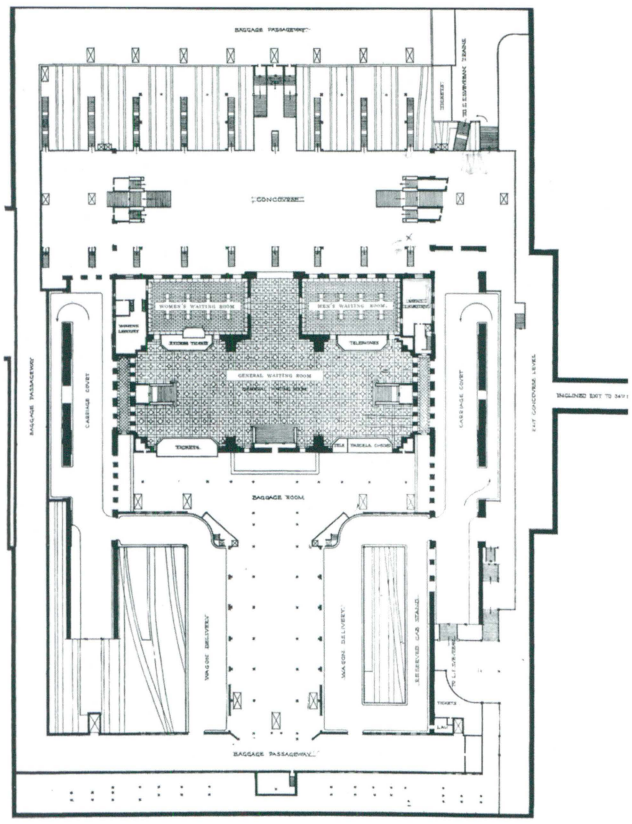
Impress, overwhelm and dignify

As Hillary Ballon notes, *Pennsylvania Station did not aim to please. It aimed to impress, to overwhelm, and to dignify the visitor trough the grandeur of its architectural forms and the ceremonial quality of it plan. Penn Station did not make you feel comfortable; it made you feel important* [12:53].

For Charles F. McKim, this was the culmination of his work and his largest commissioned work, and he designed a huge and monumental building around three key moments in the role of a station: the entrance, the waiting room, and the access to the trains. He decided to take three models of monumental architecture: the portico with columns, the Roman baths, and the iron and glass roof. Specifically, the Athenian Propylaea, the frigidarium of the Baths of Caracalla and some European railway station, manipulated and combined to achieve a ceremonial route in a large building embedded in the New York grid.

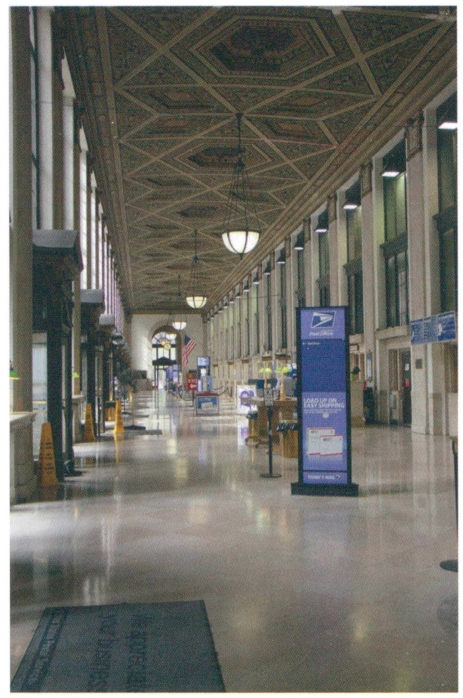






Pennsylvania Station (MM&W, 1910)





Post Office (MM&W, 1909).
Courtesy of New York Transit Museum.

Modernity and tradition

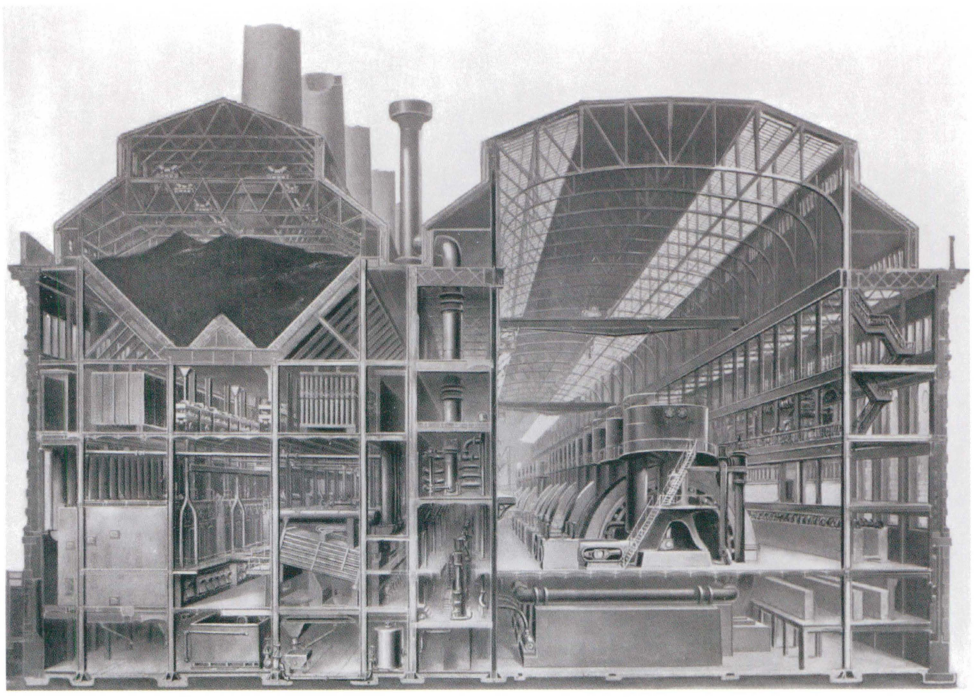
These historical elements were intertwined with steel lattice, large glazed planes and coexisted with the power of electricity and locomotion, in a desire to merge modernity and tradition without any prejudice about materials and processes. An entrance of massive granite columns gave way to a covered lounge with a long barrel vault, made with a plaster ceiling hung from a metal frame, and led to a large space with the railroads located 13.5 m (45 ft) below and covered by a sophisticated structure of steel and glass. In a very personal way, McKim used ancient forms solved with modern materials and techniques, in a recreation of the classical language of architecture [144: 60-69].

The construction of the Pennsylvania Railroad Station in Manhattan required the demolition of 500 buildings and the eviction of some 6,000 people. Everything was done very fast, purchasing more than 100 plots in just two weeks, thanks to irresistible sums paid in cash to the working class owners, closing the sale process within 30 days. The Pennsylvania Station was begun in 1906 and completed in 1910, four years after the death of McKim.

Post Office (1913)

In 1906, the federal government bought the air rights of the site located west of the Pennsylvania Station, to build a federal post office, while the Railroad remained the owner of the tracks and kept its operation. The annex to the Central Post Office was conceived as a key element of the Grand Central Station complex, meant to provide office space associated with the Railroad in the upper floors, while the lower floors were leased as a postal facility. The structure built was only part of a much larger compound, although the planned expansion at its southern side was never realized.

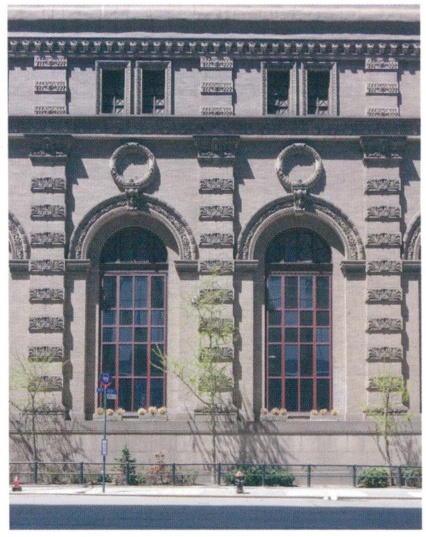
The competition for its construction did not specify that the design should be in harmony with the nearby Station, but the jury chose Charles F. McKim, MM&W, in 1908, and the federal government allowed the Pennsylvania Railroad to define the character of its post building. Its construction started in 1909 and





Cross Section of Powerhouse in Perspective, facing west

IRT Powerhouse (MM&W, 1904)



it opened in 1913. It was the first completed building of the complex in the same style.

In 1932, the federal government bought the building from the Railroad, and between 1937 and 1938, under the new leadership of the United States Postal Service, important modifications, designed by architect consultant Carroll Pratt, were carried out. The four lower floors were completely demolished and rebuilt inside for the Post Office, without maintaining any of the original partitions and interior. The upper floors were remodeled as government offices. At the same time, small changes were undertaken in the exterior: some new windows were installed, others were partially covered, and some structures were added to the roof [73: 1-8].

Alterations in the 1930s

However, the building ha s retained its four façades of granite and classical limestone quite well, and has maintained its importance and civic character in the landscape of Eighth Avenue and 31st St. and 33rd St., even at the rear facade facing Ninth Ave., of a somewhat more industrial character, and disrupted by the fence that separates the avenue from the railroad siding located to the west.

IRT Powerhouse (1904)

The Interborough Rapid Transit Company Powerhouse — now Consolidated Edison (Stanford White-MM& W, 1904) (58th St. and 59th St. at Eleventh Ave. and Twelfth Ave.) is a temple to power with brick and terracotta exterior by Stanford White, which had six tall chimneys for the fumes of the enormous coal boilers. The coal came in barges on the Hudson and was transported with conveyor belts to the bunkers. The ashes were disposed of through the same route [166: 250].

The Town Hall

The Town Hall is a theater located at 123 West 3rd St., built by The League for Political Education in 1921, with a project of the firm MM&W. The design was meant to reflect the democratic ideas defended by the League, so that the room lacks the traditional boxes, and the 1,500 seats have full visibility of the stage. Initially aimed at political and educational conferences and events, it also hosted musical and other artistic performances, thanks to its good acoustics.



Manhattan Municipal Building Rotunda
(Guastavino, 1915)

Over the years, it became a venue for artists' first performances and lectures of famous newspapers contributors, and the talk show 'America's Town Meeting of the Air,' broadcast on radio for over 25 years, starting in 1935, in which several guests discussed a predetermined topic.

Manhattan Municipal Building

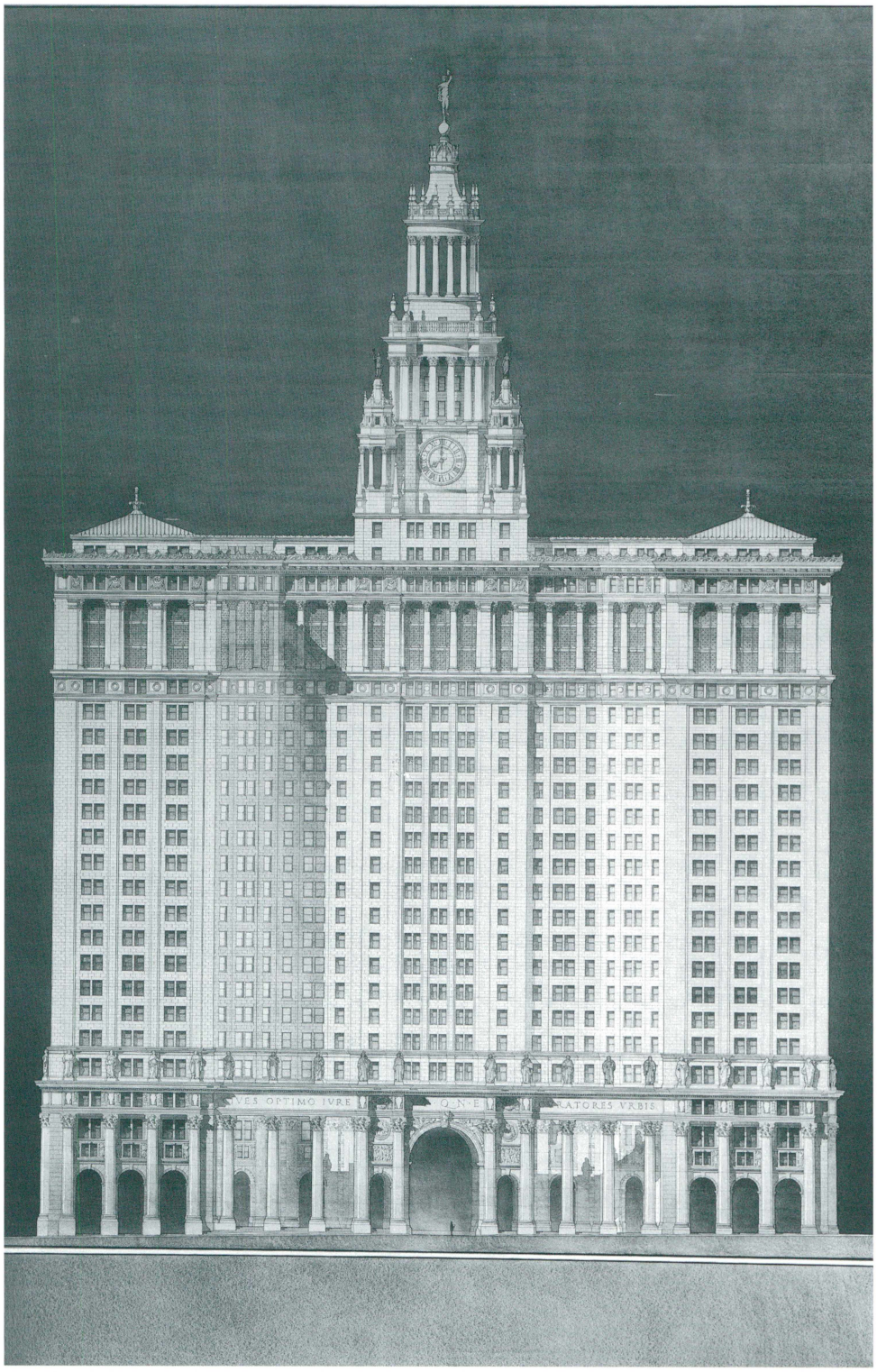
With its characteristic recessed façade featuring a large central tower and 40 floors high, the Municipal Building occupies a central place in New York in the early twentieth century. It was designed by William M. Kendall-MM&W and built between 1907 and 1914 to meet the growing demand for municipal offices in a city in rapid expansion. Years later, it became the headquarters of the Manhattan Borough, prefixing the name of the island to its name.

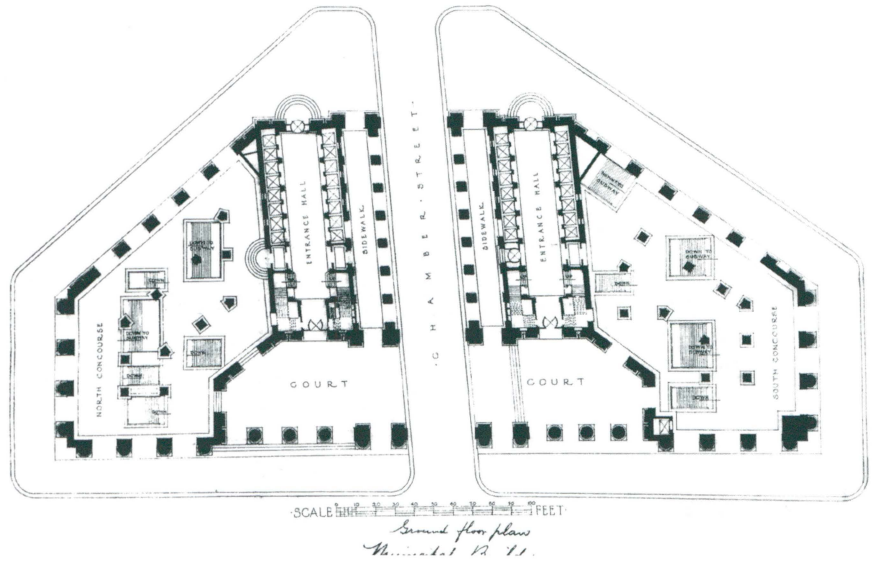
It is situated in a prime site in front of the park that contains the New York City Hall and the Old Courthouse (Tweed Courthouse), and next to the New York City Supreme Court, in what could be called the institutional heart of the city. On the other side, tangentially to the site, branch out the accesses to the Brooklyn Bridge and Park Road, as direct route to the Manhattan Bridge. It was also the first building to incorporate a subway station.

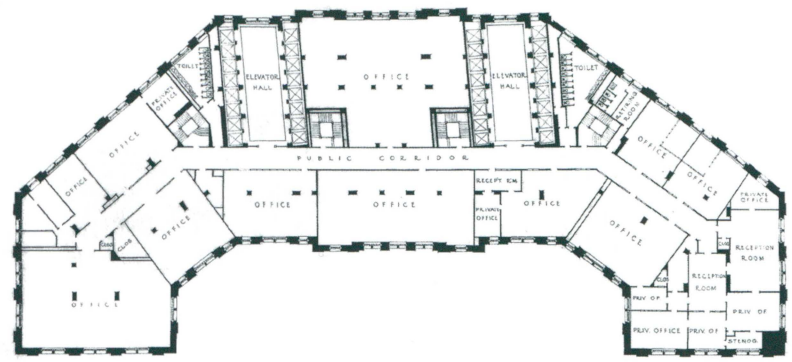
Central arch, arcade, and rotunda

Its height is 180 m (580 ft), mainly due to the central tower located over 25 floors of offices that house some 13 municipal services agencies. It is designed in the typical Beaux Arts style, with all sorts of classical influences, planned as a series of winks to the citizen. In the central axis of the ground floor, for example, was set a sheltered pass under a Roman-style triumphal arch, in continuity with Chambers St., now a pedestrian street. And the perimeter of the building is run by an arcade, as a summons to the openness and transparency of municipal affairs to the citizen.

In the southern corner of the building, right at the entrance of one of the branches of the Brooklyn Bridge, the perimetral arcade opens to a rotunda covered with ceramic vaults by Rafael Guastavino. It houses the access to one of the first major New York Subway stations, with a floor plan of complex geometry, solved with double-barrel vaults over stone columns around the stairs leading to the station.







West Elevation. Municipal Office Building for the City of New York, 1907.
Competitive design for the Manhattan Municipal Building



Main works by Guastavino in NY
1 Ellis Island Immigration Station
2 Rotunda U.S. Custom House
3 City Hall Loop
4 Wolfgang SteakHouse
5 Grand Central Station
6 Queensboro Bridge Market Food Emporium
7 St. John the Divine
8 Columbia University - St.Paul's Chapel



Ceramic vaults

Rafael Guastavino in New York

Rafael Guastavino y Moneo (1842-1908) emigrated from Valencia to the United States towards 1880. Shortly after, he founded the Guastavino Fireproof Construction Co. to build vaults laminated with ceramic layers. It was an update of an ancient Catalan technique with the use of high-quality Portland cement.

Guastavino's system was more resistant to fire than stone itself, being able to withstand temperatures greater than stone without brittling. Furthermore, the layer could be built without falsework, in successive threads that were supported in the previous ones to move forward.

From 1890-1920 the Guastavino system was frequently used replacing the old plaster vaulting until concrete began to be economically competitive. The fact that the above-mentioned materials possess excellent acoustic properties allowed the company to survive until the beginning of the 1970s. With this system, his eldest son managed to raise a dome of 30 m (97 ft). of span at 50 m (162 ft). of height above the transept of the Cathedral of Saint John the Divine, as well as other smaller domes in the crypt, the Tiffany chapel and indoor [56:59].

The techniques used by Rafael Guastavino in the campus of Columbia University and especially in the chapel of St. Paul must have been the envy of Charles F. McKim, preoccupied as he was by the fact that America had yet to build a dome comparable to that of Saint Peter in Rome [56:59]. The great metropolis, capital of the world, was 'forced' to emulate European capitals, in a spirit similar to that of John A. Roebling, who designed the towers of Brooklyn Bridge as 'great cathedrals.'

In numerous embodiments in all types of buildings, the constructive system of Guastavino demonstrated its flexibility to adapt to any situation and geometry,



with a neat and easy to read end result. The possibilities of colors and finishes were remarkable and could provide an adequate canvas to achieve any character, from the functionality of a porch open to the public to the golden intimate warmth of a restaurant.





Oval dome of the Rotunda in the US Custom House (Cass Gilbert, Rafael Guastavino, 1907) (National Museum of American Indian, since 1994)

Located near the entrance, of oval floor plan and three stories high, is one of the most attractive meeting spaces of the old Customs building, designed, against usual convention, facing the town instead of the port. It is a huge and rich building, about seven stories high and 45,000 m^2, designed with great magnificence by Cass Gilbert, usual collaborator in many large harbor projects, and by a large set of artists. With facades of large columns crowned by capitals featuring Mercury, the god of trade, and four large female figures representing America, Asia, Europe and Africa in its monumental entrance staircase, the building houses an interior dedicated to marine creatures, demonstrating the preeminence of New York in maritime trade.

Previous page: City Hall Loop
In the City Hall Subway Station, Rafael Guastavino made the roof of the tracks and the outer platform, of curved floor plan, where the convoys turn around to head back north of the city. The City Hall Loop was the terminal of the first line of New York Subway, built by the Interborough Rapid Transit Company (IRT), with an elegant design by Heins & LaFarge based on natural lighting, ceramic domes, stained glass and chandeliers. At present it is closed to the public, but it can be seen from the wagons, staying inside when the train reaches the end of the line and turns to get on the opposite platform. Its curved floor and gilded ceramic parts give rise to a unique image, icon of the famous Gilded Age of New York.

Wolfgang Steak House (Warren & Wetmore, Rafael Guastavino, 1913)

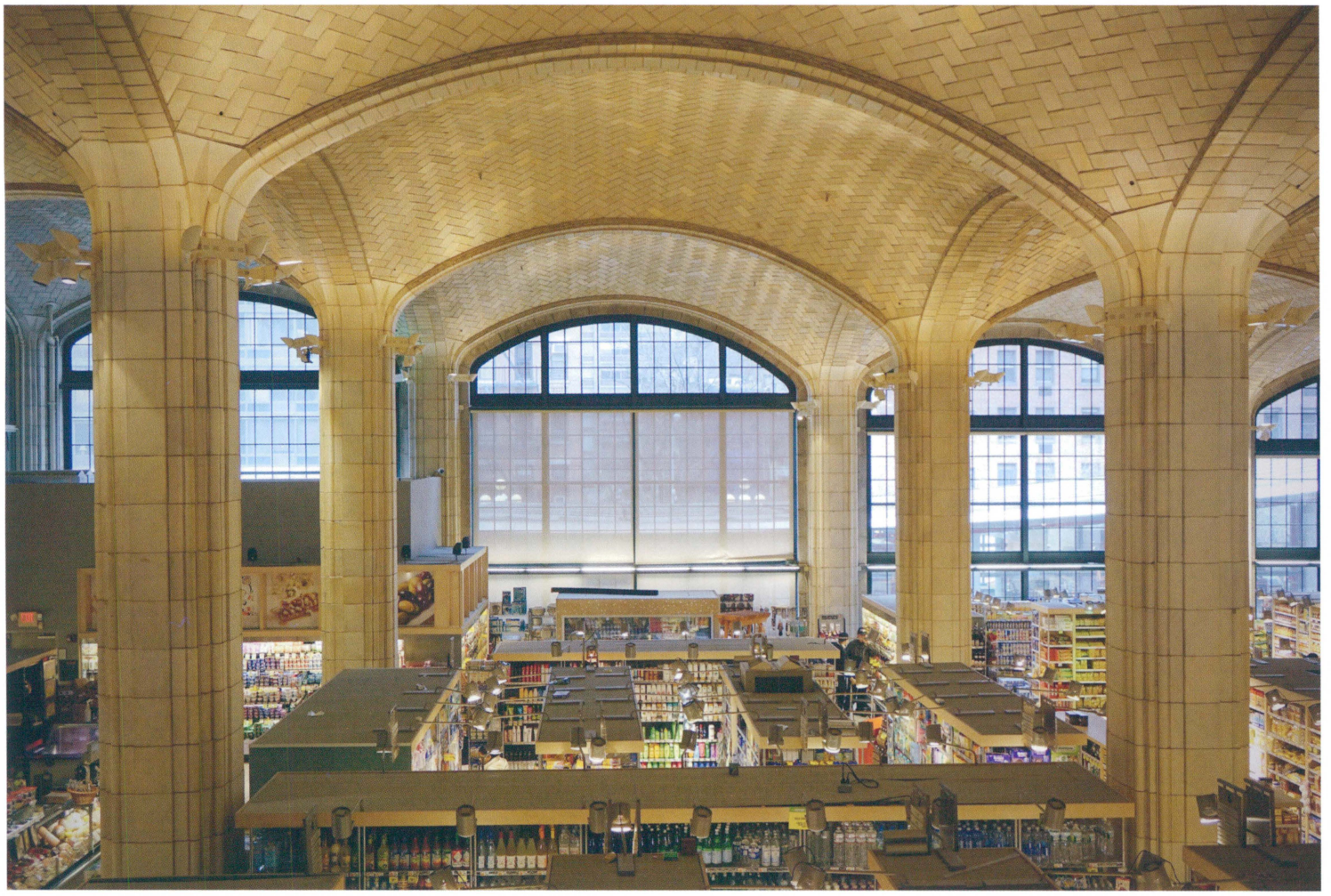
In the site of the former restaurant Della Robia, in Vanderbilt Hotel (4 Park Ave. at 33 St.). It is covered with white, low ceramic vaults, framed by navy blue arches with highlighted rope motifs in white, in parts manufactured by the Rookwood Pottery Company. The color and the proximity of the material provide a delicate and warm character, different from the other vaults, outdoors or in more institutional buildings, designed by Guastavino.



Oyster Bar

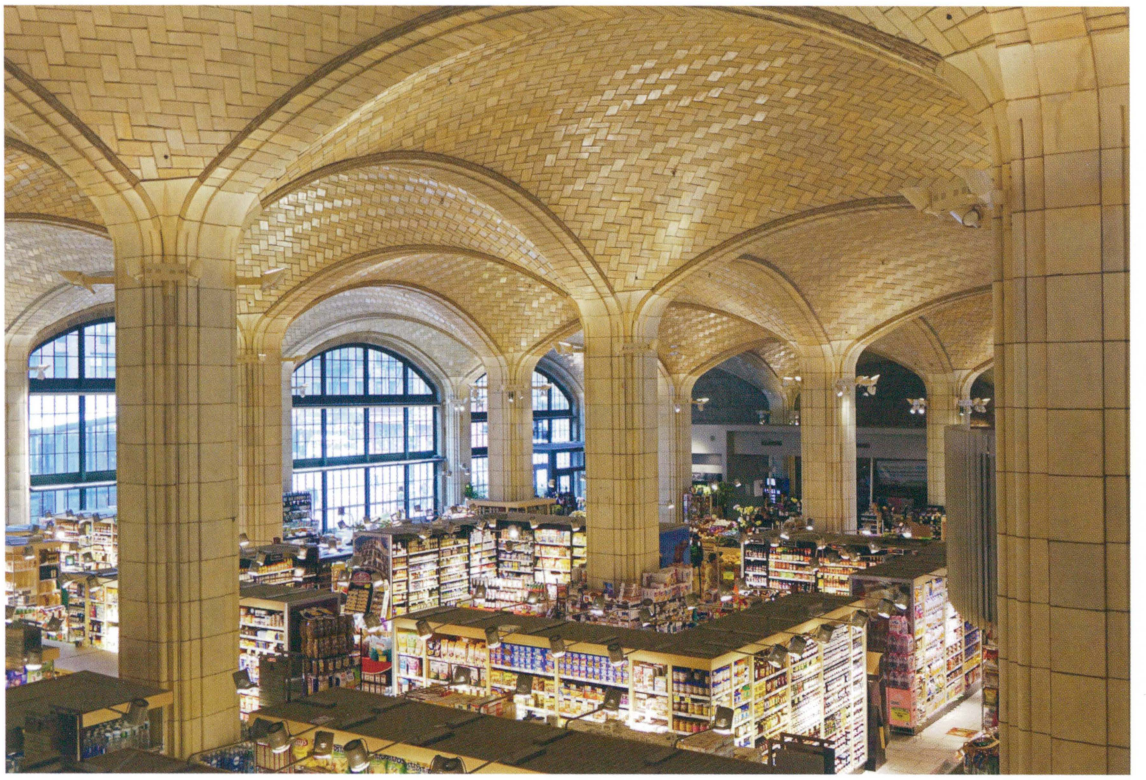


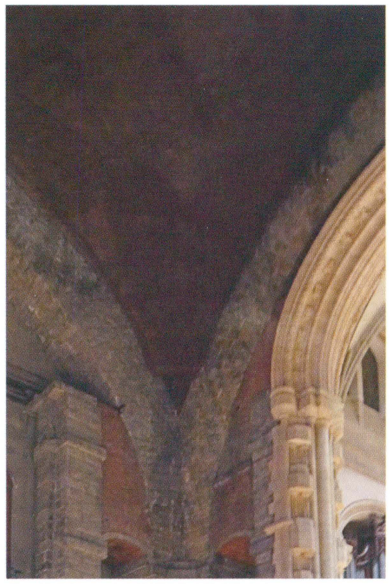




Queensboro Bridge Market Food Emporium,
409 East 59 St. at First Ave.

With the golden ceramic pieces, the current supermarket offers a bonus of amazing quality and warmth, able to completely transform the ample space sheltered under the western access to Queensboro Bridge.







Saint John le Divine (Heins & LaFarge, Guastavino, 1891)

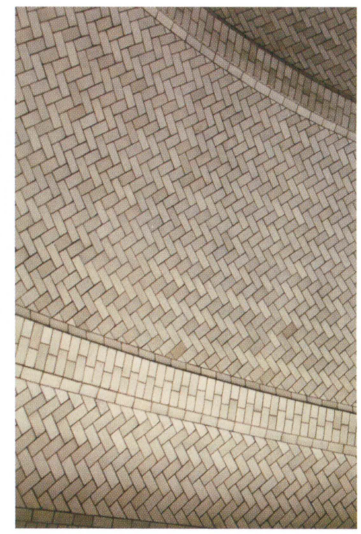
The design for the Cathedral of St. John the Divine (Amsterdam Ave. at 112nd St.) was one of the most important project bids of the period in the United States, with the participation of 68 architectural firms. Heins and Lafarge won it in 1891, with a design of Romanesque inspiration, with Byzantine and Gothic elements. The building was topped by a massive tower ending in a spire, located over the transept. The first stone was laid in late 1892, but construction was delayed several years until the excavation found suitable rock for the foundation. Heins and LaFarge completed the eastern end and the transept, temporarily covered by Rafael Guastavino with a ceramic dome, still standing. The Chapel of St. Columba was consecrated in 1911, but the death of Heins urged the Commissioners of the cathedral to hire a new architect, Ralph Adams Cram, who designed a nave and western facade de inspired by French Gothiccade deticipation ofnd write about 5 paragraphs about it: ion.(Mizrahim) in Israel: .edal follow-upinspired by French Gothic.



Ellis Island Immigration Station, Registry Room
(Rafael Guastavino, 1917)

The dome covers a large hall of 61 x 30 m of floor and 17 m (200 x 100 x 56 ft) of height. It does not belong to the original 1900 building, destroyed by fire and with a flat and ornate roof, but rather to the immediate reconstruction carried out in 1917.











Queensboro Bridge

Four new bridges

After Brooklyn Bridge, three more bridges were built over the East River, with very different character from the former. Once the boroughs of Manhattan and Brooklyn were joined, the challenge was to alleviate the huge traffic of train, subway and cars. With the symbol of the Brooklyn Bridge as link between the two cities already established, the goal was was to add strength to the institutional links and functionality to the exchanges between both sides. It seemed as if Brooklyn was colonizing the island, but the case was rather the opposite: Manhattan was expanding into the richest area of its environment and annexing it.

In fact, before the formal inauguration of the Brooklyn Bridge in 1883, requests to build new bridges to Manhattan near downtown Brooklyn had been submitted. In 1892, Frederick Uhlmann obtained a license for a new bridge in the Williamsburg area, to extend the elevated railroads from Brooklyn to Manhattan. The new bridge promised to be a good deal, because the Brooklyn bridge was already congested, only nine years after its inauguration [113: 158].

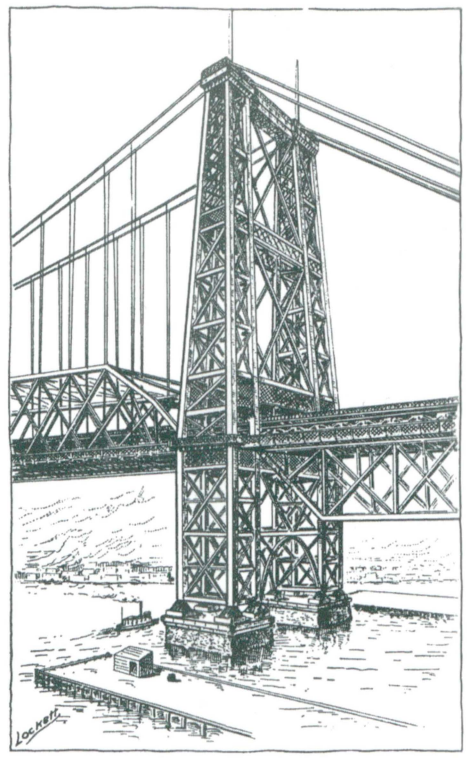
In 1903, the Williamsburg Bridge was completed, and in 1909 two additional bridges were built: the Manhattan Bridge, a suspension bridge with a span of 448 m, and Queensboro Bridge, a cantilever with a pier in Blackwell Island. And in 1916, it was the turn of the rail, with the new Hell Gate Bridge over the East River.

Williamsburg Bridge (1903)

In 1903 the Williamsburg Bridge was completed, designed by Leffert L. Buck (1837-1909), with a 488 m span, ugly in appearance, and of little relevance or significance for the city. Although critics have always expressed their appreciation for structures that show their 'naked truth,' Williamsburg seems to negate that possibility. Its clumsiness in the design of the towers, with diagonal lines out of scale, excessive beam rigidity, exaggerated abutments, and its bland engagement with the urban tissue, have turned it into the 'epitome of the ugly'.



Williamsburg Bridge



First draft of the Williamsburg Bridge [101:160]. From Engineering News, August 20, 1896



Already in 1896, when the plans for the Williamsburg Bridge were published in *Engineering New Record,* it was criticized from an aesthetic point of view, due to the discontinuities of the deck in the towers (later corrected) and the low monumentality of the latter. Its lack of ornament was not criticized, but given its central location in relation to both cities, the magazine demanded a more monumental character, with good taste in the design, and an appropriate ornamentation, even if it entailed some increase in cost. In this sense, Buck had presented a budget of only 7 M $, compared with over $ 15 M of the final cost of the Brooklyn Bridge [113: 159].

Actually, the design of the bridge design was meant to overcome the Gothicist vagaries of John A. Roebling and to reduce its cost — considered to be excessive — with a cheaper and genuinely technological design. With the symbolic role exhausted by the Brooklyn Bridge, the goal here was to achieve a true world record for purely technical reasons — in truth, copied from the Brooklyn Bridge, because it employs the same four wires of parallel threads to hang the deck, and identical systems of anchoring. And indeed it achieved its goal, although it only has two more meters of span than the Brooklyn Bridge, but it never managed to even come close to its stature. Buck was unaware that, for the people, bridges are not only low-cost technology, but symbols of the collective effort to improve the city.

Shortly before its completion in January 1902, the bridge changed jurisdiction and was transferred to the new commissioner of bridges in the city, Gustav Lindenthal (1850-1935). In its inauguration on December 1903, Lindenthal avoided discussing the bridge, saying only that it *was the heaviest of all suspension bridges and the largest in America.* At that time, the world record was the Firth of Forth, a bridge of 520 m (1710 ft) span, built by Benjamin Baker between 1882 and 1890, with the cantilever type, a structural type unappreciated in the city, on account of its non urban style.

When Gustav Lindenthal took over the bridges of the city, the bridges of Manhattan and Queensboro, then called Blackwell Island Bridge, were in the process of design. During construction of the Brooklyn Bridge some friction took place between Lindenthal and the Roebling's steel cable manufacturing company, and the delays in their placement brought about an early termination of the contract. Upon taking office, Lindenthal changed all ongoing projects of suspension bridges. The Manhattan Project was remade with (less efficient) rigid rods instead of cables, and the Queensboro was planned as a cantilever [113: 165].

But the use of rigid metal rods instead of wire, and the appearance of the bridge were not convincing, and the Mayor commissioned a report from a group of engineers of the American Society of Civil Engineers (ASCE). The conflict was covered in the engineering journals and the popular press, but the group decided that the bars had advantages over the cables, despite their slightly higher cost. The report of the engineers was not well received, and the conflict led to the aesthetics of the bridge, and was not resolved until a new recently elected mayor dismissed Gustav Lindenthal. He then appointed as commissioner of bridges George E. Best, who proposed a bridge with cables, despite the continuous attacks of the *Times,* which went on until 1906, when most of the steel cables were already in place.

The next year, 1907, the collapse of cantilever bridge in Quebec took place, due to the buckling of a strut during construction, and all bridges were revised. The revision of the Manhattan Bridge and the monitoring of its construction was commissioned from



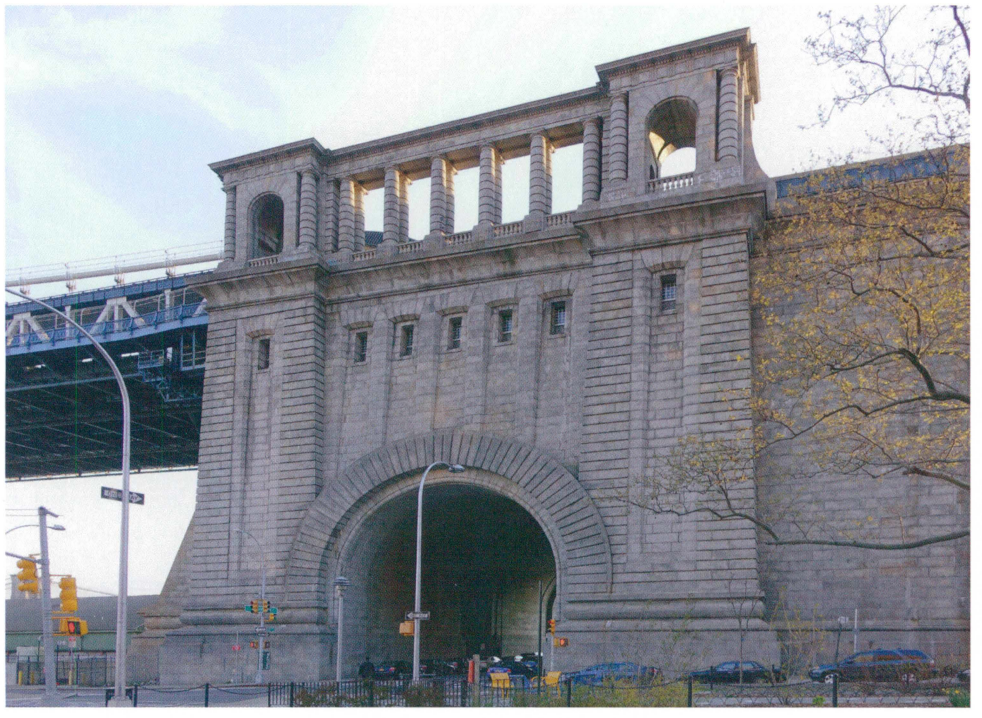
Manhattan Bridge

Manhattan Bridge (1909)

Manhattan Bridge









Manhattan Bridge

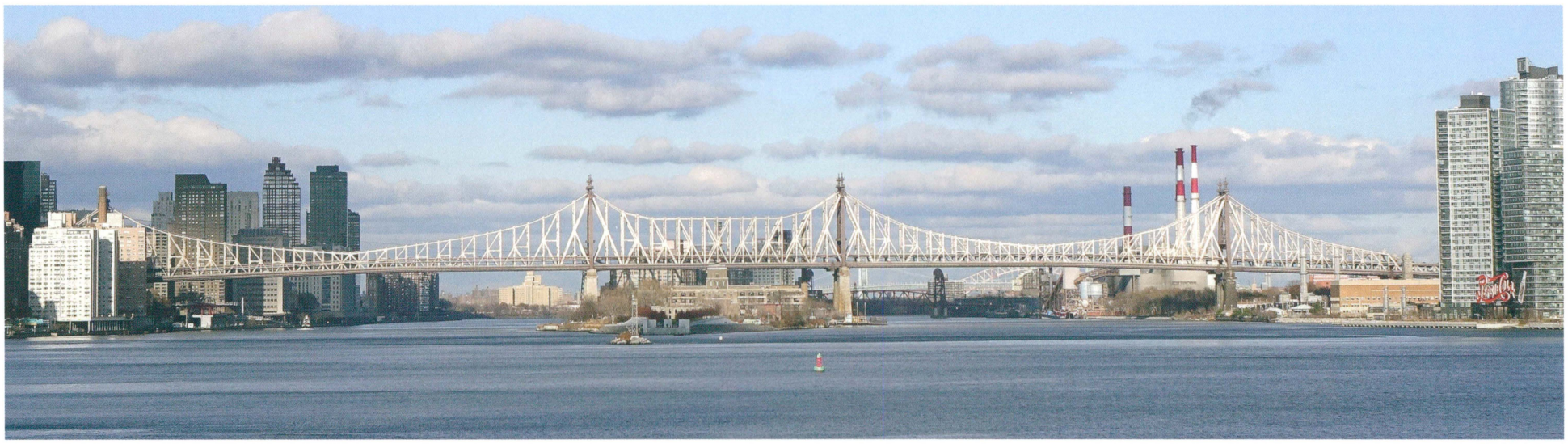
Ralph Modjeski (1861-1940), reputed builder with a large number of bridges under his belt, and considered one of the best designers in the world. Modjeski was born in Krakow, to a mother with a career as great dramatic actress, and he studied piano in his native city and engineering at the Ecole des Ponts et Chaussées in Paris. He designed beautiful bridges, winning many awards, and he played piano every afternoon.

Ralph Modjeski worked first as an assistant to George S. Morison (1842-1903), and settled later in Chicago. His work was highly appreciated and he was considered a true artist able to express himself with pleasant formal simplicity and confidence in his designs for large spans of quiet dignity, of elements capable of gracefully expressing their function without the need of ornaments. In Manhattan, Leon Moisseiff took the basic ideas of Roebling, but provided a clear step forward in the realization of the piers.

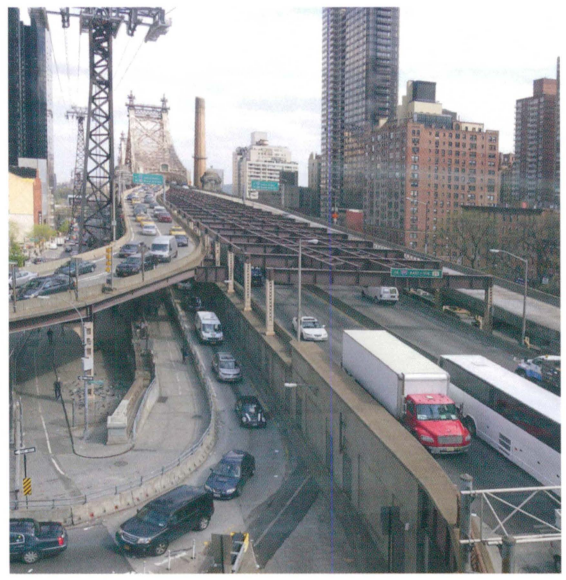
Innovation in flexible towers

The Manhattan Bridge was the first major bridge with flexible towers, a hugely significant structural and formal breakthrough. It meant a drastic reduction in the thickness of the pier, longitudinal to the bridge and led to the almost total abandonment of the stalls for the construction of towers, which was beginning to be obsolete for financial reasons. With this innovation, the towers of suspension bridges totally change their aspect. They become much more slender, so that their rigidity can allow the necessary deformation of the cable, and their height becomes decisive for the behavior of the bridge. The tower loses its third dimension and becomes a flat element, with a design of parameters much more involved in the bridge as a whole [3: 652].

However, the formal realization of this great functional innovation was more questionable, as the towers mixed the symbolism of the central arch and the four whimsical upper balls with the technology of the diagonal lines of stiffness of the side panels, in a manner that is confusingly and little consistent with the clean catenary of the cables. Likewise, the access on the side of Manhattan was designed by architects









Queensboro Bridge
(Gustav Lindenthal, Leffert L. Buck, 1909)

Queensboro Bridge (1909)

Carrère and Hastings with a triumphal arch and a semicircular colonnade on both sides, of clear monumental purpose.

The Manhattan Bridge improves the formal awkwardness of Williamsburg Bridge, but it fails to detach itself from the monumental aesthetics of the large institutional buildings in New York. Although, precisely because of this ambiguity, it is a very interesting bridge.

The third of the major bridges was not a suspension bridge, but the cantilever-type Queensboro Bridge, one of the many large bridges which emerged in the wake of the record of the Firth of Forth Bridge. The collapse of the Quebec bridge in 1907 led to the standstill of the Manhattan Bridge and the replacement of Lindenthal. All of this happened when the works were well advanced, but this led to the revision of the bridge started in 1902 by Gustav Lindenthal and finished by Leffert L. Buck in 1907.

The use of cantilever seemed quite suitable, as it was possible to build an intermediate pier on Blackwell's Island, with a long span arranged over each branch of the East River, and another lesser span over the island itself. However, long spans are formed





Queensboro Bridge

by the cantilevers from the abutments and the island, but what rests upon them is not a span as in the original type developed by Baker. With this, the bridge provides a characteristic silhouette with the lowest point at mid-span, a faithful image, although unattractive, of its manner of support.

Controversy over shape and resistance

In fact, the web of events that occurred in the early 1900s around the Queensboro Bridge and Manhattan bridges has its origins in the aesthetic controversy that arose with the Williamsburg Bridge. The accident of the cantilever Quebec Bridge complicated the options, and the issue of resistance was brandished as argument by the opposing camps in favor of their own aesthetic opinions. The details can be tracked on the excellent summary offered by Sharon Reier in her *Bridges of New York* [122: 40-57], which describes some of the amazing proposals raised in its gestation. The Queensboro Bridge provides an excellent material for a case study on the relationship between type and shape, here inextricably associated to the question of location, due to the choice of putting piers on Blackwell's Island.[18].

New Yorkers did not like the Williamsburg Bridge, and although the cantilever type was accepted, on account of its rugged efficiency, it was considered inadequate as an urban bridge. Research undertaken in 1907 on the strength capacity revealed that the design of Queensboro Bridge for the established loads and overloads was correct, although it revealed excessive stress on some elements if heavy snowfall coincided with a traffic level slightly higher than expected.

But it was shown that this possibility had already occurred at the Brooklyn Bridge, and a controversy of months about the bearing capacity of the Queensboro Bridge broke out. Newspapers took stances in favor, with the Times in the lead, and against, following the Tribune. The more technical journals also took sides, *Engineering Record* backing the Times, while *Scientific American* even described the design as *the worst blunder in the history of bridge design* [122: 47].

In parallel, the aesthetic controversy persisted throughout construction and also remained alive after a reassuring incorporation of reinforcements to the structure that was welded to the bridge. The criticism did not quite accept the embellishments incorporated into the design by architect Henry Hornbostel since the initial project of Lindenthal, and it remained divided.

In 1953, Hugh Ferriss already discussed the problem of combining structural strength and beauty. Many people think of bridges as something foreign to the world of architecture. Actually, they exemplify the architectural problem of combining structural utility and structural beauty. Queensboro and Whitestone (being chapter 12), to mention two well-known bridges, are both useful structures and good works of engineering. What is architecturally relevant is the fact that one of them is beautiful and the other one is not. Its beauty is an extra asset that makes the Whitestone Bridge famous [52:23].

According to the reputed Carl Condit, *Queensboro is a work of expert engineering, but its harsh angularity and awkward profile make it one of the less attractive of great urban bridges* [41:218].

Hell Gate Bridge (1916)

With its 298 m (977 ft), the arch of largest span of the world in its day, it remained in this ranking for 16 more years, despite bearing rail loads. The powerful design of Gustav Lindenthal manifests two controversial points, the shape of the arch and the use of stone in the piers, two features that bear some prominence in the final form of the bridge and indicate its unequivocal monumental vocation.



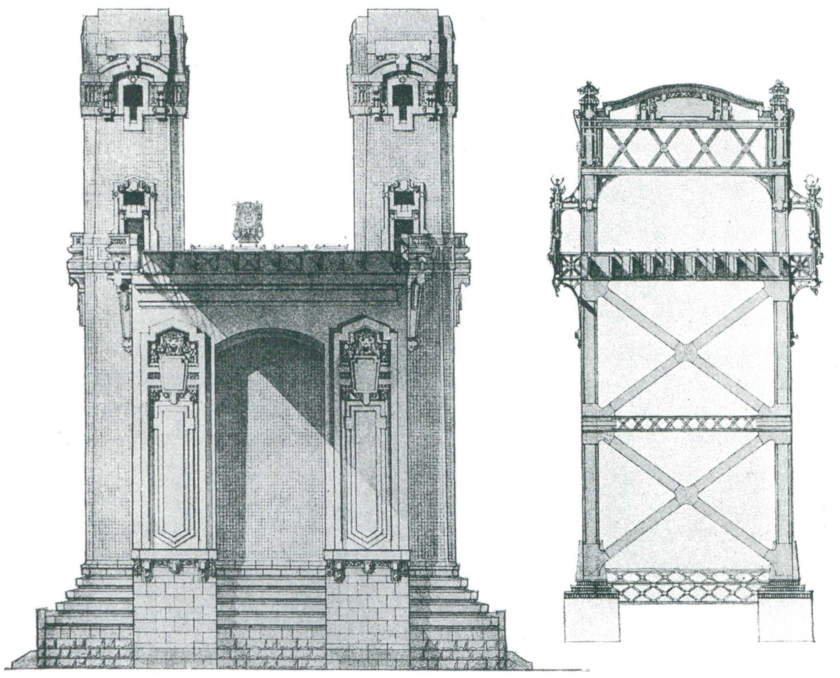
Hell Gate Bridge (Gustav Lindenthal, 1916)

The bi-articulated metallic arch of the intermediate deck is formed by a lattice of lower cord in the usual parabolic shape, and an upper cord whose ends are bent upwards to enter the piers with a reverse curvature. In principle, this contradicts the rabid, resistant functionality of the arch, whose curved and antifunicular shape effectively transmits the stress to the foundation. Lindenthal defended his 'shoulders raised' arch, as suggested by the horizontality of the deck, to prevent the intersection of the top cord and let it access the abutment on top of it..

Moreover, as the arch was built in cantilever from the abutments, the top cord allowed a more effective anchoring against the overturning moment. However, the two halves of the arch required retention cables, since to the large weight of the arch had to be added the weight of the 315t cranes placed on the leading end, capable of lifting parts of 180 t [145: 152].

The use of stone at the base of the joint was described as anachronistic and monumental by the functionalists, but in 1916 the acceptance of exposed concrete was not guaranteed. Suffice it to recall how Robert Maillart, engineer par excellence of concrete and icon of modernism enthroned by Sigfried Giedion, stone coated the walls of his first concrete arch, at the beginning of the century.

The Hell Gate Bridge was interesting enough for the profession to arouse certain aesthetic controversy. For Carl Condit, is the main work of Gustav Lindenthal and certainly the best bow of the country: *Not one American arch is superior to it in overall size and weight and in the power and dignity of his form... the slender arch rib, with its massive but simply articulated stiffening truss, is the very expression of combined*



Detail of the pier. Drawing taken from [194]

Debate on the stone towers



Hell Gate Bridge
(Gustav Lindenthal, 1916)

Stance of the critics

stability and energy; its enormous thrust is perfectly contained, in a visual sense, by the heavy masonry towers [39:12].

For his part, David P. Billington also appreciates the bridge, but he introduces some distance: *This is the aesthetic of the mass... The Hell Gate is an splendid attempt to made steel feel like stone... Lindenthal is a major figure because he carried structure to new limits. But he retreated from the aesthetic implications of this limits. His ambiguous forms do have aesthetic power, but one that lies outside those principles of design that we are here calling structural art* [21:128].

Billington, as Sigfried Giedion and many others before (see Giedion in Chapter 10), seems to believe that aesthetics is a matter of rules and principles, and rejects all that does not stick to them. He is a maximalist when he says, in the following,





Hell Gate Bridge
(Gustav Lindenthal, 1916)

that *the design is not an indissoluble union of structure and form, but rather a massive frill.*

David B. Steinman, engineer and disciple of Gustav Lindenthal, sees the Hell Gate as a gateway to the city. It was not a simple structure, it was the place from which trains entered and *forms a striking gateway over the approach to the metropolis.* He also understands the *provision of proper depth of stiffness and clearance at the different points of the span determined the profile of the upper chord, which therefore must not be regarded as a subordination of engineering to architectural demands* [150: 286].

Although the latter seems more an excuse than a statement of principles, it is shocking that he does not mention the — equally enourmous — power of the curved access viaduct to the bridge from the west, over Ward's Island. The curve shelters and closes a huge water treatment plant located in the banks of the same narrow strait overcome by the bridge but, above all, it is part of that great and solemn — almost institutional — access sought by Lindenthal.

Access and foundation

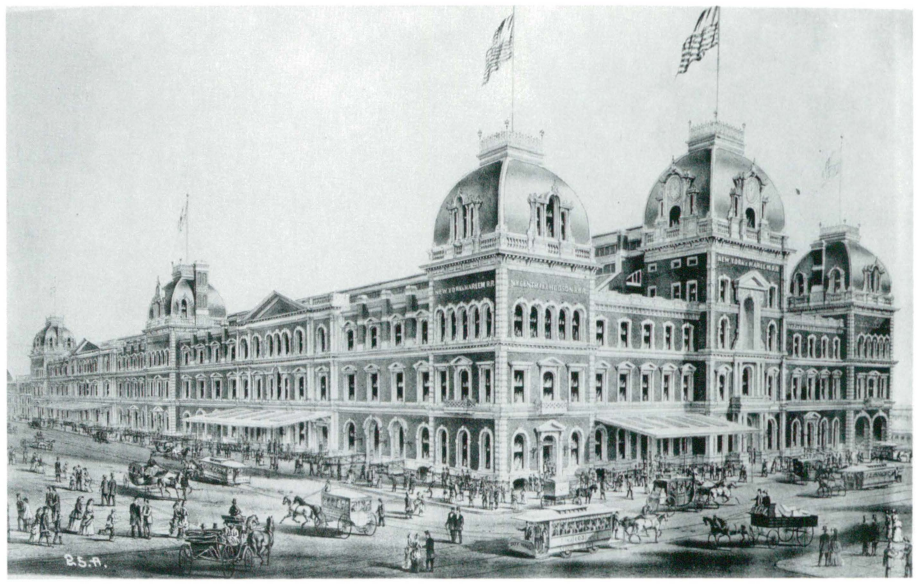
However, the most complicated part of the work was the foundation of the pier located precisely on Ward's Island, because the excavation found a huge cavern between 5-18 m (15 to 55 ft) wide and of great depth filled with red clay and boulders. Finally, a large concrete arch was built from side to side, 21 m (69 ft) below the riverbed, to support the successive 21 caissons [152 145].


TO VANDERBILT AVENUE
THE CAMPBELL APARTMENT
TICKET MACHINES
SUBWAY • 42ND ST.
WEST BALCONY
WEST BALCONY
TICKET MACHINES
TRACKS 31 TO 42
DINING CONCOURSE
TRACKS 100 TO 115

7 | Wilgus

Moving crowds
The first railway station (1871)
Grand Central Depot
Reversing the engine
A station alien to passengers
The reforms of 1900
Grand Central Terminal (1913)
William J. Wilgus (1865-1949)
Privileged location / Accidents and electric traction
Air Rights for financing
Public fascination and bad reviews
Design dedicated to the crowd
Project of Warren & Wetmore-1906
An idealized civic space
Symbol of New York energy
Demolition threats since 1954
Lawyers versus celebrities / Aesthetics of the crowd
Idealization of the city and its crowd
From the danger of the masses to the crowd
Out of the functional disaster the mass is born
Making the crowd beautiful
Lorca's take on the crowd
The Manhattan Subway
The ELS: overhead railways
Interborough Rapid Transit (IRT)
Stages in the development of the Subway
Path Uptown Hudson Tunnels-1908
Pennsylvania Railroad Tunnels-1910
Tunnel Shield Tunnels East London
East River Tunnels (1910)
East Side Access (1969-2014)
Subway Express Service

William J. Wilgus (1865-1949)
Moving crowds



The Grand Central Depot, New York. Courtesy of New York Transit Museum.

Grand Central Depot

The first railway station (1871)

The huge Grand Central Terminal in New York, eventually the cornerstone of the Vanderbilt railroad empire, began with a modest 26 km railway line between Albany and Schenectady, the first in a series of railroads along the river from Albany to Buffalo. In December 1825, a concession to build the line was requested and five years later, in August 1831, the first passenger trip powered by a steam locomotive in the state of New York took place.

In 1846, it was already possible to travel by train from Buffalo to Albany, and the 30 hours of travel, with several changes of service, represented a huge advance over the more than ten days in the barges of the Erie Canal. In 1853, the servicing companies merged into the New York Central Railroad Company. In Albany, passengers and goods were transferred to the steamers owned by the company for the trip of 145 miles down the Hudson River to New York city.

After a long financial battle, Vanderbilt gained control of the New York Central Railroad and proceeded to merge it with the Hudson River Railroad to concentrate traffic from Buffalo through Albany to New York City. In 1869, the companies merged under the name of New York Central and Hudson Railroad, which became the second largest railroad in the country, after the Pennsylvania one, from Pittsburg to Chicago and Detroit [136: 21].

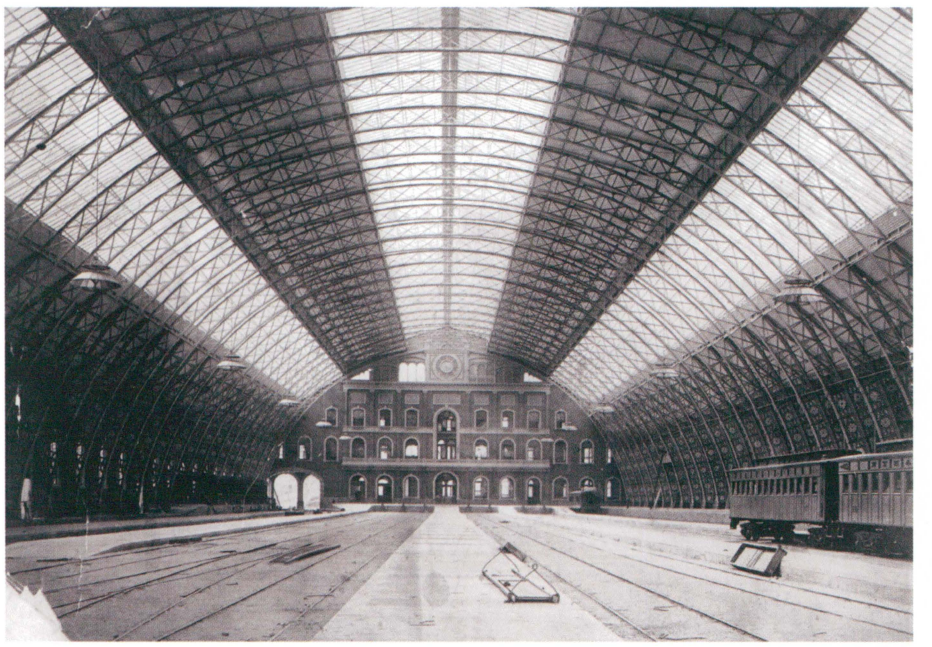
In 1869, Cornelius Vanderbilt commissioned John B. Snook to design the first station, Grand Central Depot on 42nd St., later used as terminal station by the New York Central Railroad and the New York and Harlem Railroad from 1871 to 1900. John Wellborn Root (1850-1891), who graduated in Civil Engineering at New York University, assisted in the design of the station. He worked as a supervisor in 1870, before settling as architect in Chicago, where he would work with architect Daniel H. Burnham.

The site chosen for the train station in New York was the crossing of Fourth Ave. and 42nd St. The latter acted as northern limit of the residential development in the south of the city, while large factories and warehouses were located to the north. The choice was the result of long hostility between railroads and citizens, involving the southern limit of the tracks. It was called Grand Central Depot (GCD), and had the traditional making of a railroad station, in the manner of other American and European cities, with important dimensions of 200 m (650 ft) in length, with a glass and iron cover spanning 60 m (200 ft) and a neoclassical facade with mansard style roof. The three railway companies serving Manhattan used it jointly.

With an iron and glass train shed and classical station building, Grand Central Depot represented a tension inherent in the use of the classical style for railroad stations during the Age of Energy. Railroads embodied the modern, the mechanical, and the application. Fabricated in England, the soaring iron arches supporting the train shed constituted the largest arches erected in the United States to date, of the newest technology to solve transportation problems. By contrast, the station building, with its stone and brick ornamentation and the mansard roof with five domes, mirrored the classical tradition [136:33].

Reversing the engine

To minimize the number of train movements, the railroads using Grand Central perfected the flying switch. As a train emerged from the Park Avenue tunnel at 56th Street, approaching Grand Central, it accelerated; and the brakeman, perched precariously over the coupler linking the engine to the first passenger car, tripped the coupler and freed the engine, which continued to accelerate. In the control tower, the switchman pulled the proper lever to send the engine onto a siding and then immediately threw the switch back so that the passenger cars continued on toward the train shed. As the passenger cars moved under the train shed and alongside the platforms, now traveling on their own momentum, the brake-men scrambled to the hand brakes and, turning the brake wheels furiously, brought the passenger cars to a halt in their proper position next to the platform so that passengers could exit the train. The flying switch saved a great deal of time and switching. Obviously, it required split-second timing and great skill on the part of the railroad employees, but the railroads used this procedure until work on the new Grand Central began, without a single mishap [136:38].



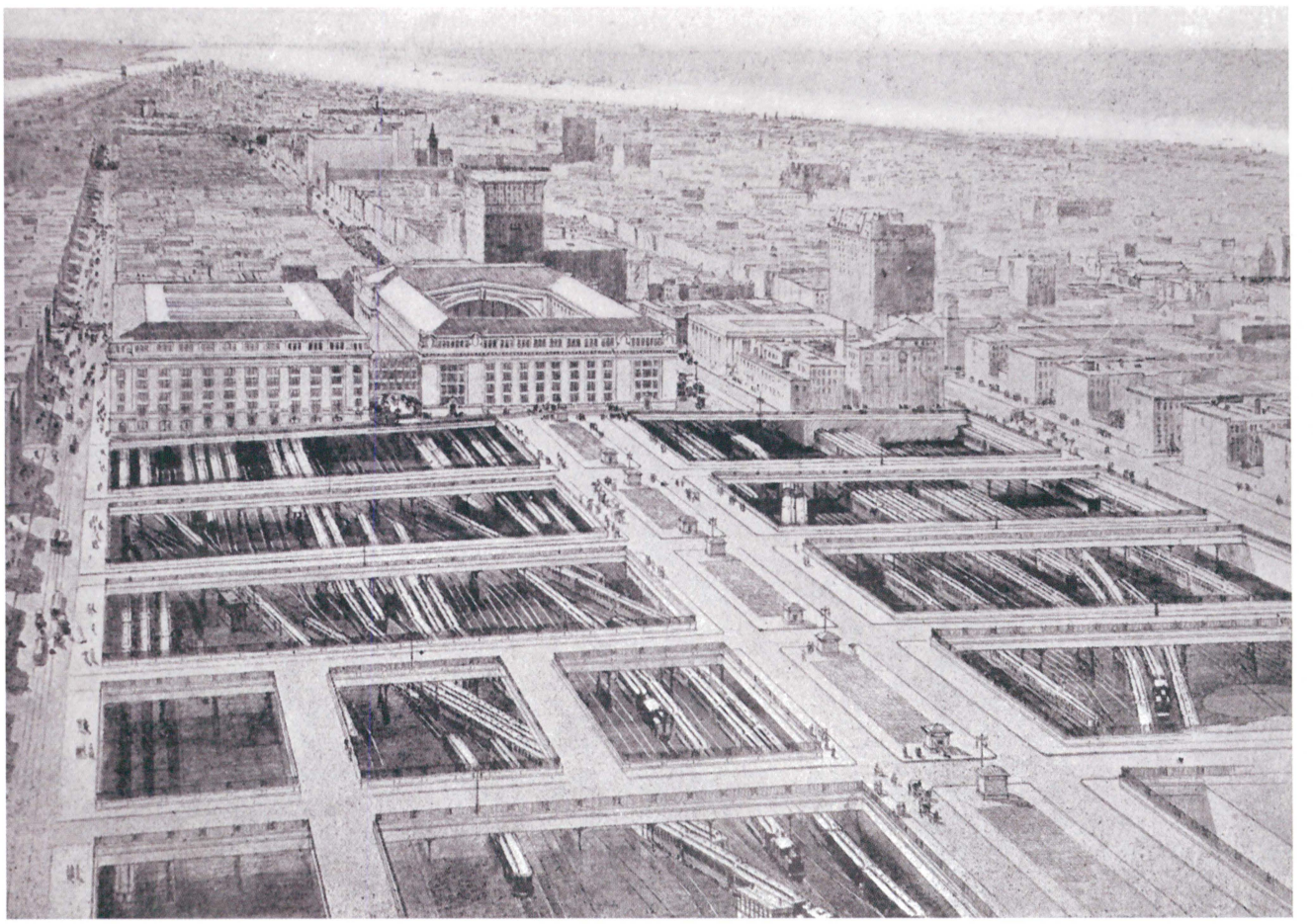
Interior view of Grand Central Depot train shed. Courtesy of New York Transit Museum.

A station alien to passengers

But the functionality of the station did not solve well the problems of passenger traffic. The interior was designed to show the trains and glorify them under a beautiful cover, but devoted little attention to passengers. The roads and trains were the main objective of this technological equipment around which the large railroad companies grew. The passenger was a captive of the monopoly, not so much of either company, but of the mode of transport. Companies vied to have a more or less impressive terminal, such as the Pennsylvania Station project, then under development (see Chapter 6).

The companies worked together to offer better services in their trains, and only gave due attention to the design of the stations when serious problems of traveler massive accumulation arose. Even the conservative Scientific American, not known as a muck-raking publication, recognized the seriousness of the congestion at Grand Central and called for large-scale changes: Grand Central Station at Forty-second Street will continue to be the only great terminal in New York. . . . radical change must be made in this terminal or the traffic within the next few years will be thrown into a condition approaching deadlock.[19]

An outraged editorial of the New York Times considered it unworthy of the city: Nothing pertaining to New York City except its government has been so discreditable to it as its principal railroad station. Wretchedly cramped in space, stingy of the many



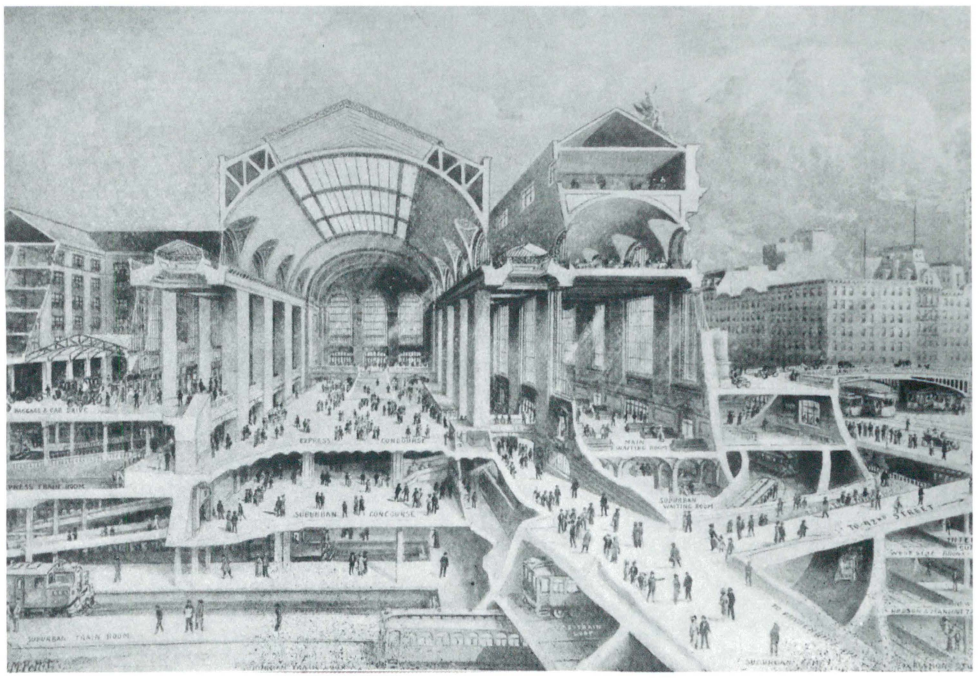
The terminal yard and buildings, showing the express level, with Park Avenue and the cross streets restored to city use, and blocks available for erection of business buildings.

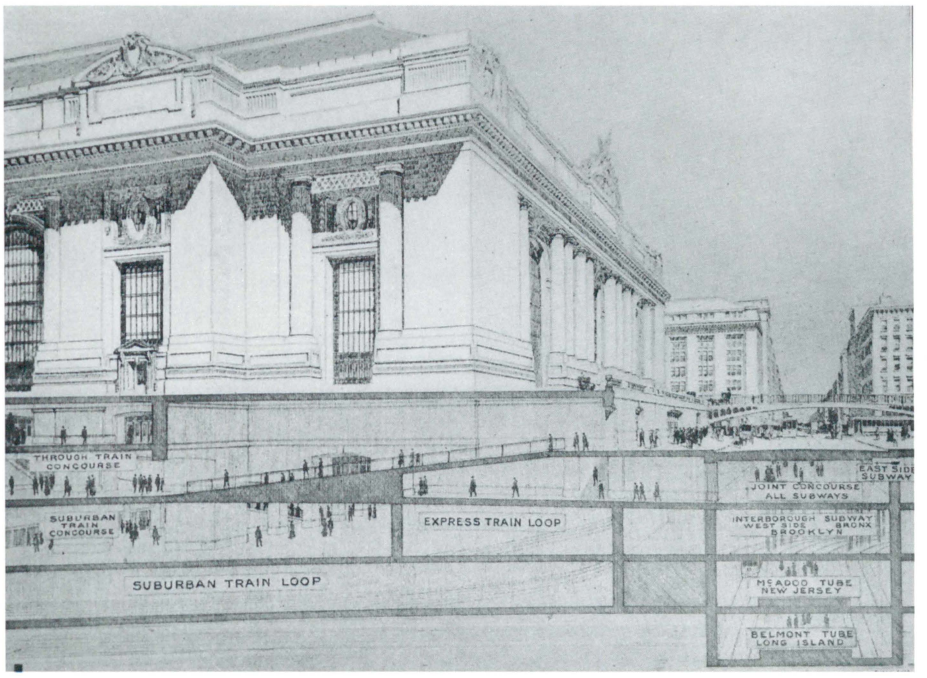
accommodations demanded by arriving and departing passengers, ill-arranged, dark and repelling, this utterly inadequate structure has been considered by its owners to be good enough for New York... The privilege conferred upon these railroads of possessing the only terminal station on Manhattan Island is one of immense value... the Grand Central Station furnishes terminal accommodations which would be considered adequate in Sandusky, Ohio... It is a long standing affront to the people of New York, an evidence of disgraceful ingratitude and indifference on the part of the railroad companies.[20]

The reforms of 1900

Between 1899 and 1900, a series of reforms were accomplished to address the appalling functionality of the Depot and the chaos it caused and, at the same time, to assimilate the crowd inside the station. The changes made by Philadelphia architect Samuel Huckel transformed Grand Central into a terminal station, with all the traffic and ticketing transferred to the front of the building on 42nd St. and baggage handling at the sides. The waiting rooms of the three companies were centralized for all traffic in the station, and a new passenger space, protected by cast-iron fences, was designed, pushing back the rails and lowering their level. Thus, the cover sheltered both trains and passengers.

The Great Rotunda, a new unified waiting room, was located between 42nd St. and the new transition hall located in front of the fences. Through spacious foyers with entrances on all sides and a monumental staircase to the east, the Rotunda





General sectional views of the Grand Central Terminal (1903-19 13)

channeled passengers to a large central hall, before unloading them under the large cover.

There was a waiting room for immigrants at a lower level connected by a tunnel with space below the cover, making them invisible to other passengers up until the access to the trains. As Daniel H. Burnham said in 1909, it was time to bring order to the chaos provoked by the rapid growth and especially to the influx of people of so many nationalities.

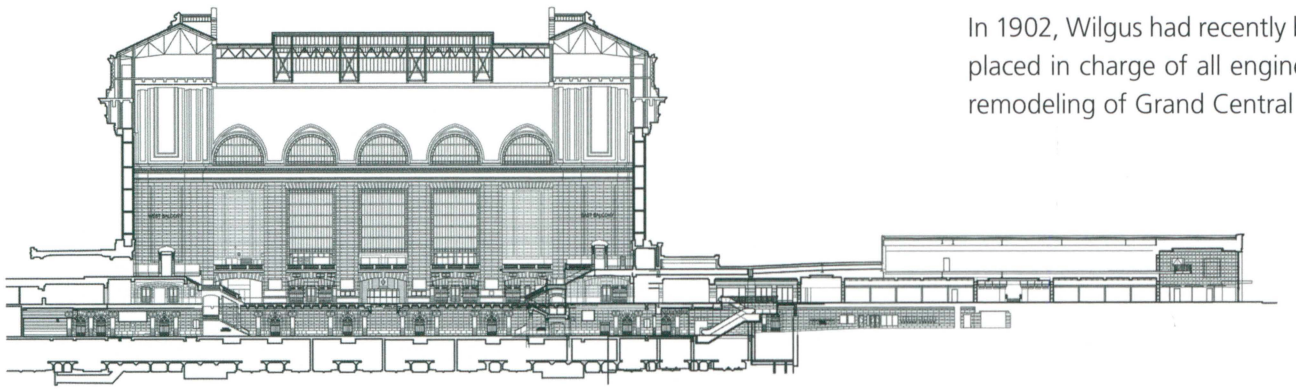
Grand Central Terminal (1913)

William J. Wilgus (1865-1949)

One of the officials of the New York Central who recognized the serious problems the railroad faced with its outdated facilities at 42ndStreet was William J. Wilgus. Born in Buffalo, New York, in 1865, he never attended college but his brilliance propelled him to a distinguished career as a self-taught railway engineer. In 1883, after completing high school, Wilgus began his railroad career working with the Minnesota and Northwestern Railroad and the Duluth and Winnipeg Railroad. He joined the New York Central in 1893 and, in less than a decade, rose to the position of chief engineer.

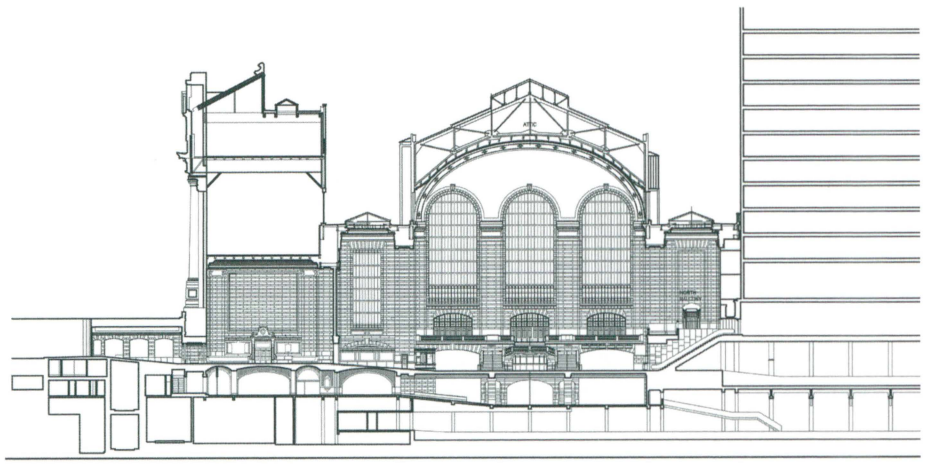
During the First World War, Wilgus served with the American Expeditionary Force under General Pershing. In France, he ran the railroads for the Military Railroad Commission with such distinction that the French government awarded him a medal; thereafter Wilgus proudly used the title Colonel.

During the Great Depression when President Franklin Roosevelt appointed Wilgus director of the Emergency Relief Bureau for New York City, an agency charged with the awesome responsibility of alleviating the ravages of the Depression in the nation's largest metropolis. In his later years, he established a lucrative practice as a consulting engineer and eventually retired to his farm in Claremont, New Hamp-



shire, where he died peacefully, at the age of eighty-three, in 1949. After Grand Central Terminal, Wilgus's most important work involved serving as a consulting engineer on construction of the Holland Tunnel, completed in 1927, which linked lower Manhattan to Jersey City.

In 1902, Wilgus had recently been promoted to the position of fifth vice president and placed in charge of all engineering for the New York Central. He knew that another remodeling of Grand Central Depot simply would not suffice.



Grand Central Terminal Building Sections.
Grand Central Terminal Design Guidelines
© Metropolitan Transportation Authority.
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Privileged location

The officials of the New York Central never considered relocating its terminal facilities; they knew the superb advantages afforded by the 42nd Street location. At the turn of the century, as New York spread steadily up Manhattan Island, 42nd Street became the heart of Midtown. The Harlem Railroad's original choice of Fourth Avenue (Park Avenue) as its north-south route and the emergence of Fifth Avenue as the city's premier address channeled high-class residential and commercial development of the city toward the east side of the island.

As the city expanded northward, Grand Central emerged as the transportation hub for fashionable Midtown: numerous streetcar lines converged at 42nd Street, and the IRT (Interborough Rapid Transit), the city's subway, built a major station underground adjacent to the terminal. Adding to the transportation mix, the Third Avenue elevated railway's spur above 42nd Street stopped at Grand Central's front door [136:36].

Accidents and electric traction

On January 8, 1902, a serious accident forced William J. Wilgus to consider a complete redesign of the terminal and its accesses. A train from the north that stood in the Park Ave. Tunnel waiting for the signal to proceed south, was hit from behind by another train. The boiler of the latter train was embedded in the last car of the stationary train, causing a terrible fire. The fire quickly spread, as the embers of the heating stoves of the other cars scattered, causing 15 dead and hundreds injured.

The rights of the New York Central Railroad to run through Manhattan were quickly called into question and strong public pressure emerged to relocate the terminal, for it was the only one on the island. The following year, lawmakers banned steam traction and forced all companies to use electric locomotives in Manhattan from July 1, 1908.

Air rights for financing

Aware of the value of the location of the station on 42nd St., Wilgus proposed an entirely new design, soon approved by a board in which Vanderbilt, Rockefeller, Morgan and other major New York families were represented. The proposed investment was of $35m, a huge sum for the time, but Wilgus took advantage of a new and unprecedented possibility for funding. With electrification, tunnels did not





Grand Central Terminal

need the ventilation required by the old coal locomotives and the Air Rights of the area occupied could be sold to finance its construction: *A magnificent new terminal building, the two story underground train yard, and electrification could all be paid for by taking wealth from the air.* [137:49].

Thus began a new way of funding, subsequently widely used for this and any other construction project in the city. The area favored a strong demand for offices and investors quickly joined the initiative. The larger the area occupied by the tracks, the more business opportunities for the railroad and the other landowners and investors. Meanwhile, the city could eliminate the real barrier that the Grand Central Depot represented, and develop on the surface with full continuity of streets and avenues.

Public fascination and bad reviews

Despite being one of the great buildings of New York, if not the biggest in every way, the Grand Central Station (GCS) and in particular its building, the Grand Central Terminal (GCT), have never been the object of architectural veneration. Critics hold against it its historicist monumentality, and advocates of the modern movement always take a step back when it comes to opine on it. It has never been praised as the Brooklyn Bridge, the Flatiron Building and the Eiffel Tower. However, the building is the object of widespread fascination and its visitors are amazed both at its appearance and its internal functionality. Years ago, it went unnoticed to the casual visitor, but now it appears as a must for those who wish to know the city at all.



Grand Central Terminal



Design dedicated to the crowds

Its fundamental importance lies in a dual rationale, functional and aesthetic. On the one hand, it was the immediate solution of the permanent discontent of New Yorkers with the railroad, which generated conflicts and tensions on the surface of the streets. The trains were dangerous, with frequent run-overs and incidents involving pedestrians, and their vapor emissions, noise and fumes were uncomfortable and annoying to city life. The routes and especially the station posed a real barrier to the development of the city to the north of 42nd St. But as important, or perhaps even more so, was its aesthetic contribution to the treatment of the crowd in its functional design, an issue that requires a more detailed explanation on the basis of cultural landscape (see *Aesthetics of the crowd*).

Project of Warren & Wetmore-1906

That same year of 1903, the NY Central Railway held a competition for the new terminal. The winner was the project of Charles Allen Reed & Stern, based on a *monumentalized engineering of the movement of passengers*. Pedestrian circulation is orchestrated by an extensive system of ramps to gently move Subway, suburban, and Intercity passengers along gentle slopes to and from the trains.

In 1906, the NY Central Railroad replaced the winning design with a proposal external to the contest, by Warren & Wetmore, for a neoclassical terminal of horizontal monumentality, based on triumphal arches. The architectural form of the crowd was reincarnated in the huge vaulted lobby that replaced the old iron and glass cover as the largest interior space. The galleries in the perimeter elevated over the hall turned the crowds into a great spectacle. However, William J. Wilgus demanded the restoration of some of the circulatory ideas of Reed & Stern. Therefore, the final design combined the Beaux Arts monumentality of Charles Warren with the system of ramps of Charles Reed, and the intertwining of the two systems produced the spatial character of the movement of passengers in Grand Central [40: 63-88].

The old cover took with it the memories of the character of rail as an industrial appendix, alien to the urban fabric. The roads were now hidden in two layers of tunnels under the floor of the lobby. Lined in marble and with classical details, the main volume of the terminal completed the transition to civic space. The lobby was presented as natural heir to one of the mythical public spaces of the city, the square from where the stagecoaches departed. As if to confirm this affinity with the open urban square, the dome, at a height of 36 m, was painted blue, engraved with the constellations of the zodiac, and supplemented with electric lights for the shining stars.

The new terminal was a space dedicated to the exhibition of passengers and not of technological achievements themselves. While the various inputs and outputs were quite small and unobtrusive, the central surface of the hall was surrounded on three sides by high galleries and a monumental staircase at the west end. People came and went in the margins of that space through gates, all marked with a neat black label, but in the center of the space they collectively became the object of contemplation. This central area of movement generated a utopian moment in which the crowd was in an idealized civic space, isolated both from the industrial paraphernalia of the railways and from the industrial and commercial New York of the outdoors. As opposed to the business functions displayed around it, the lobby appeared only as a monument. The terminal produces a harmonious picture of the populous city, as opposed to the lurid and apocalyptic descriptions of the crowds in New York that proliferated at the end of the previous century [121: 8-10].

An idealized civic space



Grand Central Terminal

Grand Central, more than any other building complex in New York, captures the vibrant energy of the city and represents American drive and genius at its best... For millions, even for those who have never visited the terminal, Grand Central remains a symbol of New York and its power, instantly recognizable for what it is and nearly as familiar as the soaring skyline of Manhattan Island... If the city could be characterized by one building, it would be Grand Central [111:1 and 2].

Symbol of New York energy

Along with Edison's practical electricity, Bell's telephone, the first skyscrapers, the city subway system, and the Brooklyn Bridge, Grand Central symbolized the era that historian and critic Howard Mumford Jones called simply the ''Age of Energy' [136:6].

Demolition threats since 1954

Despite the civic success, the railroad was losing ground to the car and companies began to resent it. In 1954, the New York Central Railroad announced it was considering the demolition of the Grand Central Terminal building to solve its financial problems. As a reason, they cited the high price of offices to be built there, thanks to the excellent rail connections with all the city and its suburbs. Ironically, stressed New York Times, its own convenience threatened the future of the railway station, making the place more attractive for offices. Again, the air was more valuable than the function developed on the ground.

Soon a battle began, with some great architects to one side, with projects by I. M. Pei, Marcel Breuer, Minoru Yamasaki and Alfred Fellheimer, clamoring to not cut the renovating vitality of new proposals for the city. On the opposite camp, thinkers and critics argued for the desirability of preserving the past. The proposal with most sup-



Jan. 30, 1975, Jacqueline Kennedy Onassis, center left, and Bess Myerson, center right, walk with architect Philip Johnson, left, and Rep. Ed Koch, right, as they leave New York's Grand Central after holding a news conference for the 'Committee to Save Grand Central Station

Lawyers versus celebrities

port was that of Breuer in 1968, a thin prism of 55 floors, built to 57 m (188 ft) above the ground and over the building, leaning on its waiting room and elevated over the great hall through massive brackets [16: 3-28].

The opinions of heavyweights entered the scuffle, both in support, such as Ada Louise Huxtable, and against, such as Walter F. Wagner, editor of the journal *Architectural Record.* The lawyers started a new front, accusing the Landmark Preservation Commission of violating the 5th and 14th amendments to the US Constitution, which reached the New York State Supreme Court. In 1975, promoters got a favorable verdict, but the city appealed.

While the legal battle lasted, Philip Johnson and Jacqueline Kennedy Onassis created a committee to save the station, which other noted personalities joined. The division of Appeals reversed the decision of the court and submitted the case to the Supreme Court of the United States in 1978, which decided in favor of the Landmark Preservation Commission by six votes to three [153: 1143]. The enormous popular attention to Grand Central Station generated by this struggle pressured Metro-North to undertake a careful renovation of the station [16:11 ff].

Considering the cycles of construction, obsolescence, and rebuilding characteristic of New York, only three projects in Manhattan's history have been able to slow down, much less to stop or reverse this remorseless process of expansion and decay: Central Park, Rockefeller Center and Grand Central Terminal [125: 147].

Idealization of the city and its crowd

Aesthetics of the crowd

In the design of Grand Central Station, the fundamental purpose is the treatment of the multitude. According to Anthony Raynsford's careful analysis, *at the turn of the century, the architecture of passenger movement became the object of intense design and construction activity in which passenger spaces became more carefully organized and more monumental. As the culmination of these changes, the 1914 terminal represented the city and its crowd in an idealized microcosm and the passengers as a collective monument to the railroad empire. Within this new monument, the concourses and ramps engineered human movement according to a paradigm of mechanized rationality* [121: 1].

Although highly praised in its day, Grand Central Terminal has never been a monument to the industrial form, such as the Eiffel Tower or the Brooklyn Bridge. The station does not produce that feeling because its equipment and structure have been deliberately hidden behind limestone tiles, painted surfaces and underground tunnels. The great engineering achievement of the Grand Central Terminal takes human form in the hurrying crowds that continually arise from the floor of the main hall and around the information desk. The crowd is simultaneously dwarfed and enhanced by the huge arched windows and the vaulted ceiling of 33 m with its zodiac theme. As an urban monument, *Grand Central Terminal stages an elaborate spectacle whose mythical object is the metropolitan crowd. As a work of engineering, it orchestrates an immense flow of human circulation.*



Grand Central Terminal

From the danger of the masses to the crowd

The Grand Central Terminal (GCT) emerged in an era of urban reforms and in a city very critical of railway companies. Its lobby embodies an ideal urban space to transform the threatening masses of the street in a sublimely unified crowd inside. From the balconies on each side of the hall, *the throngs of passengers became homogenized, abstract patterns of humanity* [121: 2].

Each stage of the station shows a different way of understanding the crowd until that final aesthetization. In the first GC Depot, divided into a deck for the trains and classic building for the travelers, all the elevations obsessively hid the form and materiality of the cover. Even the rear entrance for the trains is hidden under an elaborate series of gables and ornaments to remove its semi-circular shape. The architecture treated the deck like an element alien to the city and the railroad itself.

As circulatory device, the Depot negotiated the delicate meeting point between the railway transport system and the threshold of the crowds of passengers. As part of the city, but distanced from it, the Depot had one foot in the streets of the nineteenth-century city and the other one in the industrial apparatus banned in those streets.

Out of the functional disaster the mass is born

The lack of space was an almost immediate disaster and only two months after its opening, the *New York Times* had condemned the station as 'a public nuisance'. Many accounts of riots to access trains, lost hats, kicks and stomps, battered women who could not make it to the train after long waits... Chaos occurred regularly and was accompanied by animalistic regression of its participants: violated body spaces, frequent assaults, codes of conduct broken, degrading treatment of women. The station appeared to reduce the crowd to a pre-civilized condition of uncontrolled nature, as atrocious as dangerous.

The reforms of 1899-1900 were aimed mainly at solving functional problems, but they also carried the intention of avoiding mass congregations outside the station and their dangerous behavior, of 'taming' the crowd. The Rotunda hosted the crowd from several inputs and channeled it into the deck. Many patches to address specific functional problems were added, but the reform did not question the dystopian treatment of the crowd as element of uncontrollable nature. Even more, the fear of the crowd was also the fear of an uncontrolled mixture [121: 7].

Making the crowd beautiful

In those years some voices emerged, such as the already mentioned Gerard Stanley Lee, advocating a new aesthetic paradigm on the problem of the masses. In a 1901 article, titled precisely *Making the Crowd Beautiful,* Lee put forward a strong polemical defense of progress, mechanization and democracy, all as a manifestation of the spirit of the crowd, and therefore the spirit of the time. For Lee, *the crowd [...] was the new nature to reflect and incorporate the architecture: the city is the main fact that modern civilization stands for, and crowding is the logical architectural form of the city idea.* Making the crowd beautiful and making beautiful buildings were linked in the same process. The crowd not only incorporated ideas of urban form, but it became itself became an object to be made beautiful [84: 243].

Two years later, the Commission of Fine Arts in New York expressed intense interest in the final form and appearance of the new terminal, understanding that railway stations are public, even more so than government buildings. Therefore, *'the public, especially the most learned, should have a great and genuine interest in all the improvements of their character from an artistic point of view'.* The rhetoric of linking the crowd to the notion of a 'public' —educated to make aesthetic judgments— laid the foundation for reconfiguring the circulation of passengers as civic architecture.

In the drawing of 1912 of the Scientific American, for example, one can see exactly how the circulatory pattern built the visual composition of the crowd-in-motion. The design builds a complete view of the terminal and its multiple connections, a view that is impossible for the passengers themselves: its purpose is to reveal the

entire sequential movement more than the sum of its parts. The crowds become small, blurred groups of humanity, included in a circulation mechanism, whose integrity is invisible from itself. Thus, careful observation of the drawings reveals which ramps connected with which streets, and the passengers become moving particles that animate the whole. The Subway and long-distance train tunnels intersect with pedestrian ramps and hallways, to generate a series of visual parallels between the soft surfaces along which pedestrians walk and the tracks where the trains run. The movement of passengers was organized according to the model of mechanical mass transportation, in which uninterrupted movements slid on separate channels.

This didactic section was simultaneously a representation of civic architecture and an overview of the transport system. The functional aspect of ordering and transferring passengers was built as its very own special object of fascination, as a spontaneous choreography of mass transit. The thrill of mobility and movement was aestheticized in the mass movement of passengers. The choreography was visible from certain vantage points within the terminal, most notably in the balcony on the west side and galleries around the perimeter of the lobby. At these points, the organization of the crowd made itself visible. More precisely, it was from these points that the many passengers and bystanders could glimpse themselves, abstractly organized as a mobilized mass, as a system of changing constellations rather than random individuals. The advanced mechanism of human engineering formed a human picture, monumentalized in turn by architecture. The diagram of streamlined flow merged with the spectacle of human geometries [121: 11].





Lorca's take on the crowd

Years later, the poet Federico García Lorca would have a different take on the crowd, far less forgiving and more realistic, arising from the contemplation of a Sunday in Coney Island. *No one can give an exact account of what a New York crowd is; I mean, Walt Whitman knew it, who searched it for solitudes, and T. S. Eliot knows it, who squeezes it in his poem like a lemon, to extract from it poets, wounds, wet hats, and river shadows. But if we add to it the fact that this crowd is drunk, we will have one of the most intense vital performances that can be seen.*

Coney Island is a great fair where every Sunday in the summer more than a million creatures come. They drink, they shout, they eat, they writhe about leaving a sea full of newspapers and the streets littered with tin cans, cigarettes butts, bites of food and shoes with broken heels. On its way home from the fair, the crowd sings and vomits in groups of a hundred over the railings of the boardwalk, and urinates in groups of a thousand in corners, on abandoned ships, and on the monument to Garibaldi or the Unknown Soldier.

And, like Whitman, he finds solitudes: *No one can imagine the loneliness a Spaniard feels there; and more so if this is a southern man. Because if you fall, you will be trampled, and if you slide into the water, they will throw lunch wrappers on you. The rumor of this terrible crowd fills the entire Sunday in New York, hitting the shallow pavements with the rhythm of a drove of horses* [58: 259].



Coney Island Subway



Gowanus Crossing Subway, Brooklyn

The ELS: overhead railways

The Manhattan Subway

The cost of the tunnels and the difficulty of removing the fumes from steam locomotives delayed for many years the underground solution. Moreover, the discomfort, difficulties and risks of surface circulation gave impetus to the construction of overhead Subway and railway lines. The first was built in 1870 by the West Side & Yonkers Patent Railway between Dey St. (near the current Millennium) and 29th St., along 4.5 km of Ninth Ave. At the end of the decade, the Manhattan Elevated Railway built three more elevated lines on Second, Third and Sixth Ave., which provided the population with a huge increase in mobility.

Electrification and the invention in 1897 of the multiple of electric engines spread throughout the wagons allowed to do away with the machine and were a major boost for the overhead railways (ELS). In 1920 they reached their maximum extent, but in the 1930s they began to be demolished, in the 1940s they were no longer profitable and they were taken over by a public company, and in 1955 such systems disappeared completely in Manhattan. There are still some sections of elevated tracks to the north of the island, and several high systems in Queens and Brooklyn, stemming from the early 'ELS' [78: 8].

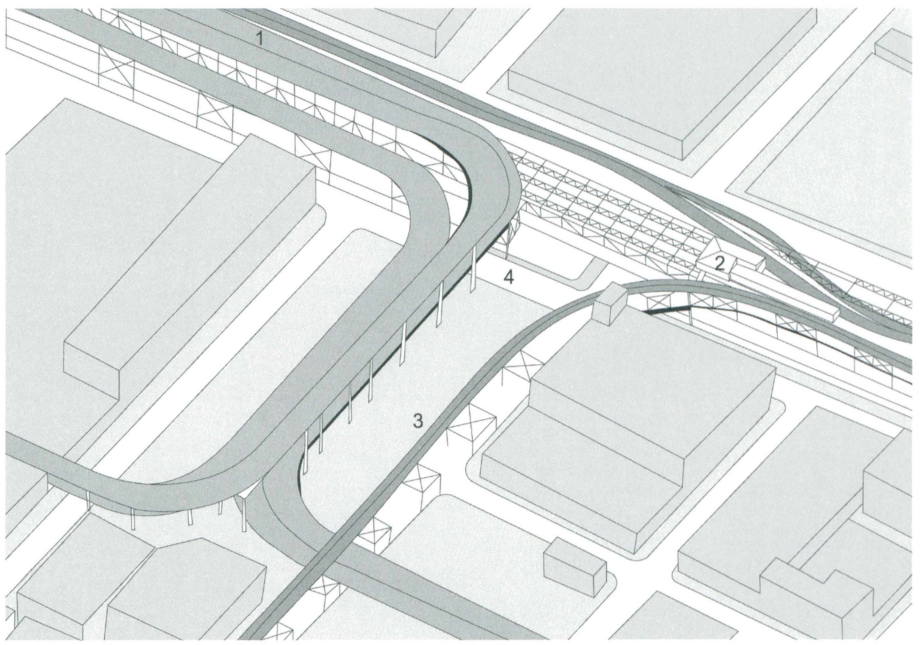
Interborough Rapid Transit (IRT)

As the network grew, the need for a faster urban transport system became apparent, because the ELS took about an hour and a half to complete the journey from Manhattan to the Bronx. Financier August Belmont created the Interborough Rapid Transit (IRT), and civil engineer William B. Parsons led the design and construction of the lines, owned by the municipality but paid in installments to the company [90:15 ff]. Between 1908 and 1910 the electric railway line between GCT in Manhattan and Brooklyn under the East River was also built, with two branches towards the Bronx, totaling 35 km that could be done at a speed of 64 km/h, more than triple than the ELS [78:10].

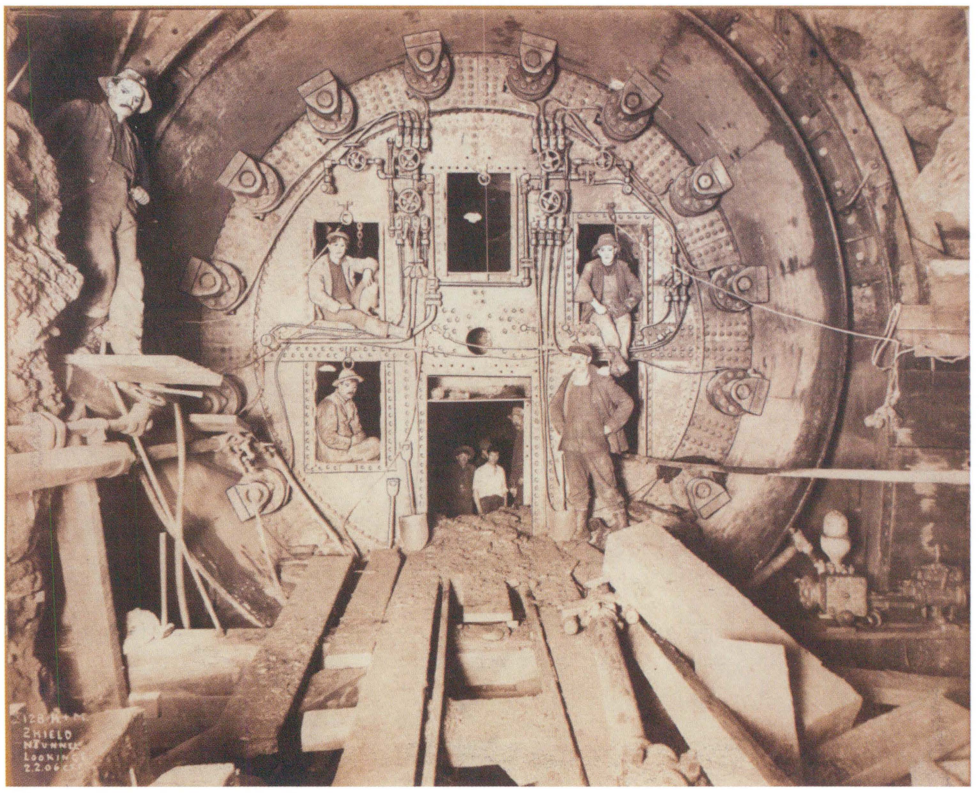
Finally, all lines were placed underground without building tunnels, through open pit ditches with upper slabs, supported in the gables and in endless rows of me-

Access to Queensboro
1. Ed Koch Queensboro Bridge
2. Queensboro Plaza Station
3. Subway
4. Queens Plaza S

Gowanus Crossing Subway
By Ana Rubio-Gavilán







Transportation Hudson tubes [Boring shields by which Hudson River tunnels were excavated.] 1908.

Overhead subway in Rockaway



tallic brackets very close to each other at the center. Access to the system was through many small inlets distributed throughout the crossings of the closest streets. Some of them do not have access to all lines or directions, but this avoids the existence of long tunnels and provides virtually instantaneous access. The entrances and exits of the stations are less crowded, as travelers spread throughout multiple accesses.

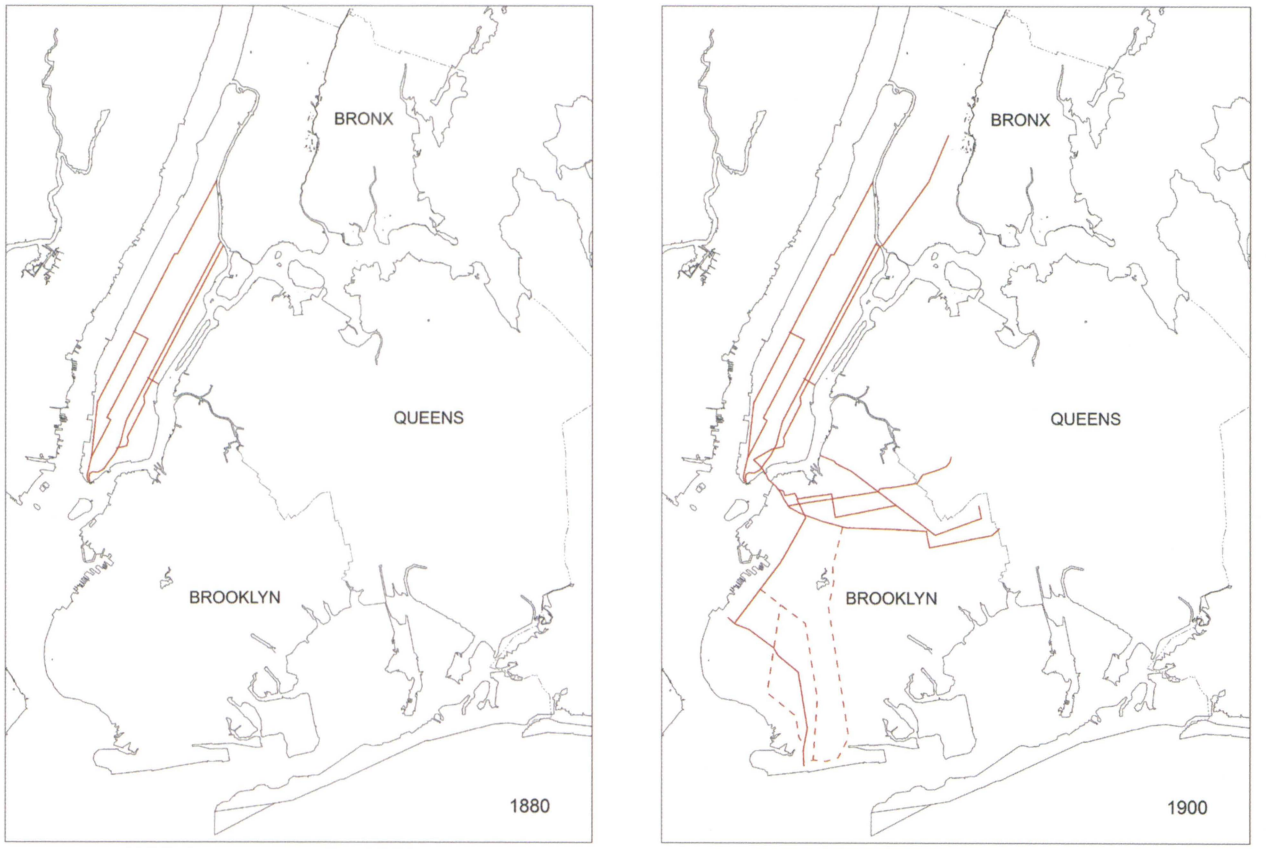
The success of IRT promoted a fast development of the New York Subway, both in Manhattan and in the other boroughs. The periods of greatest intensity in each of them were concentrated in the years 1870-1880 and 1904-1920 for Manhattan, 1880-1904 in Brooklyn, 1900-1904 and 1914-1920 in the Bronx, and 1914-1922 in Queens.

In 1913, a plan was approved for the rationalization of the companies, which consolidated a first Dual System comprising the IRT and the Brooklyn-Manhattan Transit (BMT). The construction of tunnels across the Harlem River and the East River was promoted, coordinated by engineers Alfred Craven and Daniel L. Turner. In the next decade, another system was built: the Independent System (IND), which built three underwater tunnels under the East River (lines A, F and E/V), another under the Harlem River (line D), and another under the Newton Creek (line G) [7:88].

The key to the Subway and railway services was to link the island of Manhattan to New Jersey and Brooklyn, overcoming the obstacle of the Hudson and East Rivers. The first attempt was under the charge of railroad builder Samuel deWitt Clinton, who tried to cross under the Hudson in 1874 with horizontally driven caissons. With building frequently stopped due to complications, accidents and the subsequent shortage of funds, the works were terminated with just a few dozen

Stages in the development of the Subway

Path Uptown Hudson Tunnels-1908



Outlines of the development of the New York Subway [64:193]. By Ana Rubio-Gavilán-Gavilán





meters completed. In 1889, they were resumed with an English contractor who employed a shield for the first time in the United States, but they quickly came to a stop, due to financial problems. In 1902, the third attempt by the English engineer Charles M. Jacobs managed to finish the work in 1908. The original route began at 15th St. in Jersey City, and ended in Morton St. in Manhattan, but it was later extended north on Sixth Avenue.

These tunnels, alongside those mentioned below, initially received different names, such as the McAdoo Tunnels, after the name of the owner of the Hudson and Manhattan Railroad, the Hudson Tunnels, the Hudson Tubes, and finally the H & M Tunnels, after the name of the railroad. Since 1962, the whole of the 22.5 km (14 mi) has been operated by the Port Authority Trans-Hudson Corporation (PATH), a subsidiary of the New York & New Jersey Port Authority [7:57].

A first attempt to build a tunnel under the Hudson River for long-distance railways from Philadelphia and the territories west of the city was abandoned due to the escalating costs caused by inadequate technology. A large suspension bridge was proposed, designed by Gustav Lindenthal, landing on 23rd St., but no agreement was reached on the sharing of costs between the different railway companies involved, and and the bridge project fell through.

But the Pennsylvania Railroad (PRR) —then the largest of the companies— could not stay out of the traffic to Manhattan. Deeming excessive the delay entailed by having to cross the river on ferries, it decided to build a full access to Brooklyn. That included a tunnel under the Hudson River bed, the Pennsylvania Station in Manhattan (see Chapter 6), and another tunnel under the East River, plus applicable ground tunnels in New Jersey, Manhattan and Brooklyn.

There was no clearly established precedent for the construction of undersea tunnels, other than some projects, such as the gas tunnel under the East River, the partially built Hudson Tunnels of the PATH, and the tunnel of Isambard K. Brunnel under the Thames in London. The material to excavate was very different in the two rivers: the



New Yankee Stadium

Pennsylvania Railroad Tunnels-1910

London Tunnel Shield



72nd St. IRT Subway Control House, opened in 1904, restored in 2003, almost identical to the project of Heins & La Fargue, Architects, of which only six were built, and only three are extant: Bowling Green and 72nd St. in Manhattan, and Atlantic Ave. in Brooklyn. Those located on West 103rd, 116th and 149th St. are gone [56:25].

33rd St. Subway, Queens Boulevard



Hudson River bed is made up of silt, while the East River is formed by a mixture of sand, boulders, gravel and clay on a rock base. Furthermore, most of the available methods involved temporary structures or the use of a floating plant in the navigation channels of the river, which was unacceptable [120: sp].

After a comprehensive review of the available technologies, engineer Charles M. Jacobs decided to adopt the shield with compressed air method. And that influenced the type of covering of the tunnels, to protect them against possible blowouts during construction, and alongside the maximum allowable slopes, it allowed to determine the minimum depth in which to build. In March 1904, the PRR signed a contract with O'Rourke Engineering Construction Company to build the Hudson Tunnel, 1.94 km (6360 ft) in length. A shield similar to the one in the Thames was used and, after many hardships, construction was completed in 1910 [12: 198]. Now they are also known as the Amtrak Tunnels.

East River Tunnels (1910)

The crossing under the East River was somewhat shorter, with 1.2 km (3949 ft), but it required four cast tubes of 7 m (23 ft) in diameter, like those used in the Hudson, to provide service to the light trains of the Long Island Railroad-LIRR. The chief engineer was Alfred Noble, president of the ASCE in 1903, who was assisted by Clifford L. Holland, later in charge of the tunnel under the Hudson that carries his name [7:58]. Its construction was completed in December 1910.

East Side Access (1969-2014)

The East Side Access is one of the largest public works projects currently in execution in New York and the United States. It began to take shape in 1950, around the new proposals for transport planning in New York City and it comprises numerous works in Manhattan, Queens and the Bronx. Overall, it requires more than 20 km (11 mi) of tunnels, including an underwater section under the East River. When completed, it will provide service to more than 160,000 passengers daily from Long Island and Queens to the new terminal in Manhattan beneath Grand Central Terminal (GCT). The project budget amounts to more than 10,000 B$, and is expected to start generating revenues in 2022.[21]





Control House North (Gruzen Samton and Richard Dattner & Partners, Architects, 2002)

The twin tunnels drilled into the rock of Manhattan go under Park Ave. to GCT, where eight tracks and four platforms will be arranged in the space now occupied by the underground tracks siding of Metro North in Madison Ave. In addition, a new passenger lobby and hallways with mezzanines will be built on the lower level of GCT and Park Ave. with over 2,000 m2 of new commercial spaces. The new facility will save an average of 40 minutes in daily trips back and forth from Queens and will alleviate overcrowding of trains and passengers at Penn Station, adding new connections to the Subway and Metro North Railroad.

The construction of the tunnel at 63rd Street and the river began in November 1969, and the upper level opened to the public in 1989. The tunnel spreads over 957 m (3,140 ft) between access shafts and a rectangular four-way section in two levels. Engineers Alfred C. Maevis, John T. O'Neill and George Ziegler, from the New York City Transit Authority, directed it [7:63].

The remaining tunnel between Manhattan and Queens began drilling in mid-2006, and was completed in 2012. While coatings and the placement of roads in the tunnels are finished, works under Grand Central Terminal, whose first contracts were signed in April 2014, are already scheduled to begin.

Express Subway services

Likewise, a great effort has been made to improve the speed of transport throughout Manhattan, with the introduction of Express train services. The Express trains do not stop at all stations, skipping two or three, to stop only at major stations. The design of the sections requires three or four tracks, two of which are reserved for Express trains, which can overtake regular trains.

In the busiest stretches, the Express tracks are located in the center, and at major stations, trains are accessible by central platforms located between them. Local services stop at all stations and run on the sidetracks —with external platforms— in congested sections, using the same tracks —and central platforms— as the express trains in other sections. This causes some confusion, and forces the user to be aware of the type of train arriving at the station, but it speeds up the service and allows for a much more agile system, with 24-hour service.



8 | Adams

Anticipating conflicts
New York City Zoning Resolution (1916)
Regulation: use, height, and occupancy
Staggered buildings
Not very restrictive rules
1961 law: higher skyscrapers
Regional Plan of New York and its environs (1929-1931)
First ideas about region
Stages in the country's evolution
Towards a physical planning
Development with Thomas Adams
Double the population
Drift from rail to road
New York ready to invest
New York Port Authority (1921)
Ammann the crossing of the Hudson
Change of site and use
Funded with tolls / From the train to the car
Parks, parkways and scenic roads
Bronx River Parkway (1908, 1925)
New York State Park Plan
Robert Moses appears
MerrittParkway (1940) / Art Deco bridges
Holland Tunnel (1927)
Underwater tunnels for cars
Ventilation system / General Pulaski Skyway
Queens Midtown Tunnel-1940
Brooklyn Battery Tunnel-1950
Lincoln Tunnel (1937, 1945, 1957)
Three casting tubes
Construction with shield
Othmar Ammann & Ralph Smittie
Bus Terminal (Kyle, 1950)

'Elephants Traveling Through Lincoln Tunnel After Rail Strike'
© Bettmann/Corbis.

Thomas Adams (1871-1940)
Anticipating conficts

New York City Zoning Resolution (1916)

The planning regulations in New York have completely different roots from those usually in place in other cities. In fact, they are an anomaly in the urban history of the United States [164: 47] for being designed to resolve conflicts between owners rather than to regulate residential occupancy. They regulated height, volume and shape of the buildings, but also made New York the first city to use regulation to streamline and stimulate the growth and development of a central area with modern corporate office buildings, advanced services and trade retail.

In 1913 he manages to create a commission to study the possibility of limiting heights and zoning the city, although by 1916 there were still no results. There was a threat of boycott, but the determining factor for its approval was the depressed market, when the well organized group of real estate speculators, usually opposed to any regulation, saw the standard as a mechanism to encourage the market toward a new upward cycle and protect the highly volatile property value of commercial land in Manhattan.

Regulation: use, height and occupancy

Finally, in July 1916 New York adopted the ordinance drafted by architect George B. Ford (1879-1930) and the statistitian Robert Harvey Whitten (1873-1936). The standard included the whole territory and its limitations were applicable to any plot of greater New York City. It contained three types of regulation: use, height and occupation.

It accepted a number of them for use as homes, hotels, schools, etc., forbidding all other uses; it collectively designated for residential use 40% of the area of Manhattan and the order of 65% of the entire city. In industrial areas it prohibited use for producers of bad odors or hazardous waste.

Staggered buildings

Height limitations were the most innovative and led to the so-called 'staggered buildings' (setback architecture). The rule established five districts in height and, for each, established a relationship between the width of the street and a certain maximum height. Above that height, the building could rise restricting itself in a certain proportion. In one district, for example, the ratio was 2 to 1, that is, for every meter of setback from the front two meters could rise. In an analysis of all the skyscrapers built in New York since the late nineteenth century until 2004, Jason Barr showed that zoning regulations succeeded in reducing the average height of buildings by 18% over time [13: 6].

In the center of Manhattan, restrictions were lower than in the rest and in less populated and more dispersed areas, the standard was very restrictive, demonstrating the will that the concentration in parts of Manhattan not be extended to the rest of the city. The first building constructed in accordance with the new regulations was the Heckscher Building (Warren & Wetmore, 1921), a set of 22 blocks of flats on a base of 9 floors without interruption. The final mass was elegant enough and the base was crowned with a markedly horizontal ledge.

Thirdly, the rule created a surface zoning aimed at restricting the occupancy of the land for new buildings, forcing vacated areas on the back and sides of the building. At higher altitudes, these free zones should be larger. In areas of small residential buildings, ground floor occupancy should not exceed half of the plot, while the first floor was limited to 30% [123: 21].

For the development and monitoring of the standard two commissions were created, mostly taken up by officials and private firms and real estate interests. The rationale for this composition rested on the protective nature of the rules, intended to ensure that housing investments not lose value with subsequent buildings around them.

The rule was not very restrictive, and the boom of the twenties showed that, despite improvements, it did not reduce building density and congestion. Insistent demands for greater limitation not addressed during the boom were made. Opponents argued that the towers were not profitable, but for large corporations and their occupants it was a matter of prestige and publicity that they were willing to pay. With the Great Depression of 1929 all fell silent. The last giant project is the Rockefeller Center, 1930. It proposed bridges between the garden terraces of different buildings and underground level stores opening on a square which did not prosper, containing a skating rink.

Not very restrictive rules

The liberality of the formula ensured that the rule not be modified for 45 years. New York, like many other cities, always adopted laws during cyclical downturns, as a means to stabilize the economy, when speculative traders were in a weak financial and political position.

1961 law: Higher skyscrapers

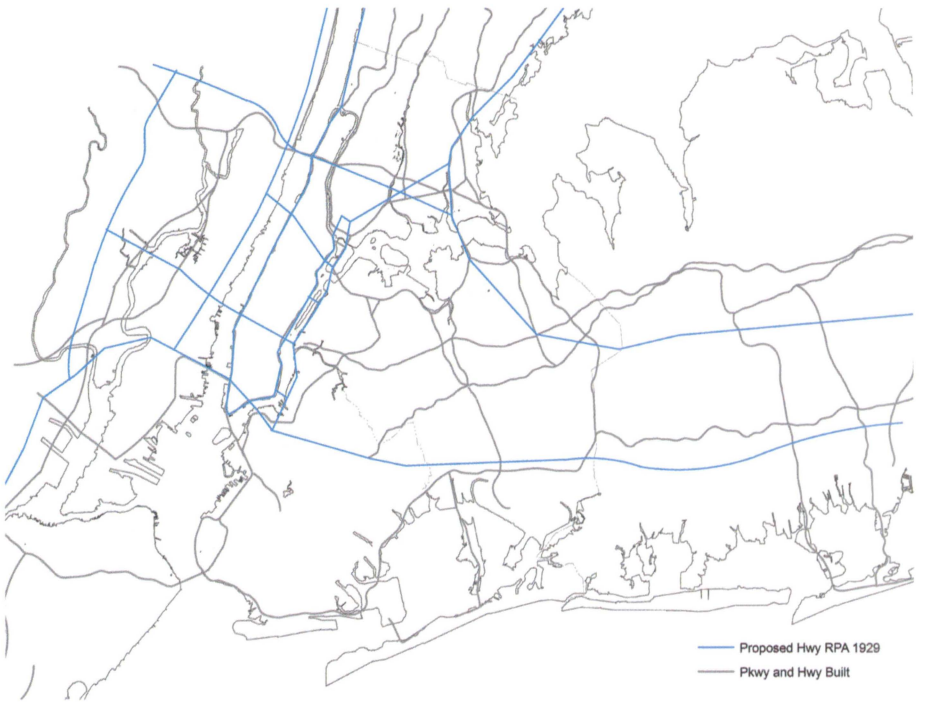
It was not until the law of 1961, which changed the population limit from five to twelve million, to find a restriction on buildable density and to attempt to expand public space. The towers are built in that decade, the line opened by Seagram Mies van der Rohe, born of the bonus (20% of buildable volume) applied to those liberating part of the site or, if only covering 40%, to complete freedom in height. But this potential improvement, just before an upward cycle, was no more than a concession to large corporations asking larger surfaces for their office towers, because now not dependent on natural ventilation and lighting.

Thus was born the great explosion of skyscrapers in the sixties and seventies, much bulkier than the previous ones between small windswept plazas towers. This modern image was imposed because the compensation was so profitable, the usable surface gained multiplied by 48 the assigned plot, so that without exception, everyone approved.

That is the objective utopia of urban planning and economic policy in many cities who live by congestion. The 'rational' solution, now and in any time, applies



Ariel East, 2628 Broadway



Regional Plan of New York and its Environs (1929).
Prepared by Ana Rubio-Gavilán



Lincoln tunnel, New Jersey side

only to newly founded cities, like Brasilia or Chandigahr - isolated examples. The vertical utopia is constructed piece by piece in each skyscraper and mall of the American Metropolis [46].

Regional Plan of New York and its environs (1929-1931)

In fall 1922, sociologist Lewis Mumford met the architects Clarence Stein and Charles H. Whitaker, editors of the Journal of the American Institute of Architects, who had just published an article by Benton MacKaye with enormous subsequent influence: 'An Appalachian Trail: A Project in Regional Planning '[88]. MacKaye had studied geology at Harvard and later became the first graduate of the Forestry School, created in 1903. To the professions of sociologist, architect and forester with Stuart Chase an economist was added, and in 1923 together with the architects Frederick Lee Ackerman and Harry Wright, they formed the founding group of the Regional Planning Association of America (RPAA).

The group debuted with a monograph issues of the New York magazine Survey which appeared on May 1, 1925, edited by Lewis Mumford, who presented as follows: *This number has been produced by a group of insurgents who, as architects and planners, builders and rebuilders, have tried to remold cities in conventional ways and finding the task a labor of Sisyphus, have pinned their faith boldly to the new concept of the Region*[22].

First ideas about region

The first article, by Mumford, titled 'The fourth Migration', summarized the history of the country as a series of migrations: *The first migration…cleared the land west of the Alleghenies and opened the continent, the work of the land pioneer; the second migration…worked over this fabric a new pattern of factories…the bequest of the industrial pioneer…the third migration, the flow of men and materials into our financial centers, the cities where buildings and profits leap upwards in riotous pyramids.* But now, continued Mumford, *we are again in another period of flow, [a] fourth migration which has made the existing layout of cities…out of square with our new opportunities: the tendency of the automobile [is] to disperse population rather than to concentrate it [...] Fortunately, for us [it is only] beginning [...] we may…lead… it into new channels* [71: 158].

Stages in the country's evolution

The very composition of the group marks the decisive shift that planning took. Its remit extended from the city to the region and the approach adopted transcended the plan and took on a scientific methodology. According to Mumford, the regionalist will try to plan the regional unity of climate, culture, and industry so that all areas- from the forest to the city from the mountains to the balanced framework can be developed. He will try for the population to be distributed appropriately to use its natural advantages rather than cancel them out and destroy them.

Towards a physical planning

The developer and planner Peter Hall, understands this new direction of planning as a clarification and implementation of the doctrine of the English architect Patrick Geddes, as the aim was not only greater efficiency but an overall improvement in quality of life [71:163]. And this also coincided with the birth of the American Conservationist Movement, supported by the pioneering works of Ralph Emerson (1803-1882) and Henry Thoreau (1817-1862), author of a new vision of relations between man and nature [118. vv.pp]. The conquest of territory resulted in seri-

ous damage to nature, with a strong pressure on resources and marked changes in the natural landscape revealed by George P. Marsh in his 1867 book *Man and Nature* [91].

This change of course by the RPAA oriented towards natural resources and the environment was marginalized by the business world, which had sought for years other ways to manage growth and had hired a famous English town planner, called Thomas Adams (1871- 1940). Adams had been director of a Garden CIty, town planning inspector and founder and first president of the Town Planning Institute. He was hired by Charles Dyer Norton, president of First National City Bank (now City Group) and supporter of the plan of Daniel H. Burnham in Chicago, to lead an ambitious plan for the entire region of New York. Norton brought his ideas from Burnham to New York, where he had moved in 1916, and in 1921 convinced the Russell Sage Foundation to finance the Regional Plan of New York and Its Environs.

Development with Thomas Adams



Holland tunnel

Thomas Adams arrived in New York in 1919, and formed a large team of collaborators and began studying the region. In an extensive Regional Inventory of eight detailed volumes, he acknowledged the problems of all industries in the region in a wide radius of 33 km (25 mi). The analysis revealed the need for a massive effort to improve the industrial infrastructure of the five boroughs of New York and the surrounding area of New Jersey. Specifically, it was a case of giving the area an efficient and well-coordinated network of railways, roads, wharves and public transportation that would draw out the industrial production of congested downtown Manhattan where, in 1922, still 420,000 people were employed in factories located south of 59th St.

Double the population

According to the calculations of the Plan, the population of 10 million people in the area in 1929, would double to 21 million in 1965 (in fact, the actual population reached 17.5). However, the plan proposed sufficient public transport systems to prevent residential dispersion (sprawl) and keep people in nearby industries and offices within the circle of 33 km (25 mi). Outside the industrial zone, the land is reserved for agriculture, private residences and, above all, parks or recreational areas for which three quarters of the region were intended [54: 107].

When Charles Dyer Norton died in 1923, Thomas Adams was confirmed by Roosevelt and named director of Plans and Studies. Solid and powerful, he had a very different and more possibilistic approach than the theoretical RPAA that could be accepted by businessmen who financed him. He did not intend a revolutionary plan, but some regulation to prevent market abuse and promote efficiency. In parallel, he proposed a set of improvements in roads, parks and beaches [71: 166].

Drift from rail to road

The plan was answered by the RPAA but not so much for its content but for its specific determinations as set up for execution. The main diversion was with the breaking of the delicate balance between road and rail transport present in the initial proposal. For example, there was a broad consensus on the need for a crossing of the Verrazano Narrows between Staten Island and Brooklyn, but the original proposal of a railway tunnel was gradually replaced by a bridge for road which excluded 'carefully and consciously' the rail [109 54] links.

Peter Hall summarizes the position of Thomas Adams in an attempt to decongest and decentralize New York enough so he could continue to operate in the traditional way, according to the purpose of the circle of financial and business men driving him. The critique of Lewis Mumford was broad and condemning of each of the proposals of the plan. It accepted growth as inevitable, ignoring the potential of planning to control it and allowing the same vices and excesses that had produced the current situation ... It seemed to be in favor of everything, concentration and dispersion control against speculation and subsidies against the market. Despite appearances, it represented a step towards centralization [71: 167].

New York ready to invest

The Great Depression and the New Deal program accelerated the implementation of the Regional Plan of New York and Its Environs. When the building program of Public Works in 1933 was launched, New York was the only city with a detailed plan of public works projects and preliminary drafts of major engineering works involved. It also numbered the great builders Robert Moses, director of the Triborough Bridge and Tunnel Authority and the New York State Park Commission, and Austin Tobin, director of the Port Authority.

Actually, between what was proposed by the plan and what happened afterwards seems to be a characteristic feature of New Yorkers (see Chapter 2). As Thomas Bender says, *Much of the reconstruction of New York identified with Robert Moses was prefigured in the Regional Plan a and even, I suppose I am arguing, in the movement to build the Brooklyn Bridge... What the Regional Plan envisioned — and what we gotwas a slab city in Manhattan and a spread City over a three-state region* [17:26].

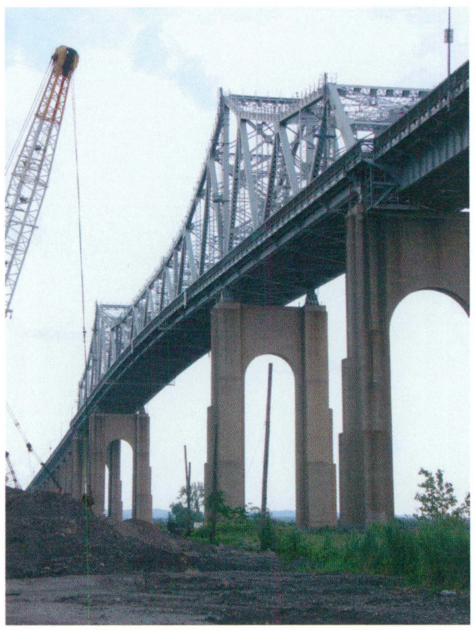
New York Port Authority (1921)

Ammann and the crossing of the Hudson

The initial project to cross the Hudson had been introduced long ago by the engineer Gustav Lindenthal, author of Queensboro bridges (1909) and Hell Gate (1916) (see Chapter 6). It consisted of a huge bridge over the Hudson to the height of 23rd St. accommodating 12 railway lines to guide the trains from New Jersey over the river and connect terminals along the banks of the maritime edge of Manhattan. In 1921, a review of the plan moved it north to 57th St. and opened modes of transport to the car by adding 20 lanes to the anterior 12 train paths. The budget could exceed $200 M and seemed an exorbitant amount, impossible to finance by the railroads or the city [48:88].

Othmar Ammann, who had worked with Lindenthal on the Hell Gate Bridge to rail on the East River, had collaborated on this new project. Before a new refusal by the Port Authority, Ammann tried to reduce the size of the project and move the bridge north to reduce the impact of entries to the city. Lindenthal refused and Ammann left him and moved on his own to continue to refine these ideas.

Othmar Ammann's first and crucial step was conceiving a totally different bridge over the Hudson. It would be independent of the railway, with no connection to any of its lines and make way to traffic of cars and light rail. That allowed him to move the







Outerbridge (John A. L. Waddell, 1928). Lowe, Jet, 1991.

Goethals Bridge (John A. L. Waddell, 1928)

bridge much further north of congested midtown Manhattan and its dense network of railroads. He chose to locate the bridge about 10 km (6 mi) upstream, at the height of 179th St. in Manhattan and Fort Lee on the opposite shore of Jersey City. There it was aligned with Washington Bridge built by Charles C. Schneider in 1889, to connect with the Bronx and northern Queens.

Change of site and use

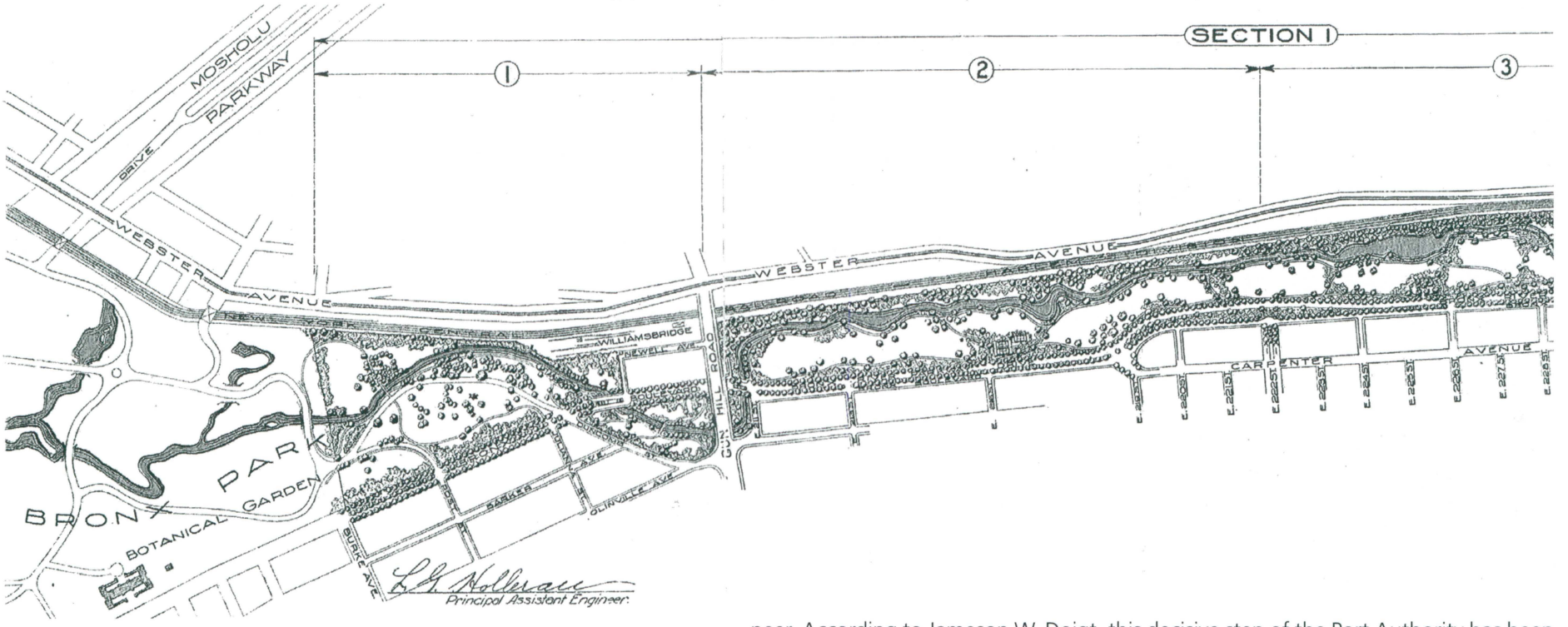
With this, the bridge acquired several advantages. It could be much lighter to avoid rail loads and lead into the top of the Palisades, avoiding the long access ways of the lower area of Midtown. It was also less controversial, since it avoided the fervent opposition of the great magnates affected by it and the need for a dozen railway companies, to agree, the main cause of the delay of the previous [48:89] proposal.

Funded with tolls

There was, however, a formidable new obstacle regarding how to finance the bridge for car traffic for which there was no precedent. Ammann worked very hard for several years to clear these unknowns and find political support to carry out his proposal. He studied delays of up to two hours incurred by drivers to cross the river and possible traffic generated by crossing the northern part of the city, to conclude that the bridge could self-finance with tolls.

His effort moved the focus of political and agencies, persuading them that their objectives were not necessarily linked to solving the problem of transporting goods by rail. Ammann convinced the Port Authority that it should meet the growing problems of congestion and car traffic in both states, like the hours-long lines to cross the harbor. In 1924, the Port Authority took the first step in matters relating to the car, with the construction of two bridges between Staten Island and New Jersey, the Goethals Bridge and Outerbridge, designed by John AL Waddell, but rejected the proposed designs by Ammann.

Finally, the proposal bridge over the Hudson Palisades moved forward and in 1925, the Port Authority agreed to take over the project and hired Ammann as bridge engi-



Bronx River Parkway Reservation, The Bronx to Kensico Dam, White Plains, Westchester County.

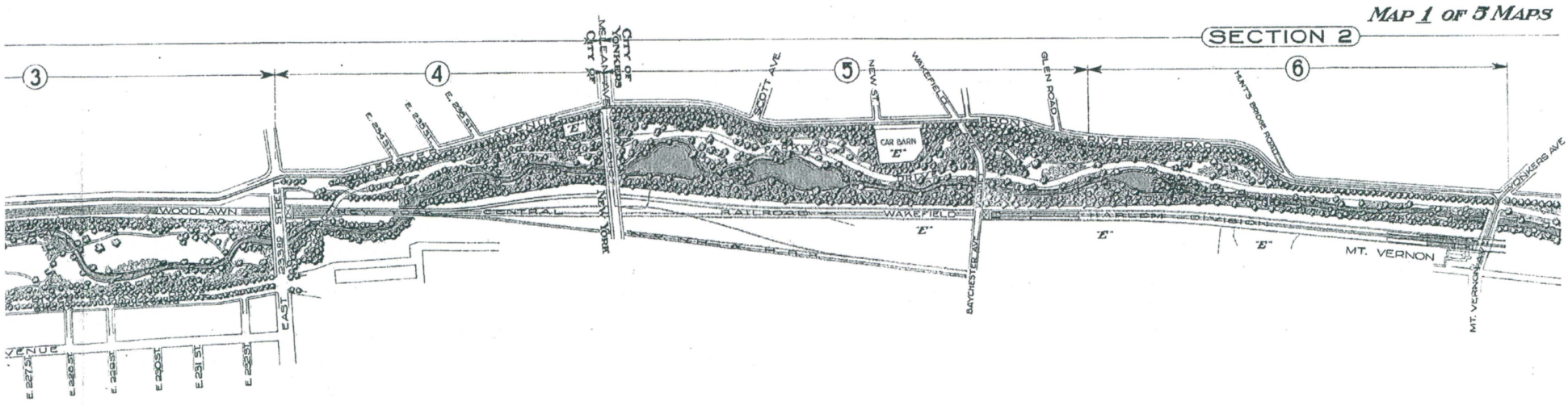
From the train to the car

neer. According to Jameson W. Doigt, this decisive step of the Port Authority has been interpreted in different ways. To some historians as Carl Condit, those responsible for the agency quickly lost interest in railways and they went into the construction of car links that promised generous toll returns.

Others like Edwin W. Bard argue that the agency tried to persuade the railroads until 1926 and even built a rail freight terminal in Manhattan, and then decided the other way. After examining the extensive documentation of the agency, Doigt concludes that the railway project was considered of great interest throughout the decade, although optimism about bringing it to fruition began to decline from 1926 [48: 102].

Ammann made his bridge (see Chapter 12) without notable setbacks, well before time and for less cost than budgeted. And with that success, the Port Authority undertook a new direction marginalizing a mode of transport as necessary as rail, whose employers did not know, were willing or able to achieve sufficient breadth of vision to solve the transportation problem in New York. The port found another way to organize, progressively abandoning the island of Manhattan and taking refuge in New Jersey and Brooklyn. And the streets of the city ceased to serve as a link between the piers that extended into the sea and, gradually, were being demolished or used for other purposes.

The big winner was the Port Authority, previously unclear and little reciprocated by the railroad companies, and now turned into something more than a planning agency. With the George Washington Bridge, the bi-state agency achieved a strong reputation and a wealth of benefits. The bridge far exceeded expectations and multiplied traffic and toll revenues, allowing the agency to undertake complex and wide-reaching projects (see Chapter 13).



Parks, parkways and scenic roads

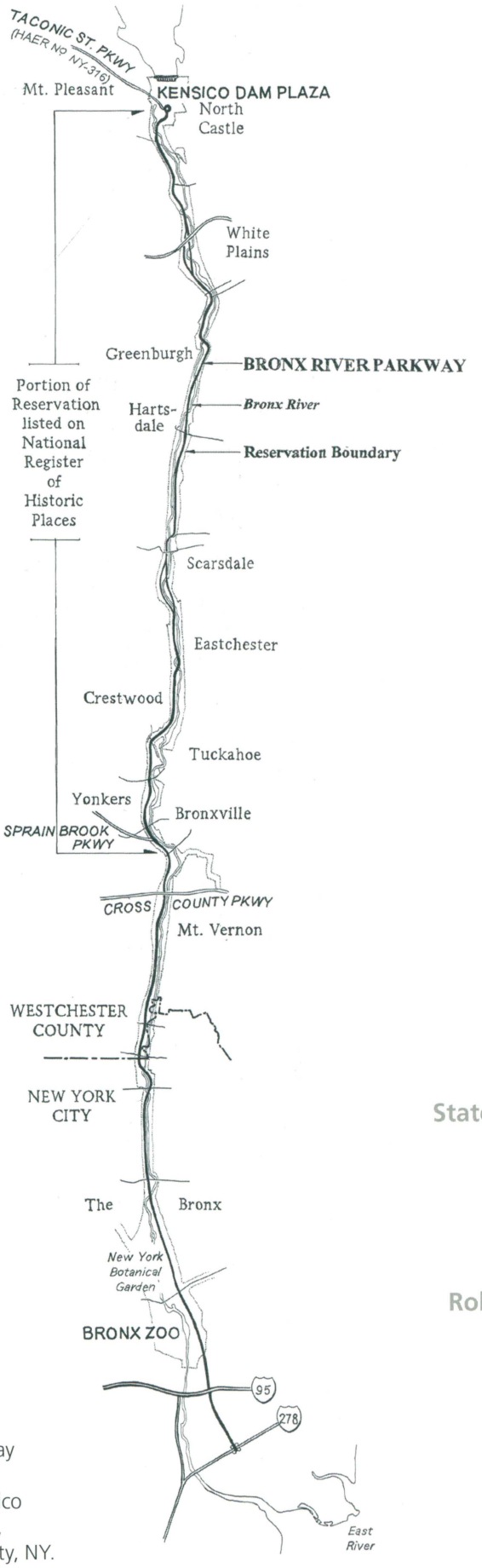
On its own initiative, the Westchester County Parks Commission (WCPC) had built 113 km (70 mi) of parkways with their own funding before approving the issuance of bonds, retaining the services of renowned civil engineer and landscape architect Gilmore Clarke (1892-1982). One of the biggest hits of the Commission was a joint project with the city of New York, conducted in two major thrusts in 1908 and 1925 and finished in 1953. The Bronx River Parkway runs 31 km (19 mi) north to along the river of the same name from Soundview in the Bronx to the public park at the foot of the Kensico Dam and in a second stage extended north.

The first Bronx River Parkway had two lanes and, when subsequently extended, expanded to three. The soft path ascends the valley of the Bronx River and decidedly participates in its natural character. The scenery on the sides of the road is a boreal forest vegetation with acacias, bananas, limes, plus a combination of maple (Acer saccharum) and oak (Quecus rubra) acquiring spectacular colors in autumn.

Bronx River Parkway (1908, 1925)



Bronx River Parkway



Bronx River Parkway Reservation, The Bronx to Kensico Dam, White Plains, Westchester County, NY.



Henry Hudson Parkway, up to Wall St.

New York State Park Plan

The second section of the Bronx River Parkway 25 km (15.5 mi) long, was built by G. Leslie Holleran between 1912 and 1925. This model was a version at regional scale with separate driveways and cross underpasses used by Olmsted in Central Park. Frederick Law Olmsted and Calvert Vaux had defined and applied the concept of parkway in Boston Fenway, completed in 1880.

Of the same period is the first part of the Henry Hudson Parkway (1908, 1925), designed (see chapter 5) according to the principles that for Frederick Law Olmsted and Calvert Vaux inspired the first Eastern and Ocean Parkview. But, like the Bronx River Parkway, it was already fully designed as open country road and not as urban boulevards connecting large parks.

In 1922, as part of its political reform efforts, the New York State Association (NYSA) published A State Park Plan For New York, the first such comprehensive plan for any state's parks. New York's few parks at that time had been managed by a loose combination of public and private interests, and all the land had been donated to the state since the legislature would not appropriate money for any park outside a city.

Robert Moses appears

It was a state plan for the acquisition and protection of large areas of natural resources, then in private hands, worth $15 million ($210 million today), financed by bonds, an amount much higher than any previous proposal. A subsequent review proposed management coordination of the state park and development through various regional commissions, centralized in a State Council of Parks (SCP) Integrated Conservation Department.

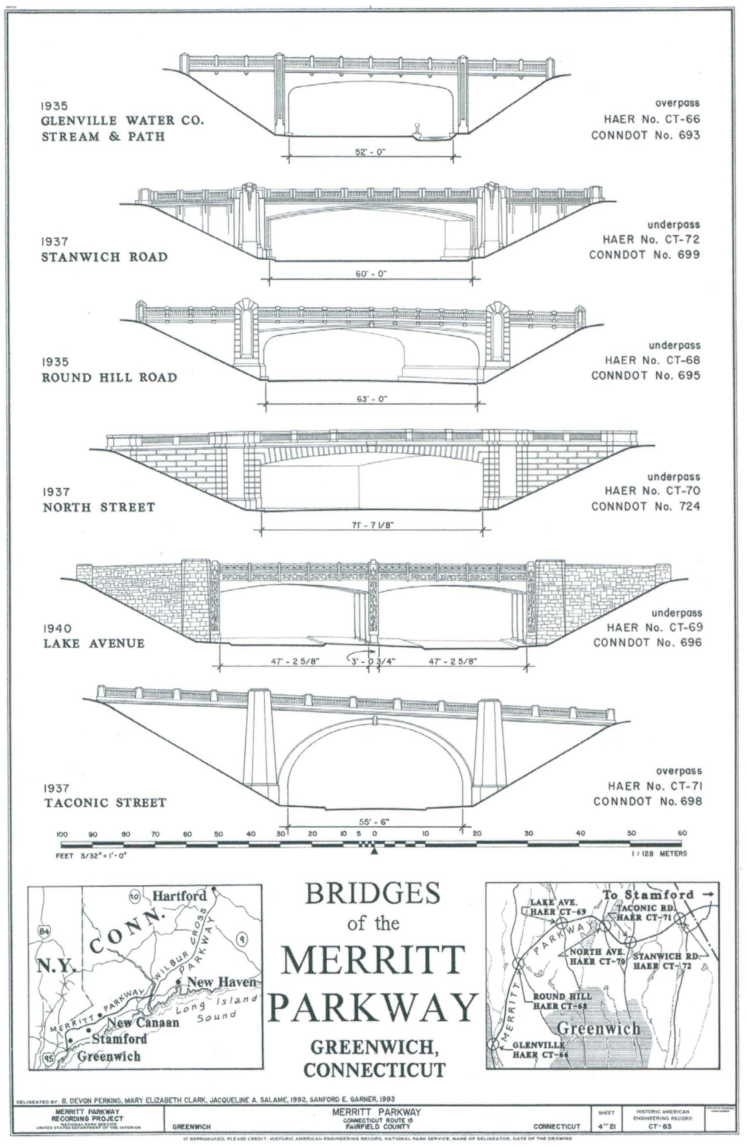
The author of the Plan was Robert Moses, secretary of the NYSA, who had combined the ideas of the technicians of the Association in a document that revolutionized the

planning of parks. Moses had been lieutenant of governor Al Smith, and persuaded him to submit the bond issue to voters. People had a good image of the Department — for its help in building broad parkways, used as access for cars to cities, with associated areas of sports and recreational activity — and the idea was well received.

Legislation to create the administrative structure of the state parks was written by Moses, after securing the appointment of CEO with considerable power, both of the SCP and the Parks Commission of the State of Long Island. In 1924, lawmakers unanimously approved the bill and, in autumn, the bond issue got an overwhelming majority[23].

The Merritt Parkway (1938-1940) was the first highway with median and limited access in Connecticut. With a design linking the first parkways to rivers and the sea front, it was one of the first roads to combine the aesthetics of scenic and recreational roads with the efficiency of high velocity highways. It represents a significant advance in the evolution of American design of roads, assuming for the first time aesthetic principles and the very name of parkway in direct service of the automobile.

Merrit Parkway (1940)

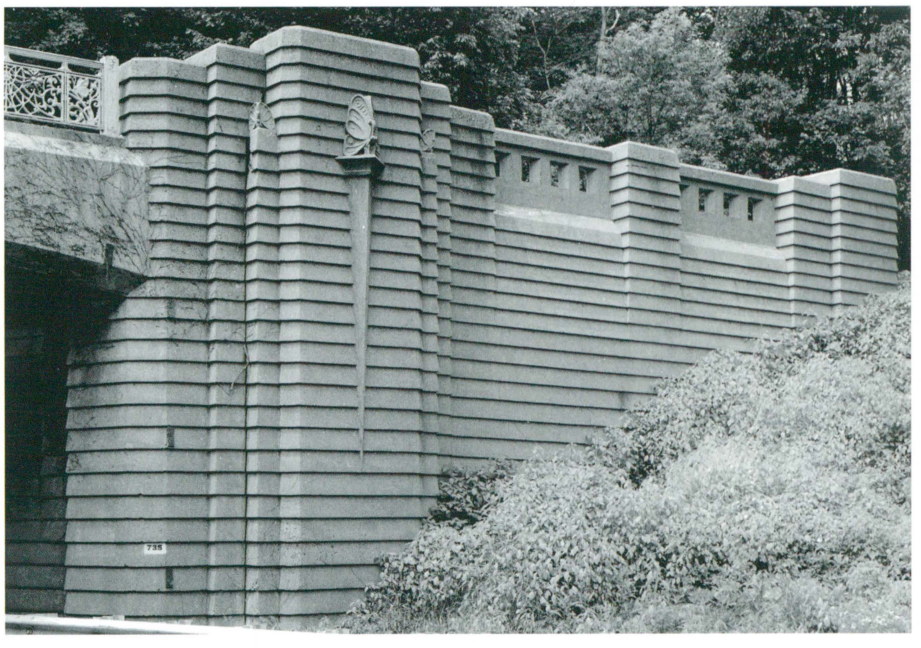






Merrit Parkway (1940)

Merritt Parkway, Beginning in Greenwich & running 61 km (38 mi) to Stratford.



Detail of decorative abutment showing concrete butterflies. Merritt Parkway.

Merrit Parkway Bridges



The lack of ties to any park or recreation area did not prevent thoughtful treatment of the vegetation on the banks and for the careful design of the trace. The curves, cambers, additions and departures of track were laid gently and fit quite well with the morphology of the area. The road runs through an area of lush vegetation, accompanied by two bands of bushes and trees on its banks.

During construction of the road in the 1930s, landscape architects worked closely with construction crews to transplant trees located in the trace to the banks and nearby areas. And they also planted new specimens of native species in those areas, to provide nice views for travelers.

In autumn and spring travel between the greenery is truly 'scenic' and is dotted with access to large institutional buildings, such as Yale University or buildings or smaller sets but always well maintained.

Art Deco bridges

Furthermore, it was decided to devote a great deal of design and a generous budget to achieve appropriate bridges above and below the road. The adornment of these bridges introduced styles such as Art Deco and Modern Art in a new context, but did not have many followers. Their design is due to George L. Dunkelberger and they are made with great care, using thin panels modeled as carvings and placed as formwork of reinforced concrete bridge.

For the implementation of beautification, the help of sculptor and artist Edward Ferrari was enlisted, author of many of the motifs that adorn these bridges, from the bust of a pilgrim or a Native American or the outspread wings of an eagle. Overall abound more geometric motifs but in many cases the forms of the panel, the battery and the stirrups are introduced to produce staggerings and depressions that give unity to the whole [24].

There is also an overpass built with two highly discounted stone arches and a central stack. They were required by neighbors, somewhat annoyed by Art Deco, keen for the rural air so beloved by those seeking to combine the advantages of the city with the

rural character of access roads and residences in their daily routines of work and rest. This rural motif, cheaply constructed and of great symbolic efficacy, was then widely used in subsequent highways.

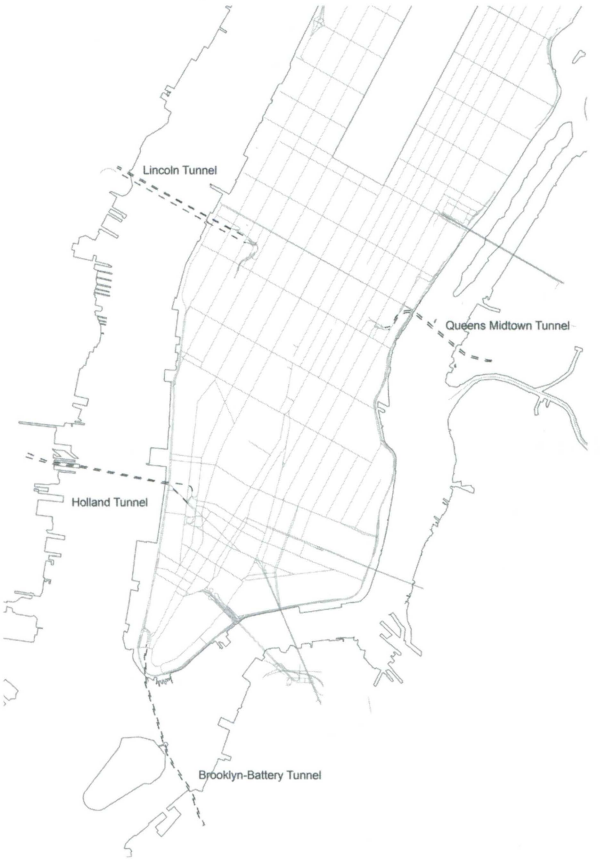
Thanks to its excellent design, MerrittParkway was highly appreciated by drivers and residents. In addition to significantly improving access to the city of New York, it played a crucial role in the rapid commercial and residential development in Fairfield County in 1930 and 1940, and became a model for many excellent roads and later highways, although it was also used as a technique to camouflage terrible embodiments of highways after a string of trees and bushes. The abstract painter Willem de Kooning painted a large painting entitled *Merritt Parkway* in 1959.

Underwater tunnels for cars

In 1908 the first Ford Model T left the assembly line and New Yorkers began immediately to replace carriages with the automobile. In 1917 the last horse tram was replaced by a mechanical drive, in a wave of change that seemed unstoppable. Planners were relying on the preeminence of the railways to move large crowds, but the need to plan bridges and tunnels for increasing traffic was becoming evident.

Othmar Ammann's promising proposal allowed out of the vicious circle created by the railroad companies, unable to agree to resolve the crossing of the Hudson,

Holland Tunnel (1927)





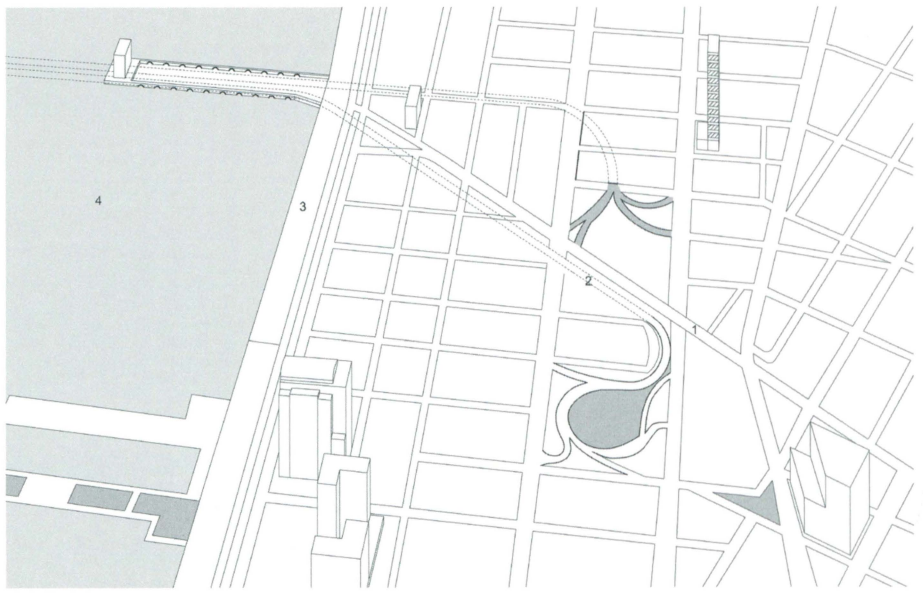


Holland Tunnel, staff entry and ground ventilation Holland Tunnel, tower and access gateway





Holland Tunnel entrances



Access to Manhattan from the Holland Tunnel

1. Canal Street
2. Holland Tunnel
3. West St.
4. Hudson River

Prepared by José de la Paz

Ventilation system

either with a bridge as proposed by Gustav Lindenthal, or a single tunnel. The particular solution of the PRR building their own tunnel to get to Penn Station highlighted the difficulty of cooperative solutions and only the most powerful company could tackle it alone.

The Holland Tunnel (1927) was the first road tunnel built between New York and New Jersey, under the formidable obstacle of the Hudson River, not yet overcome by the George Washington Bridge (Ammann, 1931). To promote it two commissions were proposed, involving experienced engineers as William J. Wilgus and George W. Goethals, chief engineer of the Panama Canal. In 1919 chief engineer Clifford M. Holland, author of the PRR tunnels under the East River was named. It was decided to place it at the height of Canal St. to find a quick connection to the Manhattan Bridge and establish the first strategic crossroads of the island of Manhattan.

It was a case of building the underwater tunnel of 2.6 km (1.6 mi), the longest in the world, although the basic shield technique for the railroad crossing, located a little further north, had already been experimented with. Holland used steel rings to form the mass of the concrete section to achieve the necessary tightness. But it was necessary to solve the new problem of ventilation of fumes from cars, which did not exist for electric trains, and for which Holland and his assistant Ole Singstad developed an innovative system.

The tunnel section had a diameter 60% greater than that of railway tunnels and a conduit was placed under the road through which fresh air is injected. The stale air was expelled by a duct between the tunnel roof and the top of the tube, allowing air to completely revamp the tunnel every 90 seconds. The air was driven by 84 large fans over four buildings, two on the banks of the river and two further inland [7:59].

From the day November 12, 1927, after its inauguration by President Calvin Coolidge, the bridge exceeded all expectations and its obtained tolls quickly surpassed construction





Entrances to the tunnel with the General Pulaski Skyway (Hugh L. Sloan, 1932)

costs. Then, truckers and motorists asked for more tunnels and only one year after the inauguration developers demanded new permits to their respective states to build a new tunnel [61:25].

General Pulasky Skyway

To improve access to the western mouth of the Holland Tunnel an extension of 21 km (13 mi) from the N1, with the name of General Pulaski Skyway (1932), connecting Jersey City to Newark, both in New Jersey was built. It was designed by Hugh L. Sloan and the consultant Fred Lavis, with a capacity of 20 million vehicles per year (Mv / y). In 1980 it had reached 15 Mv /y, and from 1934 the road was banned for trucks. In 2014 it reached 74,000 traffic of v / day, equivalent to about 25 Mv / y.

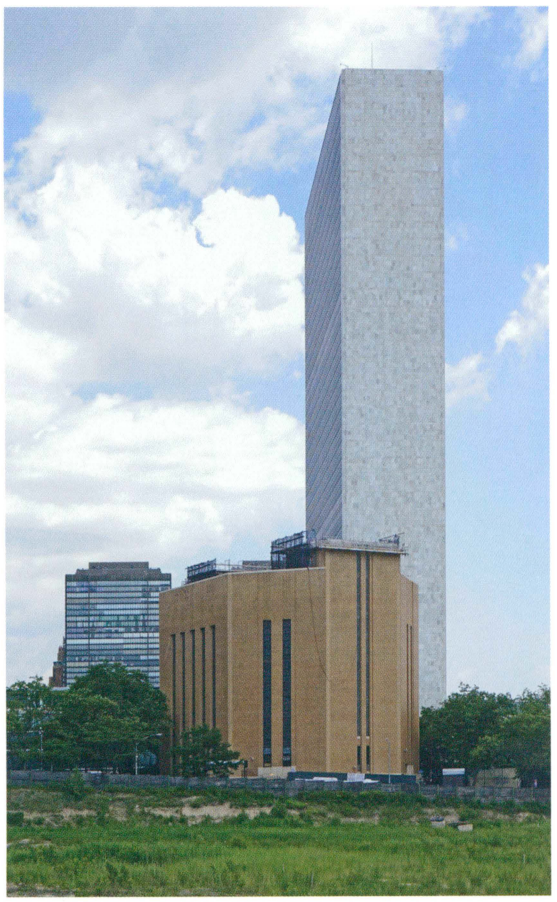
In about 6.5 km (3.5 mi), the road runs on a viaduct metal lattice. The causeway was designed by Sigvald Johannesson (1932) and crosses Passaic and Hackensack with two large steel truss cantilever bridges. They are 381 m (1,250 ft) in length and are formed by a main span of 168 m (550 ft) and two entrances of 107 m (350 ft). Since April 2014, the elevated section is closed for a total renovation of the board and a general strengthening of the structure that will last about two years [6:52].

Queens Midtown Tunnel-1940

The Midtown Tunnel connects the district of Murray Hill in Manhattan at the height of the East 36th St. with Borden Ave. And the Long Island Expressway in Queens. It was the first of four tunnels authorized to the New York City Tunnel Authority (then Triborough Bridge and Tunnel Authority) and was built under the direction of engineer Ole Singstad between 1936 and 1940. Its cross section is formed by two tubes of 9.4 m (31 ft) diameter shield built with compressed air atmosphere [7:60].

Although its connection to the grid tissue does not require structures elevated higher than the passage under three Avenues, and inconspicuous, the impact of the exit tunnel on the use of the Manhattan neighborhood is devastating.

The output axis of the tunnel is aligned with 42nd Street, right on the south side of the United Nations block. The ventilation tower is located there. The tunnel turns southwest to pass under First Ave., passes 37th Street and has an exit on the



Midtown Tunnel, ventilation tower

Brooklyn Battery Tunnel-1950

southwest corner of the crossing and another one in the middle of the block towards Second Ave. Before crossing underneath it it receives an input on each side, by Tunnel Entrance St. It crosses below Second and Third Aves. spreading the exits to the south, west and north.

The exit north on Midtown Tunnel Exit St. occupies four blocks and confines them with a brick and stone wall 1.5 m high on each side. It leaves no sidewalks and entrances to buildings from streets 37 to 41, with a kind of corridor for cars completely oblivious to urban life.

With 2,780 m (9,117 ft) the Brooklyn Battery Tunnel (BBT) was the longest underwater tunnel in the United States. It crosses the East River and connects the final stretch south of the two highways that run along the coast of Manhattan with Hamilton Ave. and the Gowanus Expressway in Brooklyn. It is one of the controversial cases of choice between bridge, the option Moses defended, and tunnel, advocated by President Franklin D. Roosevelt. It consists of two tubes of cast iron 6.5 m (21 ft-4 in) built by Ole Singstad and Ralph Smittie (from 1946) partly with shield and compressed air and partly by rock excavation at ambient pressure.

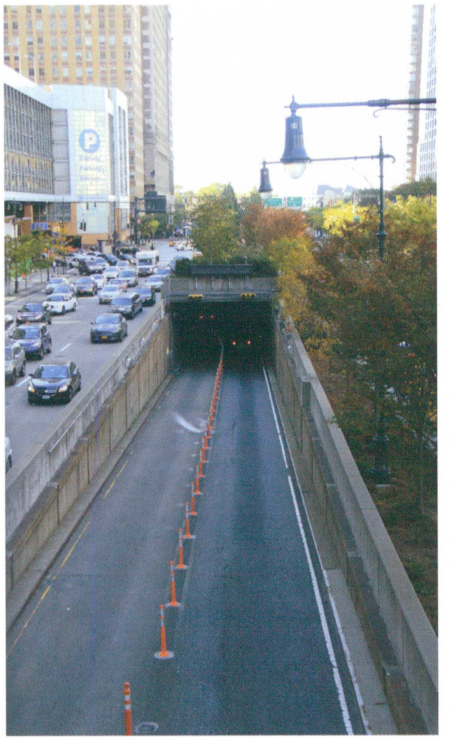
The tunnel entrance in Battery Park has an additional branch of about 800 m (0.5 mi) in length to duplicate entries avoiding local traffic. The set of ramps and tunnels are quite engaged and does not produce significant distortions, except the usual crop of twists and meanings in the surrounding streets. The scale of all ventilation devices, signs and walkways is restrained [7:63].

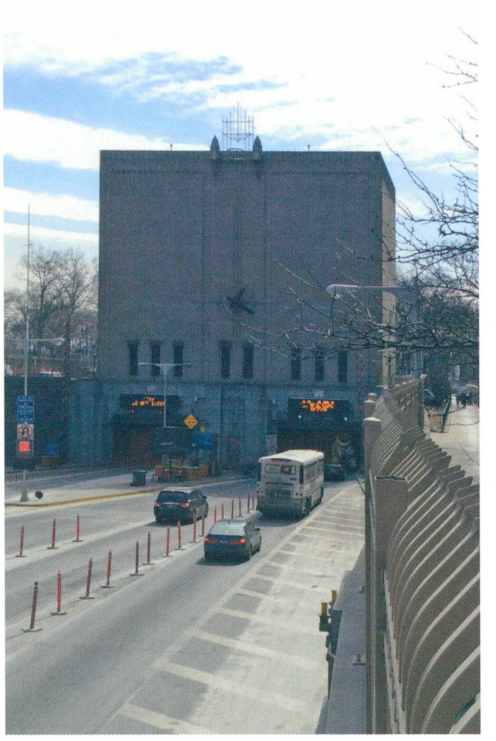
Lincoln Tunnel (1937, 1945, 1957)

The Lincoln Tunnel connects Midtown Manhattan, off of 39th St. to Jersey City and several major highways in the state of New Jersey. It is reputed as the tunnel with the most traffic in the world, with a volume of 43 million vehicles per year in 2009.



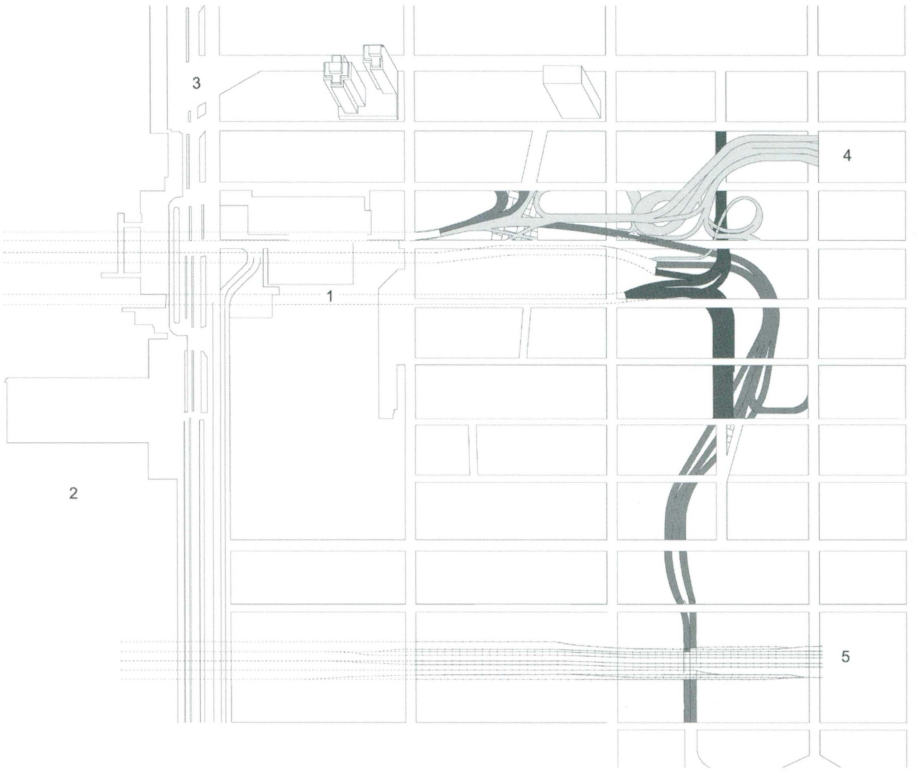
Battery Tunnel







Lincoln Tunnel



Access to Manhattan from the Lincoln Tunnel

1. Lincoln tunnel
2. North River
3. 12 th. avenue
4. Port Authority bus terminal
5. Penn Station

By José de la Paz

Following the success of the Holland Tunnel (1927) and while the George Washington Bridge was still under construction the need became apparent for a third car crossing of the Hudson, located between the two to provide direct service to congested downtown Manhattan. A facility located about 4.8 km (3 mi) north of another tunnel, which was about 11 km (7 mi) south of the bridge was chosen. From the outset, its convenience for all bus lines linking downtown Manhattan to Jersey City center was considered, which in fact, had had a decisive importance in the complex design of the access side of Manhattan.

Three casting tubes

The tunnel has a section formed by three cylindrical tubes of 9.5 m (31 ft) in diameter, allowing a road of 6.6 m (21 ft 6 in) with two lanes for each tube. The tubes have an average length of about 2,400 m (7,800 ft), of which 1,400 m (4,200 ft) correspond to the underwater section. The circular section of the tube was cut by an upper and a lower slab of concrete, to accommodate ventilation systems above and below. The sense of each tube can be modified to accommodate traffic changes. The tubes are cast, reinforced with steel or cast iron in the most critical areas.

Construction with shield

They were constructed by the shield method with compressed air atmosphere, advancing simultaneously from both sides. Each of the shields was sunk in the ground by means of hydraulic jacks pushing from already placed rings. Once sunk they excavated therein, to redistribute carefully extracted material along the tunnel to stabilize the front and allow time for air pressure to equilibrate.

Each ring is composed of 14 curved segments secured together with high strength bolts and once formed in place, it is screwed to the previous. In transition sites horizontal or vertical alignment conical rings were used. Upon completion of the tubes slabs upper and lower concrete were made, leaving a clearance of about 4.2 m (13 ft 6 in) for vehicles. Once the slabs were placed the entire section was coated with concrete and glazed with ceramic on top for easy maintenance [119: 169].

Othmar Ammann & Ralph Smittie

The project was directed by engineers Othmar Ammann and Ralph Smittie and bi-state agency funded by the Port Authority of New York and New Jersey. The first tube was finished in 1937, but construction difficulties on the Jersey City entrances and World War II delayed the opening until 1945. The huge increase in traffic after the war led to the construction of a third tube, finished in 1957. In 1976 a reversible lane for the exclusive use of buses capable of channeling 1,700 buses a day, concentrated on office entrances and exits opened [7:59].

Bus Terminal (Kyle, 1950)

To organize the flow of public transport a bus station, the Port Authority Bus Terminal, connected by a complex system of ramps at the entrance to the tunnel was built. The terminal building occupied the southern part of the block between Eighth and Ninth Avenues and 40th and 41st Streets and was built by John M. Kyle and opened in late 1950. In 1963 three floors of parking were added and in 1979 the expansion to occupy the northern part of the whole block was completed, managing to increase by 50% the capacity of the terminal.

In this expansion the existing facades were formed: the main one on Eighth Avenue consists of a series of large trusses of two floors edgeways supported on columns,



Helicopter view of the bus terminal bldg.
Margaret Bourke-White.
The LIFE Picture Collection. Getty Images





Port Authority Bus Terminal (1979)



leading to a porch along the front. The trusses are turned to form the corner of the side walls, but then are replaced by a succession of crosses with diagonal bracing. Guides include it in the list of the ten ugliest buildings in the world. The interior has been remodeled in 2007 and has the level of design expected of these types of transport exchange, with stairs connecting the different floors and a large Metro station underneath.



9 | Harrison

Showing corporations. 1920-1960
From Institutions to Corporations
Buildings and institutions for offices
Art Deco joining classicism
Modernity with new symbols
Greater visibility with high towers
Woolworth Bldg.. / The light rise of gothic civic architecture
Consolidation of the urban skyline / Design of skyscrapers
Three stylistic steps / Sullivan's theoretical support
Product of its own possibilities
Early appearance of the iconic
Forced abandonment of ornament
Objects in a dreamscape / Empire State Bldg..
Domain of structure and installations
Built in only 14 months
The real estate business / Difficulties and IPO
Time is Money / Art Deco developments
Chrysler Building / NY Life Insurance Bldg.
Raymond Hood / His vision of design in architecture
Projects and theoretical writings / Multi-purpose skyscrapers Radiator Bldg.. / Daily News Bldg..
McGraw-Hill Bldg.. / Wallace K. Harrison
A classic successful race
Harrison's mark on New York
Rockefeller Center / Early primal outline
Method and workspace
Harrison controls, Hood designs
The New York way to build
Center and metaphor of the world / Entrances and plaza
Rooftop Gardens / United Nations
Bringing the world to New York
Search for headquarters site / Unwanted protagonist
Harrison controls the project / Tower, deck and building
Mumford and Moses / United Nations Plaza



1 World Trade Center
2 Woolworth Building
3 60 Hudson Street, former Western Union Building
4 Flatiron Building
5 Empire State Building
6 American Radiator Building
7 McGraw-Hill Building
8 Chrysler Building
9 Mobil Building
10 Celanese Building
11 Exxon Building
12 Time & Life Building
13 Radio City Hall
14 GE Building, former RCA Building
15 Corning Glass Building
16 Metropolitan Tower
17 Metropolitan Opera and Lincoln Center

Wallace K. Harrison (1895-1981)
Showing corporations

Buildings and institutions for offices

From Institutions to Corporations

Before 1920, New Yorkers took down important historic buildings and replaced them with new and better buildings. But as Robert A.M. Stern points out, for the first time in history, at the time of development and splendor of 1920, many significant buildings for the city were demolished to make room for others of lesser distinction. Large institutional buildings were replaced by whole blocks of offices and shops. The most luxurious residences in the heart of Manhattan were abandoned by residences in the countryside and replaced by apartments. The pressure of prices and taxes was a decisive factor, but there were significant changes in the tastes of residents, now passionate about country life and eager to escape the noise and the rush.

Motivating change and a product of new wealth, modernity strongly erupted to renovate values and tastes of the public. The historic buildings ceased to be models for new buildings and the past gave way to a more practical sense. Location, function and material offered themselves as substitutes for orders, styles and ornaments that had been in force as the canon for centuries. But many creators did not want this current to wash away certain values of the great classical buildings: their serenity, dignity or scale achieved by the unit.

Art Deco joining classicism

A possible result of this is the classical nature of New York modern buildings in the interwar period, with roots in fin de siècle Vienna and Art Deco elements. Symmetrical plans and pyramidal volumes were built with a new sensitivity to materials and modernist ornamentation. Columns, pediments and arches were absent from design, while the dominant gray and seriousness of the stone was enriched with other colors and textures of different materials [152: 19].

The pursuit of greatness and magnificence for large institutional buildings was a general attitude of the architects of the time. As stated by the architect Cass Gilbert, *Public buildings should encourage just pride in the state, and be an education to oncoming generations to see these things, imponderable elements of life and character, set before the people for their enjoyment and betterment... It is a symbol of the civilization, culture and ideals of our country* [64:144].

Modernity with new symbols

However, these buildings were reducing their prominence in the city and began to be replaced as repositories of civic pride. Economic growth in the early 1920s encouraged the formation of large corporations that required other types of buildings. With big budgets and thousands of employees, these companies wanted to be present in the lives of citizens and elected architecture as a commercial claim. They built large

buildings in the city center that displaced small businesses. Their main interest was to make visible their presence in economic life, but had a decisive influence in shaping the city.

As Stern noted, *The shift was directly reflected in New York's architecture and urban structure, with the privately financed, corporate-owned skyscraper replacing the lower public building as the preeminent symbol of the city's civic pride. For the first time in the city's history, business building defined the cutting edge of architecture, setting standards and precedents for other building types* [152:30].

In reality, these large buildings were not occupied entirely by these corporations. The usual pattern was to find a well-located and build a very visible large building. The company kept a fraction, enough to house their employees and promoted a real estate business with the rest. The office space needed for the headquarters of these companies could assume a few floors, or a percentage not exceeding 10% of the building, so it was mainly for large real estate.

Greater visibility with high towers

That had a major impact on the building type chosen because, to achieve greater visibility, it was necessary to build higher. But given the limited space reserved to the promoter, the idea of placing a tower on a bulky building started to become the go-to solution [51].

Woolworth Bldg.. (Gilbert, 1913)

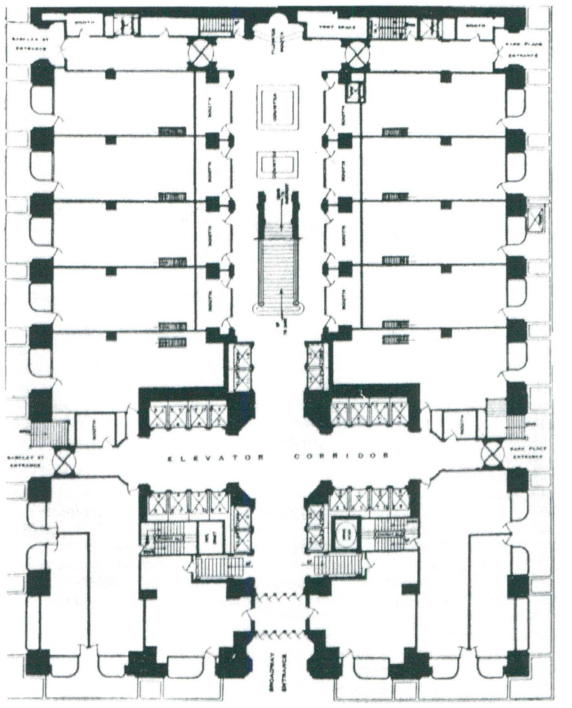
One of the first buildings seeking visibility for its owner was the Woolworth Bldg.., Built in 1913, and referred to in Chapter 6 (given the link of Cass Gilbert with MM&W). The FW Woolworth Company controlled a commercial emporium of over 600 stores and owner Frank Winfield Woolworth wanted to build a building that would produce more revenue than any other. He chose to do a lot in corner that allowed its full visibility and asked the architect Cass Gilbert to project the highest tower in New York, at least 50 feet higher than the Metropolitan Tower. The building would host his company and the Irving National Bank, led by himself, so consideration of his enormous ego cannot be alien to any assessment of the building [25: 382].

Gilbert had no previous experience in skyscrapers, but the project met these demands with a height of 238 m, with a total of 60 floors that given the monumental height of any of them, would correspond to about 80 floors with a standard height of about 3 m. The alleged 'grandeur' came from the hand of a gothic style demanded by the owner and appropriately consolidated under the name Trade Cathedral, very appropriate to his egotistical pretensions.

The light rise of Gothic civic architecture

Cass Gilbert did not quite agree with that denomination, as he sought a character of Gothic architecture from the late fifteenth or sixteenth century, such as from the towers of the city councils of many cities in northern Europe and not from its earliest cathedrals. He looked for the light, delicate, funny and flamboyant of the style itself and its capacity for infinite subdivision [25: 387].

To the logical demands of style, the claim of maximum profitability added many practical consequences. To facilitate the rental of offices, for example the windows were sufficiently narrow to allow tighter partitions for the demands of future users, and the occupancy rate of the nuclei of communication regarding the leasable surface was the lowest in New York. The vertical spirituality of the Gothic in elevation and



Woolworth Building: Plan ground floor, by Cass Gilbert.

Woolworth Building





compositional efficency in the plan were allied with pure commercial pragmatism of the proposed business, in perfect harmony[25].

Both before and after the financial crisis of 1929, skyscrapers did not stop rising, completely occupying the Wall Street area located at the southern tip of Manhattan and Midtown, the middle area of the city, definitely considered the two large office areas. Between the 1890s and 1930, New York acquired its famous skyline, as well as the monumental clasical structures that continue to define its public spaces. It is a period when vernacular and modern New York urban aesthetic took form [17:28].

Consolidation of the urban skyline

Design of skyscrapers

Need or advertising claim

In an article published in 1932 the GATEPAC[26] group makes an interesting reflection on the evolution of skyscrapers. It begins by stating that the objective of building high upwards is an American product whose purpose it is to *concentrate in a small space of land the maximum amount of individuals: that is, a product of necessity.* But then, it recalls the medieval towers of San Gimignano and Siena, built as 'advertisement' to indicate the strength of a sector of the city, while skyscrapers announce a great hotel, an industry, bank, etc.

Due to the limited land and its enormous value, skyscrapers invade Manhattan: *they are the monument which, if they survive, will give future generations a perfect idea of life in the years of capitalist prosperity during the first post-war period* [60:37]. After pointing out its need, appeal and significance, the article points to the question of its future, which will be a permanently open question in the theory of the construction and the city (see Chapter 15): What fate awaits it? GATEPAC asks. On that terrible crisis of 1930, the architectural emblem of large industries seemed unsustainable.

Three stylistic steps

Leaving this open question, it reminds that the New York skyscraper is *feasible thanks to steel and practical because of the existence of the elevator.* And is amazed by the American ability to build quickly: one of the most interesting wonders of modern industry. Then it comments on its various stages, from the start, when the structure was clad in stone materials, *entirely unjustifiable from the economic, construction and architectural view,* where the architect was a bad decorator. In those early days, the rule was to divide the building into base, body and top, as if it were a European Renaissance palace with the design effort concentrated up and down and a monotonous intermediate body with many equal openings.

In a second step, local regulations forced them to be set back (see Chapter 8) to not overwhelm and give more light to the streets, which began to be incompatible with classic elements. A theoretical review on the aesthetics of skyscrapers then occurs, and after some hesitation, gets into the positive side of this kind of construction. The key is in the *horizontal position of the windows, which evenly split light in the interior, where thousands of people must work. It also introduces a human dimension, and as a contrast clearly suggests the impression of height.*

The third season has just begun. Its future depends *only on whether or not they required large concentrations (since they embody the only hygienic and rational solution of this problem). The article ends hopefully: We can therefore expect to be given soon the magnificent spectacle of something that is the proper expression of mechanistic advancement, coupled with a complete renewal of the spirit* [60:39].

Sullivan's theoretical support

The criticized tripartite division of the first commercial skyscraper was the go-to solution in New York in 1890. Louis Sullivan was commissioned to theorize it in his famous article 'The Tall Building Artistically Considered' which appeared in 1896 and in his two skyscrapers, the Wainwright Bldg.. in St. Louis and the Prudential Bldg.. in Buffalo. Also, the influential Montgomery Schuyler supported the composition of skyscrapers based on the division of classical column base, shaft and capital, whose aesthetic functions were clearly differentiated by a formal development that had become classic. Many architects of the time studied the classical orders in the École des Beaux Arts in Paris and the orders were included as a priority in the curricula of schools of American architecture.

Sullivan argued that, since all floors (corresponding to the shaft) were equal and displayed stacked on one another, they should show their horizontal nature as an essential element of the entire structure. He gave two complementary reasons, which the GATEPAC would also make theirs three decades later: horizontality helped introduce the human scale, and reduced thickness with height supported the horizontality of the structure.

But, when the height of the towers continued to increase, Sullivan's careful solutions became useless and the conviction grew that skyscrapers lacked aesthetic interest. Their functional, structural and construction constraints left little scope for architectural treatment, then entirely linked to ornamentation.

Product of its own possibilities

In 1945, the Argentine historian and architect Mario J. Buschiazzo saw things slightly differently to GATEPAC: *It is quite a common error to assume that the skyscraper was created as a consequence of the scarcity of land and the crowding of buildings in the commercial district of Manhattan. However, it has been definitely proved that it was neither first created in that district, nor was it at the beginning an expedient made compulsory by sheer necessity. What is now the unavoidable solution of a terribly difficult problem of congestion, was initially but a boastful flourish of constructive technique* [28:77].

Until 1881, height did not exceed ten floors because hydraulic lifts were dangerous and inefficient and because the foundation of those great ten story stone walls did not fit on the site. But then lifts became more efficient frame structure and the lattice structure permitted increasing height leaning, when it became necessary, on the capacity of elevator shafts, turned into strong cores. But although the compositional design of tall towers did not stop finding solutions, their upward growth was unstoppable. The skyscrapers were ever higher because they could be: the construction type fed on its own possibilities.

Early appearance of the iconic

Despite the theoretical debate and the routes proposed by Louis Sullivan, many architects believed it necessary to find an appropriate aesthetic to design skyscrapers. Some conflict between the real estate business and its design aspirations began

to emerge. A wide-reaching escapist theoretical position arose throughout the twentieth century. For many architects, the blame was on the side of the public and landowners: they had to change their tastes to make a 'good architecture'. Early days point to the subsequent invasion of the 'icon' as an autonomous value of design, the skyscraper as purely ornamental object conveniently sealed by the signature of its author.

As noted in 1896 the architect Clarence Blackall: *Very few of our tall office buildings are in accord with their locations and surroundings, but this is more due to the selfishness of the owners of high cost lands than real lack of appreciation by the architects. We do not need to reduce the height of the buildings, but rather, we want to reform the public tastes and the greed of capitalists, so that we can will design our tall buildings as ornaments and not as mere money mills* [25:190].

The influential magazine Architectural Record shared this view. A 1901 editorial titled The Design of Our Tall Office Buildings — The Latest Phase, criticized the ornamental impoverishment. This is because their builders — who were not the owners but 'some company organized especially to 'finance' such big undertakings' — refused to spend money on anything but the essentials and whatever special features might be demanded by prospective tenants. The new skyscraper was '*a severe four-squared, flat roofed, many-windowed thing, presenting to the gazer from without as little splendor —as little sumptuousity as may go with fine material and good building, and that in spite of the millions spent upon them.'*

Forced abandonment of ornament

At the same time editors of Record and Guide saw it in a completely different way, later confirmed in subsequent years: *The new 'plainly utilitarian' structures, although created by economic necessity were really more impressive than the older buildings overloaded as they are with 'architecture'. We have apparently developed a type, which in future will be adhered to closely* [25:284].

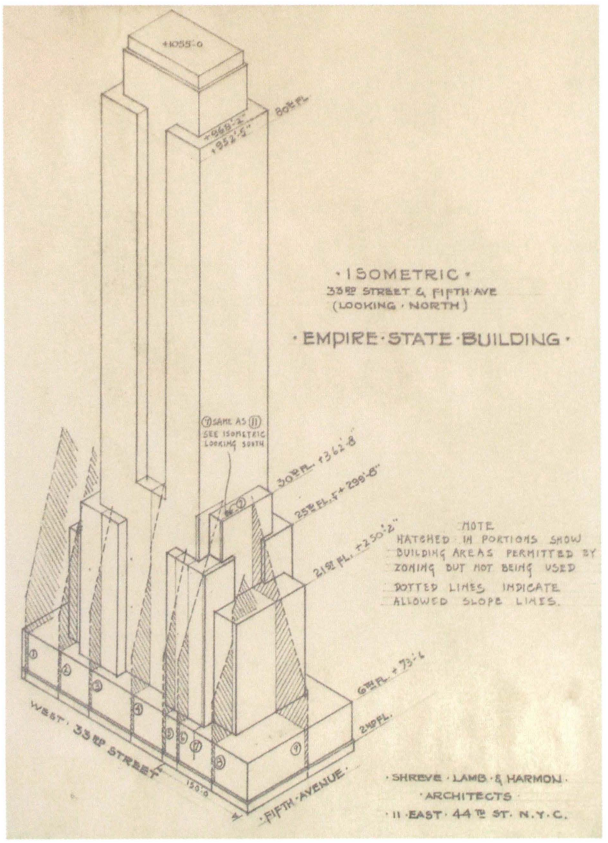
Objects in a dream landscape

Over time, the phenomenon of increasing height each time has been seen in a more complex way, both regarding intentions and results. According to Robert A. Stern, height was, undoubtedly, an important issue, but the most important thing was, by far, to achieve a striking silhouette, a permanent independence of the form and, above all, the power to inspire. Neither innovative technology nor plain height could turn a high building into an accomplished skyscraper; a genuine skyscraper had to be a proud tower, a fully modeled shape.

The iconic made its way with ease and the discipline of the project weakened to make way for a stylistic experimentation, which could be almost anything. While it is important to clarify that these were not only design whims, but there were other reasons to feed the demand, regardless of fashions and styles, based on the motivations of social success and prestige. Living on top is an important symbol of status and power, for which high enough prices suffice, independently of the ideas of the building designer. Sellers label them 'exclusive places' and that's exactly what is wanted. As noted by Jason Barr, sociologist Veblen already discussed the 'conspicuous consumption' of intended to flaunt the wealth required to reside there. That has always been a major boost to the construction of tall buildings [13: 4].



Rockefeller Center



Empire State Building. Isometric 33rd street and 5th Ave. (looking North). Harold Rider Collection, ArchiTech Gallery.

Empire State Bldg. (William F. Lamb 1931)

With design and without it, the cityscape changed. As the critic William Curtis notes, between 1900 and 1920, *Manhattan was transformed into an ersatz historical dreamscape where Mayan temples stood only feet away from Gothic spires and classical mausoleums. Among these were buildings of notable quality such as Flatiron Building, […] Woolworth or Chicago Tribune.* [43: 219].

A few years later, a concrete building took over this landscape, for its size and its approaches: the Empire State Building (Shreve, Lamb & Harmon, 1931). Its total height of 431 m (1,414 ft), equivalent to about 102 apartments, including a radio tower and a mast for blimps, added two years after its completion to achieve the title of tallest building in the world. It was a response to the mast added to the Chrysler Building to snatch the record before its completion. The Empire held the record until the construction of the Twin Towers of the World Trade Center in 1975, and regained that distinction after their destruction on September 11, 2001[27].

Domain of structure and installations

Its strength seemed beyond doubt, but it did not contain major structural innovations: the engineer Homer G. Balcom (1870-1938) designed the structure with a lattice of riveted metal parts, with innovative forged composite steel and concrete. The final test of its structural rigidity of the skyscraper was the way it resisted the impact of a B-52 bomber lost in the fog on the 69th floor, on July 28, 1945, which killed the crew and ten people present in the building.

The improvement of systems and installations already indicated a total mastery of high buildings. The 62 elevators, 58 passenger and four cargo, including two of them going directly to the observation deck access and another inside the mast, reaching speeds of 330 m (1,083 ft) per minute. The 1,239 automatic elevator doors were connected to a control station to adjust the vertical traffic [28:84].

Built in only 14 months

Its appearance, wealth and circumstances are sufficiently known, but note two issues the with ability to surpass later buildings of some importance. The first is the speed of its construction, by the firm Starrett Brothers & Eken, thanks to standardizing both pieces of stainless steel and limestone cladding, and all systems and installations, to reduce weight and the term of their placement. From the preparation of the ground to the entrance of the first tenant a record period of only 14 months went by, something unattainable even with current methods and a model for all subsequent large buildings [7: 110].

The real estate business

The second relates to business figures involved in its construction and subsequent property management. The building has gone through very difficult situations with only a third of its surface leased, and very prosperously. In October 2013 the owners made an IPO and placed it on the stock exchange for a worth of about 930 million dollars. The size is not important but the offer had great resonance because it is one of the most famous buildings in the world. Shares of Empire State were listed on the New York Stock Exchange (NYSE Euronext) under the symbol 'ESRT' acronym Empire State Realty Trust, the owner skyscraper background.



Empire State Building



Hall del Empire State Building

Difficulties and IPO

It is not the first time the building was put up for sale. Actually its opening coincided with the Great Depression and as an investment was a disaster: most of its offices were not occupied and the cost of the additional observation tower took the lease profits. The owners could not sell until in 1950 it became profitable. Roger L. Stevens bought it for $51 million, then the highest price that was paid for real estate deal. In 1961, the Empire State building was sold again to a consortium of about 2,800 owners grouped in Malkin.

In 2012, the Empire State Realty Trust tried to launch a public offer, but was forced to delay it due to the demands of shareholders and tenants. The decision to go public ended a dispute between two groups of owners. One group wanted to maintain ownership of the building as in 1961. The other wanted to unite the Empire State with 18 other properties in New York in real estate investment trusts (REITs) and then sell their shares to the public.

Time is Money

As is well known, time and money always go together. Playing with the words of the motto of Louis Sullivan — form follows function — historian Carol Willis, director of the Skyscraper Museum, published an article in 1992 and a subsequent book called Forms Follow Finance. In it she recognized the crucial role of building codes, the dynamics of speculative finance, and historical land use patterns in shaping the Empire State Bldg.. and the skyscrapers of Chicago and New York in general [28].

Specifically, Carol Willis explains how this maxim was literally applied in the construction of the Empire State Building and other skyscrapers. The costs of interim interest and taxes were so high that accounts only turned out well if the building began renting quickly. The speed of construction was crucial to the profitability of the operation and instructions to the architects were simple and stark. In the words of chief designer, William Lamb: *The program was short enough, a fixed budget, no space more than 8,5 m (28 ft) from the window to corridor, as many stories of such space as possible, an exterior of limestone, and a completion date of May 1, 1931, which mean a year and six months from the beginning of the sketches* [162:172].

Art Deco developments

Despite the pressure of business, the rise of the Art Deco style is remarkable, with nearly 120 buildings in less than twenty years. It is somewhat surprising that the abundance of buildings was fruit of the optimism of clients who, in the Depression, were still willing to carry out large projects such as the Institute of United Arts Masters, which sheltered under the same roof a residential hotel, restaurant, a design school, a museum and a 500 seat auditorium.

Art Deco lacked the liberating thrust of the international avant-garde, and for the mandarins of the Modern Movement — Alfred Barr, Russell Hitchcock and Philip Johnson — found itself excluded from their canon. And at the same time, it could hardly be dismissed as a mere decorative prolonging of the École des Beaux Arts and maybe that accounts for the complex cultural legacy it left behind [56:65].

Sometimes the goal was to present the Art Deco style as a symbol of emancipatory promise of the modern world in general. A good example is the form and the ceiling of the lobby of the Western Union Building (Voorhees, Gmelin & Walker,

1928) in West Broadway. With its brick openings and vaulted ceiling lobby, this work can boast of being one of the best made with light brick in the United States [56:63].

The height of Art Deco style building could be science fiction Chrysler Building (William van Allen, 1929) which, along with the RCA Building and the Empire State Building still stands as one of the masterpieces of the period. With its richly dressed elevator booths and elegant silver top, the Chrysler Building has survived inside and out as exceptionally built testament of an era of unprecedented optimism.

Chrysler Building (Van Allen, 1929)

For Kenneth Frampton, the outer shape of the building is equally tectonic, with its brick skin coupled with its climbing facade to the start of the metal pinnacle,

Chrysler Building and Queensboro Bridge



Chrysler Building
(van Allen, 1929)





and the staggered and coordinated form on the 30th floor, where there are radiator fronts made of stainless steel, finishing every pediment of fenders and standardized hubcaps with four gargoyles in the shape of eagle heads on the four corners.

When it was completed, its aluminum pinnacle contained a gazebo, a private club, a gym and a duplex for its owner Walter Chrysler. Here neon light was first used as a form of indirect lighting, hidden in this case by stone screens like stalactites descending from the top of the interior, designed by Edward Trumbull [56:63].

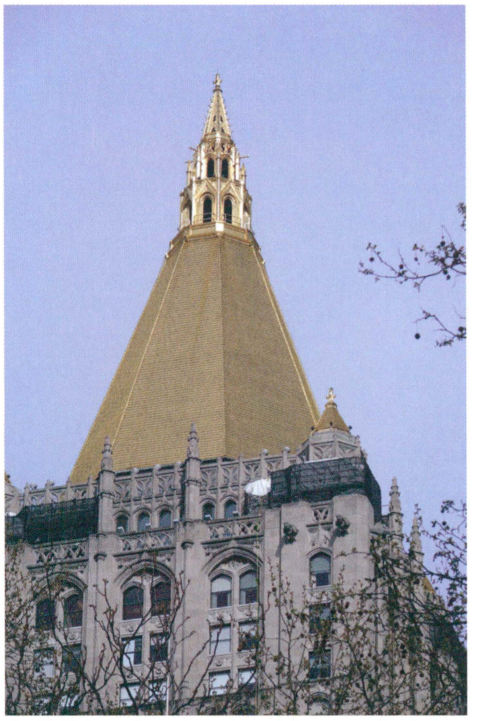
Its dazzling appearance did not escape the criticism of its time. With little enthusiasm, Lewis Mumford found it guilty of *real dangers of a plutocracy: it gives the masters of our civilization an unusual opportunity to exhibit their barbarous egos, with no sense of restraint or shame. Among the many blessings of depression, one must count the diminution of such opportunities* [152:609].

The *Architectural Forum* saw it as a perfect example of commercial design of the age and architecture as bait, like a vast expansion of a well known brand, although it was more critical of details such as the eagles, that added little to the quality of the building. But its main virtue may be in its exuberance, its absurd magnificence. There were all kinds of opinions; between the statements collected by Robert A. Stern, one sums up the disparity*: Some think it is a freak, some think it is a stunt. A few think it is positively ugly; others consider it a great feat* [152:610].

**NY Life Insurance Bldg.
(Gilbert, 1928)**

Designed in 1926 by architect Cass Gilbert, author of many other buildings in New York, including the historic first skyscraper, is the Woolworth Building. It was inspired by Salisbury, cathedral, rising 40 floors to its golden pyramid





New York Life Insurance Bldg.
(Gilbert, 1928)

apex and occupying the entire block between Madison and Park Avenue South, and 26th and 27th Streets. The building is 187 meters high and was the last significant skyscraper built by the architect. From 1890-1925, the site was occupied by the first two Madison Square Gardens and previously as railway depots.

It cost 21 M$ and took two years to build a design that combines Gothic features on a massive modern body. The top golden pyramid was covered by 25,000 gold leaves. It was officially designated as a historic landmark of the city of New York in 2000 and is listed on the National Register of Historic Places as a National Historic Landmark since 1972. In 1995 it underwent a complete restoration and the New York Life Insurance Company still maintains its headquarters there.

Raymond Hood

Raymond Hood (1881-1934) was born in Rhode Island and attended Brown University before enrolling at MIT. As a postgraduate, Hood worked as a draftsman in the Cram, Goodhue and Ferguson study of Gothic architecture in Boston. He was accepted at the Paris École des Beaux-Arts in 1911 and won the title the following year. There he met New York John Mead Howells architect who, in 1922, he was invited to compete together with in the Chicago Tribune contest The design presented by Howells and Hood won the contest and, age 41 Hood was touted as one of the best architects in New York.

His vision of design in architecture

Hood did not consider himself an artist, but he saw himself as 'a manufacturer of shelter', writing: *There has been entirely too much talk about the collaboration of architect, painter and sculptor; nowadays, the collaborators are the architects, the*

engineer, and the plumber. [...] Buildings are constructed for certain purposes, and the buildings of today are more practical, from the standpoint of the man who is in them than the older buildings. [...] We are considering effort and convenience much more than appearance or effect.

Hood 's design theory aligned with Bauhaus in the valuing of utility and beauty: *Beauty is utility, developed in a manner to which the eye is accustomed by habit, in so far as this development does not detract from its quality of usefulness.* Despite this desire for profit, Hood's designs included indoor gardens, polychrome and Art Deco ornamentation. As much as Hood insisted that his designs were largely determined by the practicalities of planning regulations and restrictions of the economy in each of his buildings Hood the artistic factor was significant in the outcome.

Projects and theoretical writings

Besides his activity as designer and his short life of 53 years, Raymond Hood wrote several essays of some vision. In 'A City Under a Single Roof,' he proposes the idea of bringing together the full range of the urban neighborhood within a single structure[29]. The idea prefigures by 30 years Buckminster Fuller and Shoji Sadao's utopian project to cover New York with a large geodesic dome, known as Dome Over Manhattan, and presented in 1960.

In his book *Manhattan*, 1950, written in 1930, Hood proposes to construct buildings on all bridges. The utopian combination of skyscrapers and bridges is not uncommon in the imaginary of modernity, as a merger of the horizontal extension over obstacles with the vertical climb of skyscrapers. These high viaducts are viewed with fascination in many utopian writings of architects, although less so in the utopias of philosophers and engineers.

Multi-purpose skyscrapers

Hood is also a pioneer in the proposals for tall multipurpose buildings, without prejudices about their possible symbolic incompatibility. One of his proposals for Manhattan is a building that combines a church with housing, hotel, guest house, parking, offices and commercial center. Religious and lay together in one building[30].

His major works include the Chicago Tribune (1922), the Radiator Bldg.. (1924), with a metal structure surrounded by recessed jambs with brick, and finished in stone with neogothic coatings, the Daily News for a Tribune newspaper in New York, the Rockefeller Center (1932), along with a large group of architects and, within this set, the complete design of Radio City Hall (1932) [56:60].

Radiator Bldg. (1924)

Winning the contest for the Chicago Building Tribune in 1922 facilitated Hood his first major commission in New York, the new building to house the American Radiator Company at 40 West 40th Street. In designing a tower that would symbolize the company, Hood used several unusual features, including the use of black brick. George O'Keeffe made it famous by painting the building at night.

After completing the building in 1924, Hood moved his offices to the fourteenth floor of the building. He teamed up with J. André Fouilhoux, a French engineer, and Frederick A. Godley and since then had increasing success during the era of the construction boom in 1920. Every Friday, Hood enjoyed a long lunch in the Mori

restaurant with Joseph Urban, Ely Jacques Kahn and Ralph Walker. Together they built a significant part of the famous city of New York.

After the construction of the Radiator, Hood soon left its gothic designs for greater elegance and less ornamental work, and the Daily News building gave him reason to move to something more modern.

In 1919 the editors of the Chicago Tribune decided to start a different newspaper in New York, inspired by the popularity of London's *The Daily News,* in size and paper





Radiator Building

Daily News Bldg. (1930)

easy to hold and read on the subway. They asked for a project from the architects of the Chicago Tribune, John Mead Howells and Raymond Hood. They wanted a facility large enough to accommodate the writing and print shops, but Hood convinced them to build a profitable office tower on top to rent.

In the design of the tower, Hood had to comply with the new law heights and setbacks that fostered the use of staggered skyscraper in the 1920s and 1930s. The high Daily News Bldg.. was completed in 1930, at roughly the same time as the Empire State and Chrysler Building.

The overall design of the building began with a study on the size of the windows. Should be small enough so that they could be easily opened by a secretary, set to be measuring 1.4 m (4 ft 6 in). Hood also decided that all blinds should be red.

The Tribune Company owned *The Daily News* until 1991. Mort Zuckerman bought the paper in 1993 and in 1995 it moved to 450 W. 33rd Street.

The McGraw-Hill building at 330 West 42nd Street, built in 1930, is unusually blue and green. In fact, the use of glazed terracotta tiles in shades of blue-green is one of the most ambitious applications of this material in the history of architecture.

McGraw-Hill Bldg. (1930)

The McGraw-Hill building is a splendid example of the modern rationalist style. Built on a structural steel frame, it displays light along its textured exterior and the decorative bands throughout the lobby. Historians believe that the architecture of the McGraw-Hill building embodies the transition from Art Deco to international style, partly because of its lack of ornamentation. Hood admired Le Corbusier, especially in his defense of a city of towers and certainly this building is far from gothicism of the Radiator Building.

Located at 1221 Avenue of the Americas, it was built in 1969 as part of the expansion of Rockefeller Center, and serves as headquarters for the McGraw-Hill Companies. 1221, one of the three 'XYZ' buildings is huge, bureaucratic, oppressive and boring.

Wallace K. Harrison

A classic and successful race

The architect Wallace K. Harrison (1895-1981) had a traditional training[31]. When he was 20, he became a draftsman in the firm McKim, Mead & White, then the most important in New York. He worked with the architect Harvey Wiley Corbett. After the First World War he studied at the École des Beaux Arts in Paris and returned to New York to work with Bertram Goodhue, architect of the church of St. Bartholomew. Then Corbett proposed him as firm as partner and Corbett, Harrison and MacMurray were invited to join other architects to design the Rockefeller Center, where Harrison played an important role.

In the 1930s, Harrison collaborated several times with architect Max Abramovitz, invited him to join his team and he joined up in 1940. Headquartered in the Rockefeller Center, Harrison and Abramovitz soon grew into one of the most successful corporate architecture firms, with a staff of over 200 people in mid-1960.

He worked many years with Abramovitz, designing together a number of known skyscrapers in Midtown such as the Mobil Bldg.. at 150 East 42nd St., Corning Glass Bldg.. at 717 Fifth Ave. and Time & Life, McGraw-Hill, Exxon and Celanese Buildings on Sixth Ave. In 1979, Harrison retired from the company, then known as Abramovitz, Harris & Kingsland, and opened his own small office in another Rockefeller Center building, to end his career as a freelancer.

Harrison has made his mark in shaping New York as few architects have done. In addition to his important role in planning the Rockefeller Center, he led an international team of architects in the creation of the UN headquarters on the East River. It was he who led the overall design of the Lincoln Center and designed the Metropolitan Opera. He participated in the design of the 1939 World's Fair and designed the Empire State Plaza in Albany.

Harrison's mark on New York

Wallace K. Harrison designed all types of buildings, from churches to housing projects, but he was best known for the ambitious civic complex that he planned and helped create. The project of Rockefeller Center put him in touch with Nelson A. Rockefeller, appointed by his father John D. Rockefeller Jr., to coordinate the planning of the center. It was the beginning of a long relationship that would bring many commissions for Harrison, from the Rockefeller family homes to large projects such as the Empire State Plaza in Albany, built during the reign of Nelson Rockefeller as Governor.

Described as modernist, he was never a member of the vanguard and his work is eclectic, emphasizing his conservative and pragmatic trends over the years. Tall, elegant and reserved, with polite manners and the air of an architect of the nineteenth century, he was a respected man in New York. The Rockefeller Center was praised as an exemplary work of urban design and critics recognized both his contribution to the overall design of the United Nations and the design of the Secretariat, the first curtain wall skyscraper in New York. The Lincoln Center, however, had worse critical fortune and was generally considered a retrograde design.



Rockefeller Center (Harrison, Hood, *et al.*, 1937)

In 1929, the great stock market crash debunks assumptions on which the initial project of the Rockefeller Center is based: to be a rational company from a financial point of view, it becomes irrational from the commercial one. But this sudden suspension of financial preponderance forced its promoters to be, if anything, less commercial and more idealistic [81: 184]. Time is not then a key element, as in the recent Empire State Building, and the project is undertaken with more calm.

Not feeling prepared, not being an expert, to lead a real estate transaction so colossal, Rockefeller delegates logistics responsibilities to a friend, John R. Todd, businessman, contractor and developer. On December 6, 1928 the Metropolitan Square Corporation was founded, the vehicle by which to conduct the business.

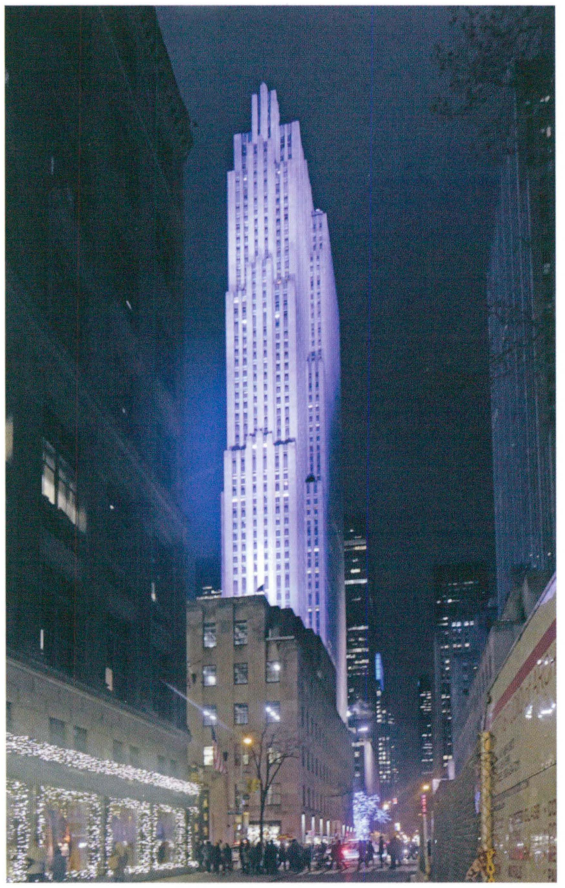
Early primal outline

The primal sketch of Rockefeller Center is a large tower in the center and four smaller ones in the corners of the site towers; all later versions are variations of the



Rockefeller Center

Medallions detail





Rockefeller Center

Method and work space

same architectural motif. After the relatively rapid development of this fundamental diagram, Todd invites Hood, Corbett and Harrison, with more experience than his own architects- to act as consultants on the project.

Todd and his architects, Reinhard and Hofmeister; Corbett, Harrison and MacMurray, and Hood, Godley and Fouilhoux, are clustered at the firm Associated Architects and installed in a large study. Rem Koolhaas emphasizes the importance of their work methodology in the design of Rockefeller Center: *Its purpose is not the fastest possible determination of all the details of the Center but, on the contrary, the postponement of its final definition to the last posible momento so that the concept of the Center remains an open matrix that can absorb any idea that can increase is ultimate quality* [81: 191].

The architects were arranged on two floors of the Graybar building, owned by Todd. The study is an almost literal diagram of the successive stages of the creative process. Upstairs, the architects have their individual cubicles; they meet once a day in a room together for a collective brainstorm, so that their different ideas can be inserted into the matrix of the whole. Renée Chamberlain, architecture sculptor, and the draftsmen of drawing room no. 1 give the still fluid concepts of the designers' provisional form, so they can make quick decisions.

In the drawing room no. 2 in the lower level, connected only by a small spiral staircase, the broad outlines are divided into separate fragments, numbered from 1 to 13, each with its own team of supervisors and technicians. They translate the ideas that come from above into detailed plans to be sent to those who will





50 Rockefeller Plaza Entrance

Lower Plaza skating rink

transform them into flat models. Each substation is connected to an executive office and several messengers internally distribute reports, mail and meeting notes.

This description of the architect Wallace K. Harrison, manager of this streamlined creation system allows a flexible project development while Rockefeller meets the main users of the complex, around which to develop the real estate business. With this system, *each fragment of the structure has been exposed to unprecedented scritiny and is chosen from a terrifiying number of alternatives* [81: 191-197].

Harrison controls, Hood designs

Although Raymond Hood is not responsible for the initial outline of Rockefeller Center, for Koolhaas is obvious that he dominates the process of fixing its form. Specialist in pragmatic *sophistry at the service of pure creation*, Hood is the most efficient component of the committee to develop the project, and speaks all the different languages of its members [81: 195]. Hood and his architects represent that special way of building New York, and only secondarily, the modern movement.

The New York way to build

In all his work and writings, Raymond Hood defends New York's *hedonistic Urbanism of Congestion against the puritanical Urbanism of Good Intentions: 'as beauty as possible consistent with the maximum income that should be developed'* [81: 207].

For Robert A. Stern, the Rockefeller Center is a specifically New York product and, regardless of its importance for city planning and the newness of its conception, the

whole was not without a strong speculative real estate component: *The Rockefeller Center succeeded in pilling more office space than ever before on a midtown site in a manner so superbly integrated with the city's infrastructure that its only rival was the Grand Central Terminal* [152:31].

Center and metaphor of the world

With the years, the result achieved both intentions of significance and profitability. Flanked by flags of all nations, the Rockefeller Center competes with the later building of the United Nations as a metaphorical center of the world. But instead of joining the image of multiple nations, it turns on its rink, terrace and café as a last secular *mundus*. Rising in downtown Manhattan as a metaphor for the whole city, Rockefeller Center was true miniature city.

The zeitgeist seems to survive in the lobby of the Maison Française, which still exhibits in the intersection of the ground floor corridors a silver model of French biplane which crossed the Atlantic from Paris to New York in 1930. It was like a kind of gala response to the triumph of Charles Lindberg, with a similar symbolic role as the miniature cannon located in the garden of the Palais Royale [56:62].

As usual in New York, it was not all good wishes. In May 1940, Lewis Mumford appreciated the limestone clad facades, but thought the seriousness of the chosen tone had led them to try to brighten its severity with Art Deco ornaments and inappropriate sculptures, which ended up subjugated by the tremendous mass of buildings by above them. He was especially critical of the main entrance on Fifth Ave., definitely the best and most beautiful architectural element of Rockefeller Center, — traditional but fresh, of superb proportion and scale, complete — but ruined by the stupid Atlas figure located opposite [103: 267].



Rockefeller Center

Entrances and plaza

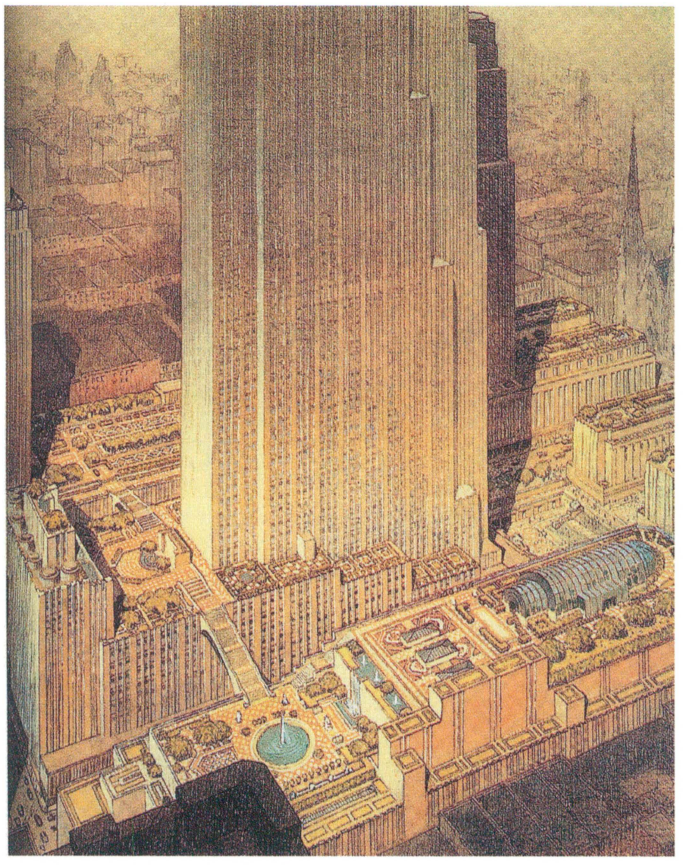
At street level the plaza stands among the skyscrapers, called Lower Plaza for being depressed and under which there are numerous restaurants and shops, surrounded by flags and the sculpture of Prometheus (Paul Manship, 1934) that acts as bridge between the square and the crawlspace to RCA Building. This square in summer hosts a terrace with cafés and restaurants, in winter becomes the famous ice rink (37 x 18 m, with up to 150 skaters), which together with its Christmas tree has become an icon for the city.

At the entrance of the International Building stands the bronze Atlas by Lee Lawrie, and its interior houses sculptures and murals by Isamu Noguchi and José María Sert, and other temporary ones such as the current Split-Rocker full of flowers by Jeff Koons. This center has become a social meeting place that hosts numerous artistic and cultural events.

Rooftop and Gardens

The idea of seeing from the air the gardens and the dual role of looking and being looked at appears in the Raymond Hood gardens of the low buildings of the Rockefeller Center. He called them viewscapes — landscapes for sight — to be observed from the highest tower of said whole and pretending to regain ground floor space occupied by buildings. Although the holiday apartments and offices overlooking the gardens also were higher.

Hood's ambitious proposal with hanging gardens, trees, fountains and pedestrian bridges at high altitude created a continuous whole over the city, the first skyscraper-landscape. The gardens of symmetrical paths, on the covers of three buildings, included





Pensile gardens, Raymond Hood, Rockefeller Center, New York, 1930-1933, (Koolhaas, 2004)

Rooftop Gardens

Rockefeller Center. City Garden Club and fountain from above, and British garden, horizontal. Samul H. Gottscho, 1934.



Lower Plaza skating rink



various outdoor facilities: sculpture gardens, waterfalls, an experimental greenhouse, a puppet theater, music halls, restaurants and tearooms. Finally everything came down to a mere ornamental garden as bridges and other items reached did not end up being built, but his idea of beautifying urban decks had a great impact on subsequent projects [5: 262).

The covered gardens preserved constitute the largest private garden in the city, but are of restricted access. These French-style garden spaces, renovated in 1986, have a formal character with small platforms at different levels connected by stairs. Stone walls surround the different geometric parterres with trimmed hedges, some flowering shrubs and small trees like the pyramidal conifer. The outer edge is protected by a perimeter fence which is interrupted in parts to allow leaning out and enjoying the views of the Cathedral of St. Patrick and Fifth Avenue.

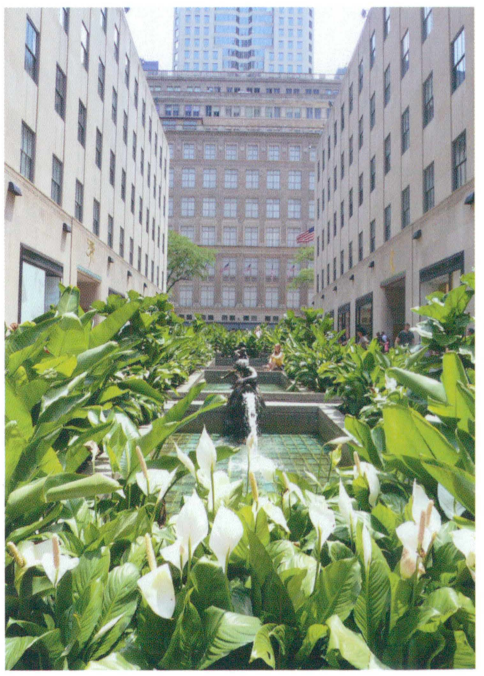
The British Empire Building and Maison Française have two identical gardens that comprise the ANZAC Memorial Garden, dedicated to Australians and New Zealanders killed in service where ANZAC Day is celebrated every April 25. The entrance is via the south side of West 50th Street. They feature a meadow, situated on a slightly raised platform, framed by clipped hedges and clumps of begonias, and a small pond with a fountain in the form of frog and flanked by two conifers trimmed in pyramidal form. In 1933 Top of the Rock was opened to the public, an observatory on the roof of the GE Building, reopened in 2005 after a major renovation, located on the 69th floor, 260 m (853 ft) above the ground, surrounded by a transparent safety glass instead of bars.



Lower Plaza

United Nations (Wallace K. Harrison, 1952)

The careful respect toward the height of the streets advocated in the plans of Thomas Adams — maintained even in skyscrapers like the Empire State Building



Channel Gardens or Promenade



Rooftop Gardens



Rockefeller Center Lower Plaza

and side buildings of the Rockefeller Center — was shamelessly abandoned for the permanent headquarters of United Nations. Beside the river and in a sufficently large and seculded plot, maybe it was not so necessary, but above all, it was a case of highlighting the significant presence of all the world's nations in central New York.

Bringing the world to New York

After the Holocaust, the idea of a United Nations was revived with a new urgency. The United States offered to fund its operations base and an international design committee was constituted, with architects appointed by various countries to advise Wallace K. Harrison, architect of the new headquarters[32]. The committee organizes a search party traveling by the United States to find a suitable site. Begun as far as possible from New York — in San Francisco, it gradually gravitated towards the east coast.

Search for headquarters site

In September 1946, the City of New York formally invited the United Nations to make the city its permanent home. Some locations in the New York area were studied, including Jersey City, Westchester County and Flushing Meadows, strongly defended by Robert Moses. But visits to sites and all research were feigned: the real goal is Manhattan.

Unwanted protagonist

This is followed by a period starring the French representative Le Corbusier and traumatic for everyone involved. Each day, the UN design committee meets in the Rockefeller Center (whose elevators are the only part that Le Corbusier acknowledges he admires). Desperate to make of the UN a delayed start of a 'radiant Manhattan', Le Corbusier monopolizes all the discussions. Although officially he is only an advisor soon his desire to become the sole architect of the UN in virtue of his urban theories is evident. As Koolhaas points out, he does not know that in Manhattan his theories are *only diversionary tactics, mere decorative dressing for the essential founding metaphors. And Le Corbusier's urbanism contains no metaphor, except that of the Anti-Manhattan, which is, in New York, unseductive* [81: 279].

Harrison controls the project

Harrison, unshakeable against the torrent of eloquence in French, keeps and maintains control of the UN project as architecture, not theory. He knows all the tricks of New York power and knows that any project development with such origin will collide with the covenants and conditions customary in New York. Before any project is completed, Le Corbusier returns home, disgusted again with ingratitude of the world, and perhaps daunted by the critical difficulties raised by his vision.

I just couldn't imagine him detailing that curtain wall, recalls Wallace Harrison, still worried at the thought 30 years later. As an admirer and friend of the Swiss architect, he considers the merits of the proposal, but understands them as a simple remodeling of a part of Manhattan, purified by his paranoiac-critical theories. In his making of the UN — centered on the building and not on the theory — Wallace K. Harrison removes apocalyptic pressures and quashes paranoia. *In his sensitive and professional hands, its abstract abrasiveness mellows to the point where the entire complex becomes merely one of Manhattan's enclaves, a block like the others, one isolated island of Manhattan's archipielago*. [81: 281].

Hugh Ferriss also humorously remembered the episode of 'floating building': Among the architects of abroad there was a school of thought whose chief advocate



United Nations (Harrison et al., 1952)







Three elements: tower, roof and building

Tower, deck and building

contended, as nearly as I could understand things through the interpreters (I do not speak French) that buildings float. […] I understood, on pilotis-that is, on slender columns or posts. […] … there was another school of thought on the subject of floating buildings. The protagonist of this school, as nearly as I could understand him through the interpreters (I do not speak Russian), stated the buildings do not float. […] He said that in his country, they would not tolerate building that showed the least inclination to float. In fact, he said that to him, pilotis looked like chicken feet. [52: illust.41].

The project consisted of three main elements, the General Assembly, the Secretariat and a building to accommodate various conference and meeting rooms. The proposal that made headway adopted the three basic types of building: the tower for the Secretariat, the deck for the Assembly and the library building and meeting rooms located around a plaza. Workspaces stacked in height, space for the gathering of representatives under an expressive deck, and spaces for various functions in an undifferentiated area, grouped to form a hosting square.

In addition to this initial scheme elements and details that configured the pieces were incorporated. The tower was formalized in a high, flat rectangular tablet, with small marble facades north and south, and large glass facades with a curtain wall east and west. The deck adopted a false hanging air, decreasing height from the north and south towards the center, where a glass dome appeared, required by a senator to obtain government assistance for the project and a long ramp with a sidestep attached to the west front. The building was transformed into a link between the tower and the deck, blending in to close the square. The central square lost its integrative value due to an unfortunate circular fountain with attached ramps, very effictive to make it disappear from any point of view. To the north of the site, however, a large and beautiful space arose, initially treated as a garden around a large green expanse, now occupied by some formless whitewashed buildings.

Mumford and Moses

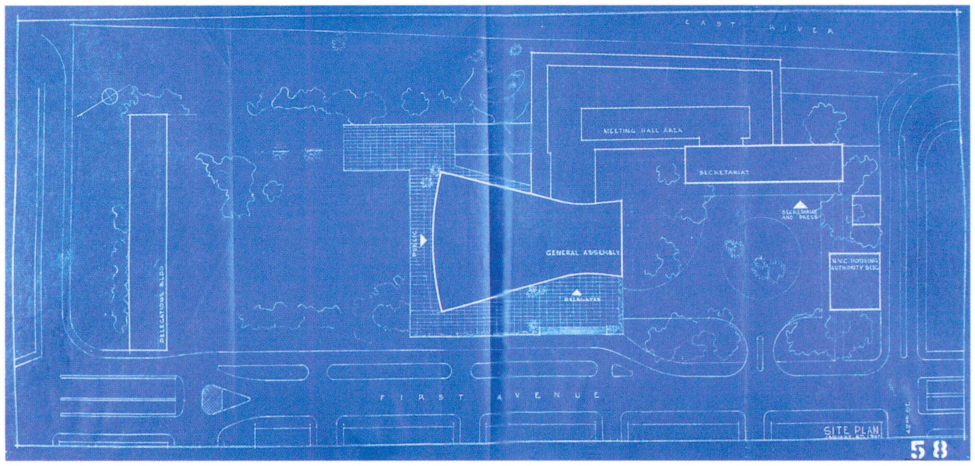
The curtain wall and ventilation systems interspersed in some floors of the tower were the main technological innovation and created some debate. In 1951, when the tower of the secretariat was already partially occupied, Lewis Mumford found the tinted windows problematic, but appreciated their effect as mirror of the city: The aesthetical effect is incomparable, but unfortunately the building, being very effective as mirror, it is not so remarkable as architectural work [33].

Robert Moses, then in charge of City Construction Coordinator, intervened in improving the environment of the headquarters, the entrances and traffic entries and exits. He also proposed replacing the narrow tunnel of 13.4 m (44 ft) to pass through the 42 St towards the river from Tudor City, sliding under a bridge to support Tudor City Place. Later, he built a tunnel under and along First Ave. Between 41st St. and 48th St. converting the top part into the United Nations Plaza.

Around the site a number of residences, offices and hotels emerged, of uneven interest. North, on 860 and 870 United Nations Plaza (1966), two prismatic buildings by Wallace K. Harrison and Max Abramovitz close the whole. 899 UN Plaza is the US Mission to the United Nations (Gwathmey Siegel & Associates, 2009), a white building with the first six floors shielded against terrorism.







It is surrounded by two interesting buildings, One UN Plaza (1975) onto 44th St. and Two UN Plaza (1983) behind, both by Kevin Roche. John Dinkeloo and Associates, finished in dark blue-green glass, with bevels and recesses angled slightly apart. They are very visible from the other side of the river as background to the United Nations and between each other exchange reflections and interferences between their shortened profiles. They have been very well received by critics, with ratings such as *'arguably the best glass buildings in Manhattan since the Seagram Building'* [151: 403].

Unit Nations Plaza (Roche & Dinkeloo)

One & Two UN Plaza (Roche & Dinkeloo, 1975, 1983) embracing U.S. Mission (the white tower).

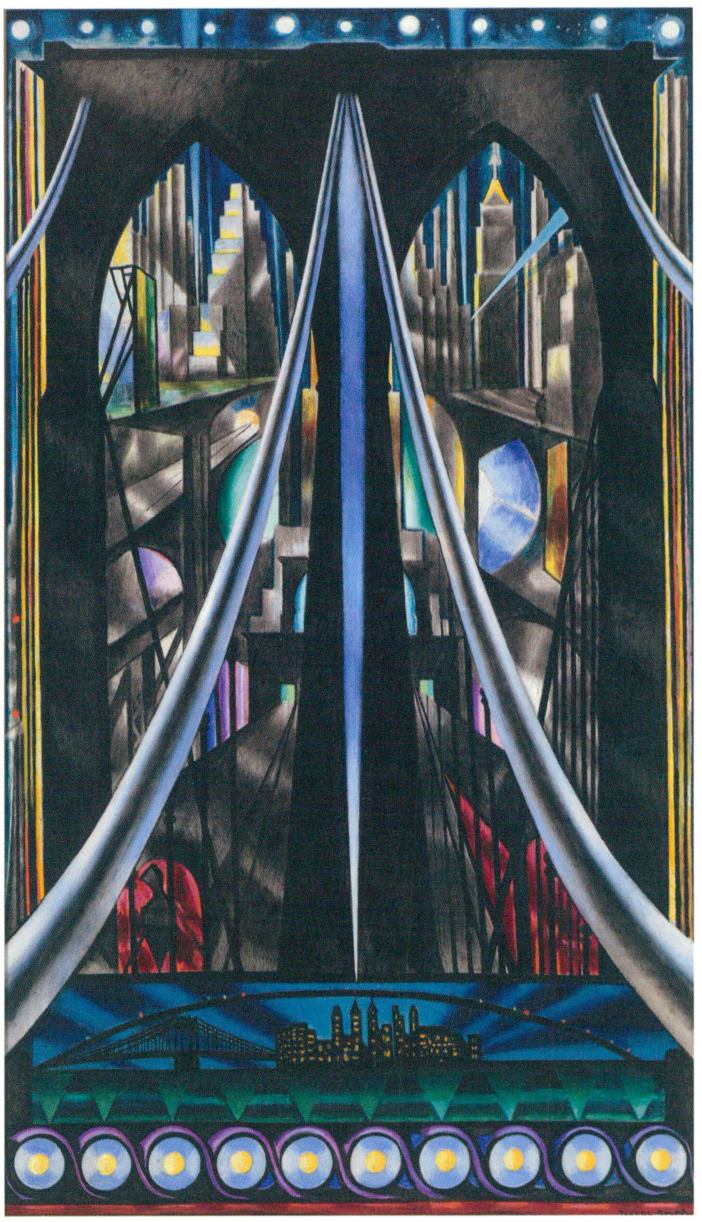
United Nations Headquarter Blueprint, Site Plan.



10 | Mumford

Modernity in the 1930s. Art and critique
Cultural rise of New York
Circles of artists and modernity
Thinkers and critics
Vollard and Cézanne in New York
Around John Sloan
Spectacle of the scene and life
New artist friends
Interest in ordinary people
Georgia O'Keeffe
French in New York
Lorca, a Spanish visitor
Geometry and anxiety
Hispanic Society of America
Mumford and his work
The natural roots of buildings
Against the modern movement
The Highway and the City (1963)
Taconic State Parkway
Delays: Roosevelt vs. Moses
The two sections of the Taconic
Gilmore Clark's design
Engineering and Landscape Architecture
Giedion's distrust
Confusion in Le Corbusier
Giedion on scale and parkways
Vision of the Rockefeller Center
Inability to understand New York
Faith before valuation
Social nearsightedness

Lewis Mumford (1895-1990)
Monitoring change



Joseph Stella, *The Brooklyn Bridge: Variation on an Old Theme,* 1939

Modernity in the 1930s. Art and critique

In his essay *All That Is Solid Melts into Air*, Marshall Berman suggests the existence of a dialectical interaction between the deployment of modernization — particularly in the urban environment — and the development of art and modernist thought. A dialogue that would come to a standstill in 1950, when construction activity in New York departs from those underlying principles and enters the aberrations and excesses of Moses and others [18: 324].

But the future of both concepts mentioned by Berman allows one to venture a certain autonomy of the initial New York successes with regard to these principles. The demonstrated resilience of the city to the influences and evolution of any guiding principle of changes in art or life puts somewhat it outside of all that. Going further, one might even suggest that the city inspires those theories but pays them little attention. It seems like cause, not effect, that for seventy years the city continues to set guidelines to the modern.

Cultural rise of New York

Mumford's columns in Skyline clarify the rise of New York to its preeminent cultural role in the interwar period. In those years, European architects turn to the Modern Movement, but New York was eclipsing European cities as genuine energy source of culture and art of building the twentieth century. Mumford's pieces are an extraordinary record of that era, offering illuminating insights for readers to establish their appraisement[34].

In this ascending process, in addition to the architects and engineers who built the city, different artistic currents present at the time played a big role, in the era of awareness of its own modernity around the decades of 1920 and 1930. The new had arrived from Europe to the city since the late nineteenth century and produced various cultural tendencies according to the different positions taken toward it.

Circles of artists and modernity

Circles were formed of fervent proponents of the new, symbolized by the Brooklyn Bridge as horizontal extension and the Flatiron Bd. as vertical aspiration: they were open to innovation and aware of the metropolitan spirit, which increasingly defined the city. The artistic moods close to these ideas form a circle around artists such as

Alfred Stieglitz, Georgia O'Keeffe, Charles Sheeler, Paul Strand and Hugh Ferriss. For them, the new is inspiring, permeates their creations and becomes the benchmark for certain features present in the spirit of the city that they aspire to represent — from a precise and abstract rationality — with their artistic work. This has been already briefly mentioned at the end of Chapter 4.

In parallel, not in front of them, another circle of artists is formed, whose inspiration comes from direct contact with the diversity present and characteristic of the metropolis. Supporters of this different way of seeing things group around artists such as John Sloan, John Marin, George Bellows, George B. Luks or Aaron Douglas, more interested in the portrait of vitality shown by the city in its streets.

These artists share with the above respect around figures unchallenged in America, such as Walt Whitman, and are receptive, although with different nuances, to the influence of European artists visiting New York. Among Europeans of higher influence are Paul Cézanne, Marcel Duchamp and Francis Picabia and to a lesser extent, Federico García Lorca, Jean Paul Sartre, Le Corbusier and more.

Hugh Ferriss recalls the atmosphere of work in the 1920s, an exciting decade in the practice of architecture in America...denied only by those who were not there to see it. *Collaboration between architects, painters, sculptors, and landscape architects — active, serious collaboration on well-paid jobs — was an engrossing, everyday affair. Some of the architects...had that inexplicable and innate sense of good design...and a few of the architects were truly pioneers* [52: 8].



Joseph Stella, *Luna Park,* c. 1913

Thinkers and critics

As you would expect, amid all these, critics and thinkers appear as Montgomery Schuyler, Sigfried Giedion, Lewis Mumford, F. Talbot Hamlin and Clement Greenberg, attempting to understand what is happening in the city. Their thought is accompanied by some particularly thoughtful classic designers like Frederick Law Olmsted and some later critics of interest as Ada Louise Huxtable and Carl Condit.

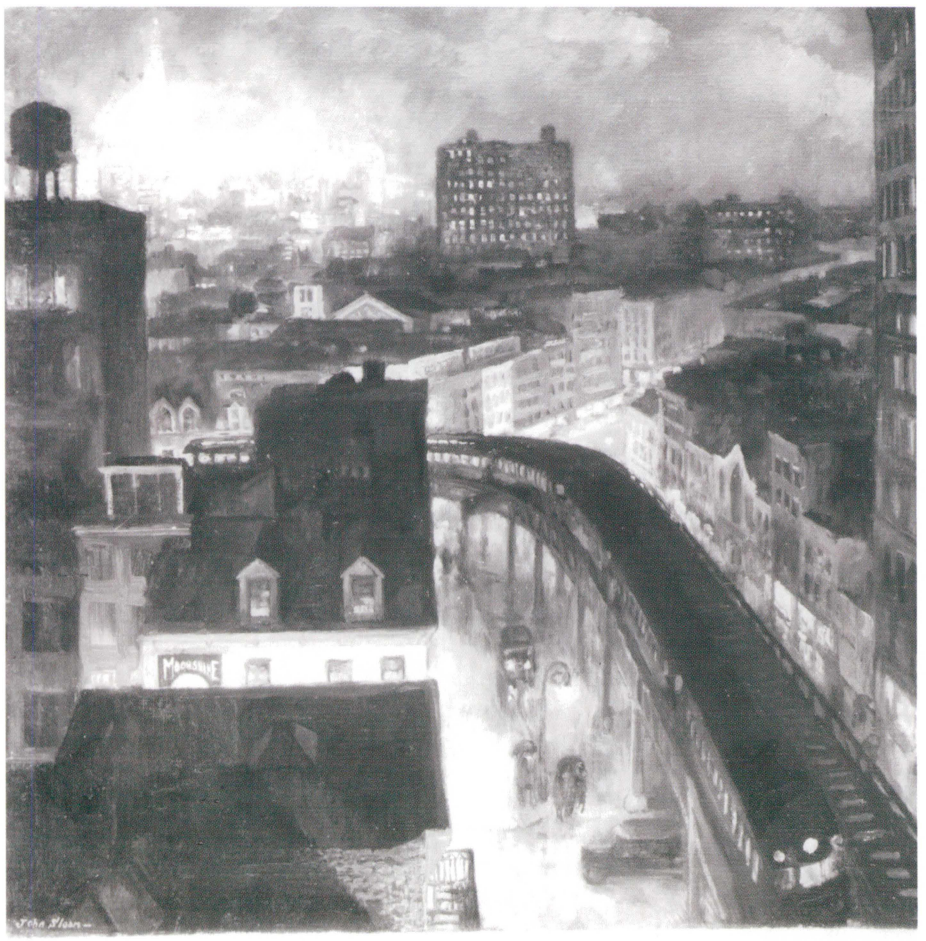
Among them, stands powerful the figure of Lewis Mumford, leading protagonist chosen to act as center to this diversity of creative ways and positions of understanding the city, the mere enumeration of which could serve to illuminate the vitality of the new metropolis.

Vollard and Cézanne in New York

Paul Cézanne is the first truly modern painter, though probably he could never have explained why he painted so. But his followers Georges Braque, Pablo Picasso, André Derain enshrine him as the father of the avant-garde and recreate his painting. His name and work were known by Ambroise Vollard (1865-1939), a pioneer art dealer and publisher with a large role in promoting and setting the careers of many of the leading artists of the late nineteenth and early twentieth centuries.

Cézanne's work was virtually unknown in Paris and in November-December 1895 Vollard took the risk of putting on his first solo exhibition of 150 paintings. He also wrote a biography of the painter in 1914 and brought his work to New York. One





City from Greenwich Village. John Sloan. © 2014 Delaware Art Museum / Artists Rights Society (ARS), New York & Peter A. Juley & Son Collection Smithsonian American Art Museum

Jefferson Market, Sixth Avenue. John Sloan. © 2014 Delaware Art Museum / Artists Rights Society (ARS), New York & Peter A. Juley & Son Collection Smithsonian American Art Museum

Around John Sloan

of his landscapes, painted in 1888, was exhibited in 1913 at a collective exhibition in New York and was the first work of Cézanne to be acquired by an American museum, namely the Metropolitan.

In April 1904 the painter John Sloan (1871-1951) and his wife Dolly leave Philadelphia with its population of one million inhabitants to move to Manhattan which then had more than three million. In September Sloan found an apartment and studio at number 165 West 23rd Street right next to all the innovations then arising in the city, near the Flatiron Building. It was an active, colorful, robust and disorderly area which soon meant a lot to Sloan, adjusting perfectly to his temperament, and providing images for some of his best pictures.

In front of his house along Sixth Avenue, ran a north-south elevated railroad that served as a way to divide between two cities, the remnants of the upper class to the east and an increasing squalor to the west. The elevated Sixth Avenue railway deposited New Yorkers in Chelsea, in the most northern point of what was called the Ladies Mile, a stretch from 14th to 34th St which housed the first department stores in the city. Somewhat west of his house, on the corner of 23rd Street and Eighth Avenue, was, although not in very good condition, the Grand Opera House. Further north, between 23th and 42nd, there was the zone known as the Tenderloin, the 'red light district' full of taverns, restaurants, gambling houses, music halls, brothels, prosti-

tutes, card players, hustlers, that would remain one of the most characteristic areas of New York for more than three decades [86:74].

Spectacle of the scene and life

Beyond his immediate neighborhood, there was much more to see and Sloan confessed he was impressed by the spectacle and extreme life Manhattan harbored. Strolling through Greenwich Village to the south or east from Gramercy Park he explored the regions of the Bowery and going north on Fifth he passed by the site of the water tank Croton Aqueduct and could peep at the false small palaces, castles, and mansions of the millionaires of the city. He could see the city as a resident and encompass everything from the great false architecture to the street kids portrayed in the book of Jacob Riis [124], large libraries and mass housing blocks, continuous reminders of profitable success and abject failures, together with powerful portraits pleasure and necessity.

New artist friends

Sloan also gave some classes in the New York School of Arts, replacing his friend and mentor Robert Henry (1865-1929), where he had as pupil a dour young George Bellows (1882-1925), member of a new generation of brilliant painters born in the early 1880s, such as Rockwell Kent (1882-1971), Guy Pene du Bois (1884-1958) and Edward Hooper (1882-1967), carefully supervised by their teacher Henry [86:82].

To all this were added new friendships with interesting people, such as the artist Jerome Myers, the impressionist Ernest Lawson and marine painter Henry Reuterdahl. He also met William Walsh, editor of the Herald, the art critic Byron Stephenson, editor of a pamphlet entitled *Town Topics* and journalists from the Sun, Charles Fiztgerald and Frederick James Gregg, both of Irish origin and better educated than their fellow New Yorkers, who helped him with his good reviews. Among that group stood James Moore, owner of the Francis cafe and superb cultural animator, whose evenings at his residence at 450 23 West St., just two blocks from Sloan's home, and which eventually was home to poets and painters, always entailed great artistic events [86:76].

The new life and new friends from New York provided Sloan with extraordinary energy, a new artistic power unveiling of new and different ways but also focused on daily life as the theme for his paintings. In 1905 he began what would be the *New York City* Life series, originally scheduled for ten frames, then increased to thirteen, which are a true chronicle of the city and his time.

Interest in ordinary people

Among all those present vitality in the city, John Sloan seemed more interested in ordinary people in the powerful, who had access through the offices of Robert Henry. He preferred everyday life in the street, away from the luxury and new protagonists of the new city that was forming, as subjugated by the power directly arising from people.

When a bridge appears in his paintings, it is not sublimated by a special artistic treatment, he just shows the base of one of its piers with a group of children and figures taking center stage. If buildings appear, he fills the sky with pigeons and places some figures watching them. Unlike Alfred Stieglitz or Georgia O'Keeffe, he does not stay in his forms, nor does he portray the characteristic silhouette



Radiator Building-Night, New York.
Georgia O'Keeffe, 1927.

of the city. He merely portrays the vibrant life that develops at his feet. He is no stranger to modernity, but avoids formalization and paints from the energy produced by these constructions[35].

Georgia O'Keeffe

The painter Georgia O'Keeffe (1887-1986) played a more ambiguous role perhaps for proximity to her husband Alfred Stieglitz, head of a circle turned toward innovation breathing through every pore of the city. But in a second period of his life, O'Keeffe was interested in the landscape, the colors and local shades of New Mexico and is one of the artists who sought inspiration in the Spanish colonial tradition.

She often painted historic adobe buildings as part of her broader interaction with the physical and cultural landscape of the American Southwest, which she encountered around 1917 but did not return to until 1929. Over the next two decades she divided her time between New York and New Mexico, where she finally moved in 1949. There she bought and restored a church ruin from the eighteenth century, with an adobe courtyard that appears in many of her paintings. She was particularly interested in the infinite variety of shades of adobe, earth and red sky [45: 206].

French in New York

Regardless of the occasion portrayed and unlike Alfred Stieglitz, the observer position chosen by Sloan is always close and attentive to that which is around him. He looks to Wall Street, but portrays Sixth Av. to 3rd St. in Greenwich Village, where he is painting. Thomas Bender relates this position with Jean Paul Sartre's comments on New York in 1940. Impressed by the grid and its avenues, Sartre saw them as symbols of power and ambition, in contrast to the small Parisian streets and student life, surrounding and reassuring. But, in this regard, he did not appreciate the similarity of the Village to Paris because, like Le Corbusier, he sought a different kind of modernity and was not able to understand the archaic and reassuring Village environment as part of it [17: 109].

Other French visitors, however, declared themselves fascinated and ardent supporters of the innovations exhibited by the city. Among them are Marcel Duchamp (already mentioned in chapter 4) who declared in 1913, *that New York itself is a work of art, a complete work of art*. A view shared by Francis Picabia (1879-1953), who arrived for the Armory Show of 1913, and *who saw New York as the cubist, the futurist city. It expresses in its architecture, its life, its spirit, the modern* thought [17: 117].

Lorca, a Spanish visitor

For Federico García Lorca (1898-1936), the truly wild and frantic thing about New York, was the river of money circulating around town: *the terrible, cold, cruel part is Wall Street. Rivers of gold flow there from all over the Earth, and death comes with it. There, as nowhere else, you feel a total absence of the spirit [...] And the terrible thing is that the crowd that fills the street believes that the world will always be the same and that it is their duty to keep that huge machine running, day and night forever.*

I was lucky enough to see with my own eyes the recent stock market crash, where they lost several billion dollars, a rabble of dead money that went sliding off into the sea, never amid assorted suicides, hysterics, and synchronized fainters have I ever felt the sensation of real death, of death without hope, death which is putrefaction and

nothing else as in that moment. Because the spectacle was terrifying but devoid of greatness [58: 257].

Lorca was very sensitive to the new architecture, but also to the hectic pace of the city. His poetic ability and sensitivity were clearly affected by the city, but he saw the worst side of both: *The two elements which the traveler first captures in the big city are extrahuman architecture and furious rhythm. Geometry and anguish—at first glance that rhythm may be confused with gaiety but when you look more closely at the mechanism of social life and at the painful slavery of men and machines together you understand that it is that typical empty anguish which renders forgivable as a means of escape even serious crime and banditry..*

Geometry and anxiety

Faced with skyscrapers he has an ambivalent position, partly admiring their dimension in struggle with the sky: *The buildings' angles rise to the sky wanting neither clouds nor glory [...] There's nothing so poetic and terrible as the skyscrapers' battle with the skies that cover them—snows, rains, mists frame, soak, and veil these vast towers and these towers blind to any sort of play declare their cold intent, the enemy to mystery, cut the rain's hair, shine their three thousand swords through the soft swan of the mist*. [58: 251].

However, when leaving New York, he sees them differently. Their aesthetic distance remains significant, but they emerge as objects of contemplation in a world dominated by money, which feels completely alien: *The time is passing. And I must leave New York. I'm already on the ship which is taking me away from the howling city and towards the beautiful Antilles, angles and rhythm, form and anguish. The sky is swallowing them up. No longer does tower battle with cloud nor swarms of windows eat up the greater part of the night [...] The sky has conquered the skyscrapers, but now the architecture of New York appears to me as something miraculous, something that, its intention discarded, gets to move as a natural spectacle of mountain or desert. The Chrysler building defends itself against the sun with its huge silver beak and bridges, ships, railways, and men appear to me now enchained and deaf. Enchained by a cruel economic system whose throat must soon be cut and deaf by discipline and lack of the necessary dose of madness* [58: 263].

Nevertheless, Federico García Lorca *was separated from New York with feeling and in profound awe. He left many friends and had received the most valuable experience of my life* [58: 264]. His poems impressed the Spanish and American scholars of art and literature years later, but he did not get to participate in New York's vibrant cultural life. The Spanish presence was kept alive early on, thanks to the presence of the Hispanic Society of America, possessing perhaps the most important collection of Spanish art in the United States. It was founded in 1908 by collector Archer M. Huntington in Audubon Terrace, Upper Manhattan, with its treasure trove of works by Velázquez, Goya, El Greco, Murillo and many others [45: 210].

Hispanic Society of America

The work of the group of artists gathered around Sloan did not entail major changes to the course of painting or art history, but managed to capture a special moment in the city, when it began to become the great city we know today. They were soon overshadowed by the echoes of the Armory Show of 1913, which brought European modernism into force in America, and the Americans in Alfred Stieglitz's circle, whose work was more personal, innovative and abstract.



Trinity Church

The natural roots of buildings

Mumford and his work

Lewis Mumford (1895-1990) was arguably the most prolific critic of his time, with a well-founded approach, in which architecture, engineering and urban planning always appear linked to culture and its protagonists. He devoted his whole life to writing about these topics with amazing productivity in articles, essays and books. He reached a large audience since 1931 in the *New Yorker* — a magazine of reports, comments, criticism, essays and fiction — where he worked on architectural criticism in an existing column, titled *The Sky Line*.

Unaided by photographs or drawings, Mumford's prose in 'The Sky Line' provided vived and clear architectural description to accompany his provocative critical assessments [152: 8]. In parallel, the stability of the magazine, where he wrote more art reviews in New Yorker-Arts (1932-1937) than The Sky Line columns on architecture and urbanism (1931-1963), allowed him to undertake larger projects, successively reflected in numerous books (see table). Among them, those more focused on building are *Sticks and Stones* (1924), *The Brown Decades* (1931), *The South in Architecture* (1941) and *The Highway and the City* (1963).

Mumford is one of the first critics of architecture and urbanism with a solid foundation in the natural roots of buildings. In his book *The Brown Decades: A Study of the Arts in America*, he clearly testifies to this. He understands them not as something pre-existing to hold on to, but as a true development of man, the more important the higher the civilization: *'Nature' as a system of interests and activities is one of the chief creations of the civilized man [...] As man learns to control his environment, his relationship with the land becomes more complicated* [99:55].

As visible symbols of this relationship he indicates the bridge, the garden, the ploughed filed, the city. Ways to practice this relationship result in the modification of the landscape and are reduced to three: agriculture, as a set of gathering and production activities; *city development and architecture; and engineering — bridges, viaducts, canals, highroads, docks, harbors, dams...the engineering of the wood-and-water stage of industrial economy, the stage marked by the water wheel and the local mill, the dirt highway and river and canal transportation and numerous agricultural villages* was radically modified with the advent of coal, iron and rail in the 1850s. In his approach to the city, he was always very influenced by urban planner Patrick Geddes (1854-1932).

Mumford knew the works of the precursors of the Conservation of Nature, admired the poet Henry Thoreau (1817-1862) *and the scientific observer George Perkins Marsh* (1801-1882). His reading of seminal book Man and Nature, published by Marsh in 1864 and anticipator of the idea of human impact on nature, finds immediate application in the United States since the American character, whose *natural defect*, according to Marsh, *although perhaps necessary, is its instability, its lack of attachment. And the landscape shares this incessant fluctuation and is as variable as the habits of the population* [99:67].

Along with the ability to understand human action as the creator of the landscape, in his time rare in a critic, he always had his sights on work that contributed to improving the lives of its users. These two principles provided him with a huge critical independence, capable of reacting against widespread fads. His thinking of the welfare of man and his relationship with the world created by his dwelling, puts him in a very critical position with regard to the Modern Movement in architecture, systematically manifested throughout his work [152: 9].

Against the Modern Movement

Regardless of his written output, Mumford took an active role in the defense of social values from his permanent interest in the welfare of individuals. For many years, he participated with planners Clarence Stein (1882-1975) and Henry Wright (1878-1936) in the founding and activities of the Regional Planning Association of America (RPAA), created in 1923 as an antidote to the ruling RPA [152: 9] (see Regional Plan in chapter 8).

WORKS BY LEWIS MUMFORD

The Story of Utopias (1922)
Sticks and Stones (1924)
The Golden Day (1926)
Herman Melville: A Study of His Life and Vision (1929)
The Brown Decades: A Study of the Arts in America, 1865-1895 (1931)
'Renewal of Life' Series
Technics and Civilization (1934)
The Culture of Cities (1938)
The Condition of Man (1944)
The Conduct of Life (1951)
Art and Technics (1952)
Values for Survival (1946)
The Transformations of Man (1956)
The City in History (1961)
The Highway and the City (1963)
The Myth of the Machine (2 vols.)
Technics and Human Development (1967)
The Pentagon of Power (1970)
The Urban Prospect (1968)
My Work and Days: A Personal Chronicle (1979)
Sketches from Life: The Autobiography of Lewis Mumford (1982)
The Lewis Mumford Reader, edit. por Donald L. Miller (1986)

Mumford's position regarding the car and the road is present in many of his writings, but is exposed very clearly and succinctly in his late article *The Highway and the City* (1963). For him, transport has two poles, distribution and concentration: the first demands an articulated system of roads, from the crosswalk to the six-lane highway and long distance rail. The second demands a city. Therefore, it is necessary to prevent overdevelopment of the great con-

The Highway and the City (1963)



Taconic State Parkway (1925-1963)



nections to the exclusion of minor elements of transport. And, specifically, *highway planners have yet to realice that these arteries must not be thrust into the delicate tissue of our cities* [102: 178].

He openly criticizes the monopoly of the car, which had made a mistake by sacrificing other means of transport to the private car, since each has its specific use. He argues that there is no ideal transport mode and that the choice of one or the other must be the fruit of the purpose of each person. And he adds that what is needed is an efficient transportation system and no more highways, in that their contribution to the most congested cities only manages to tempt people who previously used public transport. And from the first day they opened, new roads are already saturated [102: 180].

Taconic State Parkway

For Lewis Mumford, the parkway was a perfect model of how to understand the relationship between man and the car, tapped into the city and landscape. In *The Highway and the City* (1958) he discusses extensively the issue and puts the Taconic State Parkway (1925-1963) as an example: *In many ways, our highways are not merely masterpieces of engineering, but consummate works of art: a few of them, like the Taconic State Parkway in New York, stand on a par with our highest realizations in other fields.*

Mumford praises the radical separation of the two senses of the parkway, for a better fit of the layout to the ground along mountainous borders, bypassing the towns and cities, opening the views of the field and planting trees and shrubs to give life and color to the edges [85: 179].

The Taconic Parkway is also a good example of the difficulties to undertake any major project in New York. Its origin is linked to the increasing presence of the automobile that occurred in America, especially in New York in the last years of the 1910s. In 1917 there were more cars than homes in New York and it became a big city and territory planning issue and concerned many writings of Lewis Mumford.

Delays: Roosevelt *vs.* Moses

Its nearly 40 years in the making, from 1925 when it was planned and land was expropriated, up to its complete opening in 1963, are a good example of the difficulties. Two agencies competed for its design and construction: the Taconic State Park Commission (TSPC) and Westchester County Parks Commission (WCPC) with two powerful characters behind each. Leading the TSPC was Franklin D. Roosevelt, author of a 1925 proposal with a specific route. Moses proposed an alternative route at the first meeting of the Commission, but Roosevelt refused and both characters clashed regularly during the following years[36].

The two sections of the Taconic

Stretching 105 miles through eastern New York, this scenic parkway encompasses over 7,000 acres. Built in two stages over forty years, the road begins at the Bronx River Parkway and terminates in Chatham. The 30-mile southern section, the Bronx Parkway Extension, was designed and built between 1923 and 1932 by engineers Jay Downer and Leslie G. Holleran and landscape architects Gilmore Clarke and Hermann Merkel, working for the Westchester County Park Commission.

The northern component, the Eastern State Parkway, was built between 1926 and 1963 by the New York State Department of Public Works and the Taconic State Park Commission. The two sections were combined and renamed the Taconic State Parkway in 1941

Taconic State Parkway





Taconic State Parkway

Gilmore Clark's design

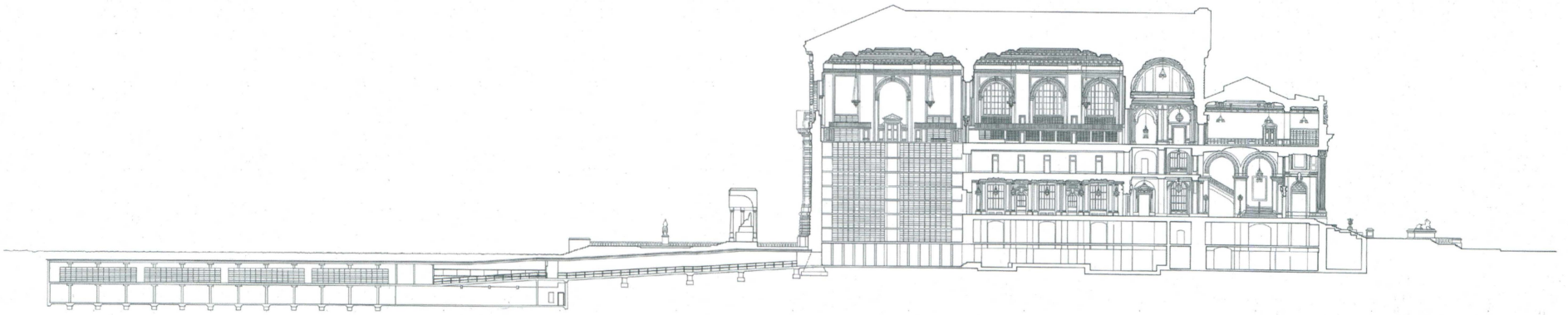
The functional design and landscape of the parkway was primarily designed by the engineer and architect Gilmore Clarke, also a partner in the design of the Bronx River Parkway in 1908 (see Chapter 8). The design addresses a functional succession of curves and banks to ensure a safe and comfortable ride, and achieves pleasantly wooded margins but clear enough to see bridges and the distant landscape.

The engineering design of the road itself reflects the technological changes that occurred during those four decades and budgetary difficulties, caused the resignation of several supervisors, while maintaining a good level. The overall critical assessment of the work was very positive from the outset and continues today. *Landscape architect Garret Eckbo called the Taconic 'as lovely an integration of highway engineering and landscape architecture as one could hope to find'.*

Clarke's design for the Taconic State Parkway, for example, provides a vivid example of a new kind of mediation among nature, technology and society, with what appears to be a delicate balance between the new infrastructural project and an imaginary natural order. Implicit within this aesthetic dialectic is the notion of engineering as an art form that can in some way embellish or even improve upon nature: there is no radical disjuncture here but a sense of aesthetic progression and purity of form[38].

Engineering and Landscape Architecture

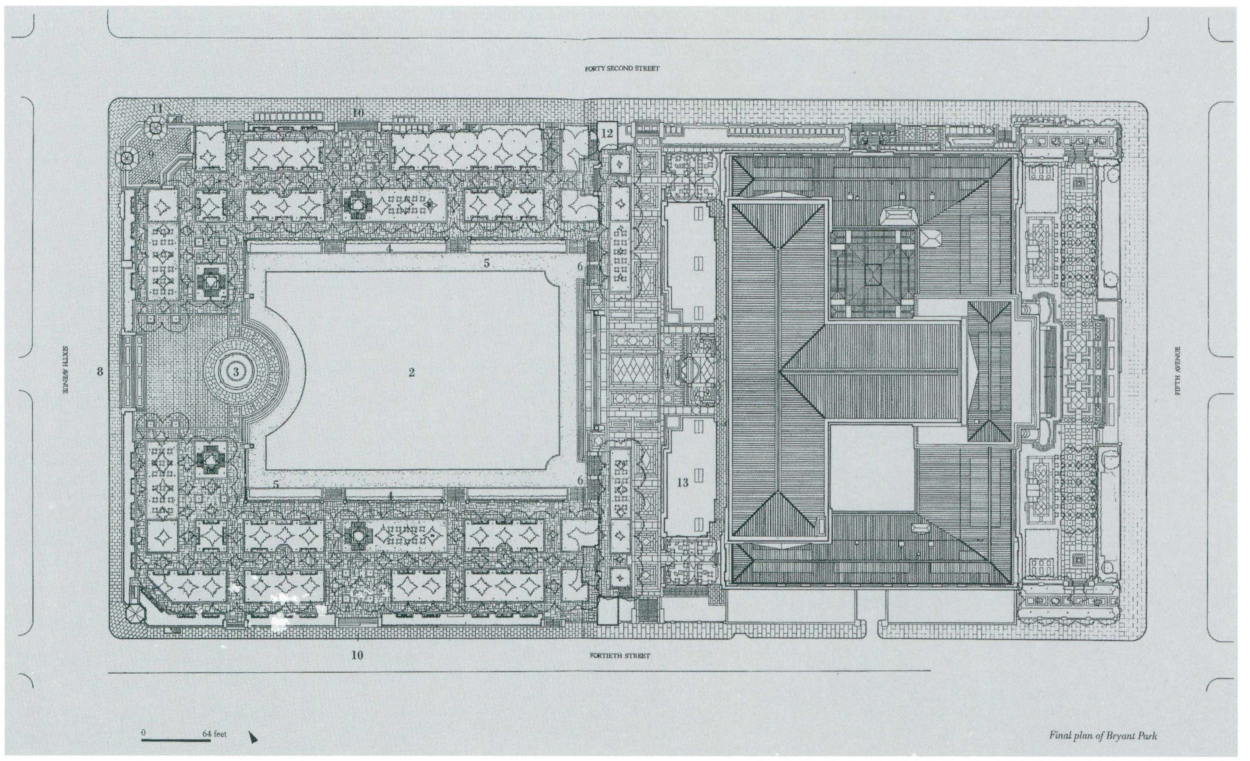
In 1934, Gilmore D. Clarke partnered with architect Michael Rapuano (1904-1975) to work as senior consultants in Engineering and Landscape Architecture works driven by Robert Moses. Their first collaboration was the design of the Henry Hudson Parkway and then the design of many important public spaces in New York, such as Bryant Park, the United Nations, the Central Park Conservancy Gardens and the Brooklyn Heights Promenade.



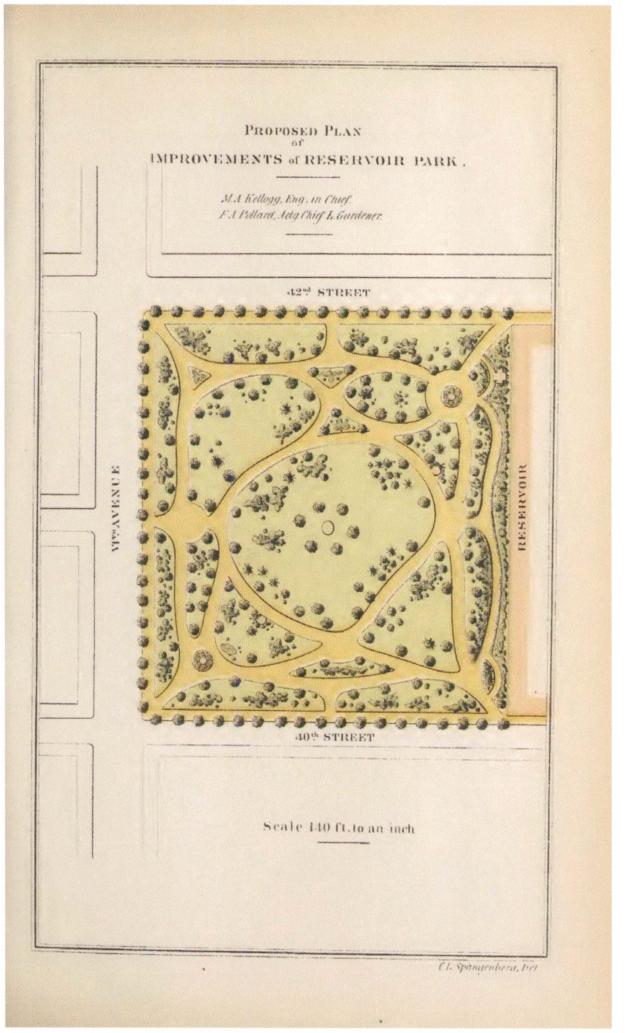
NYPL Stack Section below Bryant Park

Bryant Park

Bryant Park is located behind the New York Public Library (Sixth Avenue and 40th to 42nd streers) on a site that the City had reserved in 1823 as a burial place for homeless people and had previously been used for military exercises during American Revolution. The building of the New York Public Library —NYPL— (Carrère and Hastings, 1898-1922) was constructed on the site occupied by the Croton Reservoir deposit of 1842 which was part of the Croton aqueduct of 66 km in length. This deposit was 15 m high and its walls were 7.5 m thick, occupying an area of 16,000 m^2 ; the top of the walls was passable and housed one of the most popular walks in the era with views over the city. The park was established in 1871 on the former site of the Crystal Palace, built in 1853 in the English style, during the first World Exhibition in New York, and destroyed in a fire in 1858. Like contemporary parks it was landscape style with winding paths between



Site plan. Bryant Park: Intimidation or Recreation? 1981 by Project for Public Spaces, Inc.



Spangenberg, Charles. Proposed plan of improvements of Reservoir Park, 1871.





Bryant Park

meadow areas. In 1884 it acquired its current name in honor of the poet and editor of the *New York Evening Post*, William Bryant Cullent.

In 1934 the Park Commisioner Moses approached its restoration, and it was one of the first projects he tackled in the city. The winner of the contest, sponsored by the Architects Emergency Employement Committee, was Lusby Simpson, Queens architect. It was developed under the supervision of Gilmore D. Clarke, landscaper, and Aymar Embury II, architect, of the parks department. The result was a formal garden marked by classic patterns of symmetry and order, dedicated by Moses to enhancing the dignity of the west facade of the New York Public Library. This small garden of 38 ha and French style, was known as 'the little Luxembourg', in allusion to the Parisian park. Shortly after, the library established a reading area outdoors on the terrace east of the park taking shelves out during the warmer months. It was appointed Scenic Landmark in 1974.

In 1979 the NYPL began a renovation project which included ending the problems of the park that had fallen into disrepair, being frequented by criminals, drug addicts and beggars during the 1970s and 1980s. Between 1988 and 1992, the Bryant Park Restoration Corporation undertook a thorough reform of the park that profoundly transformed Clark's design. In 1989 Davis, Brody & Assocs. took advantage of the need to increase NYPL space and expanded the the library's stack space under the park, 65 km of shelves on two floors connected to the library through a tunnel of 19 m. The restoration was carried out by landscape architects OLIN. The space was reconfigured such as it is now, transforming it into a safe and vibrant urban nexus. 'Thousands of people cooped up in rooms and corridors need a place where they can change their depth of focus and be in nature while in the heart of the city.' (Quote from the landscape architect who led the design of Bryant Park's restoration) (Quote of the landscape architect who led the design of the restoration of Bryant Park, www.asla.org.)

Several public banks took up position there and subsequently the Bryant Park Grill & Café was added (Hardy Holzman Pfeiffer, 1995). Currently it is the only large open space in Midtown and is surrounded by building among which the American Radiator Building (Raymond Hood, 1924). The square is elevated compared to the streets and is a permeable enclosure which can be accessed from various locations along its perimeter. The flow through its walks, ramps and stairs is free and comfortable. The space is developed on terraces on different levels. In the entrance hub by Sixth Ave. is the Fountain Terrace housing the black granite fountain (Charles A. Platt, 1913) dedicated to Josephine Shaw Lowell, first woman member of the Board of Charities of the State of New York. This perimeter terrace with stone balustrades has avenues of plane-trees among ivy tapestries and hosts vari-









Cross Island Parkway

Willburg Cross Parkway

ous activities (ping-pong, petanque, Le Carrousel, playground, reading area, etc.). In the middle and lower level the large central meadow is housed. This grass surface is one of the largest south of Central Park (85 m x 54 m, about 0.5 ha), and is surrounded by evergreen low vegetation (ferns, cypress trees, azaleas, etc.). Located next to the library is the Upper Terrace level with views over the park and the restaurant and café. And in the back of the building NYPL there is the Library Terrace, marking its principle entrance. Its interior is dotted with various sculptures. It is one of the most popular and active parks of the city; in summer it hosts a film festival, theater and music, and in winter a skating rink and a Christmas market. Besides the restaurant there are a number of kiosks distributed throughout the park with lots of tables and chairs where people sit giving life to the park terraces.

Text: Patricia Hernández Lamas

In 1940 he entered the firm G. Leslie Holleran (1880-1957), who had worked on numerous projects in Westchester County, such as the Catskill Aqueduct, and the development of the residential projects Stuyvesant Town and Peter Cooper Village, and Riverton Housing. It was already another era and, thereafter, the firm's projects were more turned towards engineering, while landscaping lost prominence.

The consulting firm Clarke, Rapuano & Holleran, was involved in landscape design and construction of several major freeways in metropolitan New York City from 1940-1951, such as the Van Wyck Expressway, the Grand Central Parkway, Major Degan Expressway, plus many other projects of roads and highways in New Jersey and Pennsylvania. Also they participated in many other projects of the era of Robert Moses, such as the two New York City World Fairs. Clarke himself was responsible in 1964 for the restoration of the Unisphere, the famous symbol of the fair with the world map on steel meridians and parallels[39].

Giedion's Distrust

Confusion in Le Corbusier

New York must have produced enormous confusion in Le Corbusier. He never understood it, and got it to listen to him. He advocated a modernity arising from certain features of the work and did not find it there. He advocated what was to be built from a modern position, but there everything was done differently and managed to convey an unmistakable air of modernity. Some of these features appear in certain official housing projects, but those reviled brick towers isolated on green areas were considered as a kind of curse. The most modern city in the world, modernity itself embodied in a city, was completely foreign to his speech.

Years later, Giedion also be wrong about New York, accepting the ideas and proposals of Le Corbusier. It was right to perceive the importance of movement and highways as a new feature of modernity, following the achievements of Moses [62: 768]. But he went off track much as those two in advocating their consequences: *There is no longer any place for the city street; it cannot be permitted to persist* [18: 322]. The city did not get along with the highway, but New York managed a tolerated coexistence between them. And the adjustment mechanisms between its different scales

Broadchannel American Park





Willburg Cross Parkway

and speeds constitute precisely one of gaps and anomalies in the greater explanatory power grid of the city.

Giedion on scale and parkways

The reflections of architectural critic and historian Sigfried Giedion (1888-1968) on the new consideration of the scale and time are significant in terms of the critics' distrust of the modernity of the buildings in New York. For him, in clear contrast to Chicago, neoclassical buildings in New York did not reflect the structure of their materiality, or the functionality that was the object of their construction [62: Chapter V and ff].

The correctness of his first diagnosis, however, dragged him towards a fundamental distrust of everything built into the city possessed with a certain air of antiquity. In his Space, Time and Architecture [62: 780] he focuses his presentation on two typical New York proposals: he understands and approves the innovation of the parkways [62: 768] but is distant toward the Rockefeller Center [62: 788].



Rockefeller Center, Fith Avenue with 49 street

Vision of the Rockefeller Center

First he recognizes the enormous innovation of the Rockefeller Center and its value as a new approach to focus time but in his final assessment contemplates it as if it were an art object. He talks about its disposition and volumes and discusses the need to move *to understand its grand play of volumes and surfaces and perceive its many-sided significance. Alongside this assessment he includes a strobe photograph of a golf shot.*

It then describes the building as a set of very different activities, *there are a variety of offices and establishments more or less connected with these activities*, to signal below: *Obviously it can be objected that such a commercial composition does not constitute a civic center. It is a private enterprise arising from private initiative and carried out as a private speculation based […] on pure calculation of cost and return* [62: 642].

These assessments would be safe without taking into account the enormous influence of his book. But critics, architects and engineers of the second half of the twentieth century, with very few exceptions, made their own the inspiring ideas of his positions. An exhaustive thesis on his Space, Time and Architecture, says the book *was one of the most influential products on modern architecture at its time, which was even read by the students of architectural programs in many universities particularly in America as a course book)* [33:22].

Inability to understand New York

Despite his prolonged stay in the Harvard Graduate School of Design and the MIT during and after the Second World War, in those few lines Sigfried Giedion laid clear his inability to understand the city of New York or any of its relevant parts. And the book's success hindered the possibility for several generations of architects to penetrate the complexities of the city beyond mere fascination. So, irreversibly, they labeled poor or inexistent New York's contribution to the history of modern architecture and urbanism.

Besides misunderstanding, there is also a certain derogatory whiff in the language used. In the paragraph located following the previous one, he comments that the Music Hall Rockefeller Center *every night is displayed in greater numbers than anywhere else in the universe, a collection of shapely female legs and trained.* And, without even changing line continues: *You can also notice that, as is built into the core of the chaotic New York, does not appear surrounded by greenery; but, yes, entirely rid of the problems that brings the street with traffic* [62: 798].

It seems as if during his stay in New York he never visited the city. The scale of skyscrapers and the city itself requires moving and changing perspective to encompass them. Green is more abundant in New York City than in many other major American and European cities, but not used to surround the skyscrapers given the priority given to the street. And above all, one of the greatest achievements of Rockefeller Center is that its 19 buildings are positioned with absolute respect to the grid and even traffic passes through many of its streets. They are true urban buildings and form a single whole without altering the functional or aesthetic essence of the city. To Sigfried Giedion, however, *absolutely insufficient network of streets in scale, prevents the organic development of the city, like you would a metal fence around a tree* [62:800].



Marine Parkway Bridge

Critics are generally not as shameless as to place their faith ahead of their findings, but Giedion is clear: yes to the public, no to the private, towers over the green as panacea, the street as a nuisance. He always considered himself as a spokesman of the Modern Movement and CIAM but seems to understand buildings only in the key that is faithful to those principles. However, as Nikolaus Pevsner himself said in 1949, *He failed to sustain conveying the only truth, and committed a 'sin' by interpreting history on behalf of his own set of ideas* [114:78].

Faith before valuation

His enduring appeal to history to appreciate architecture disappears by disregarding the socioeconomic context of the New Deal, driver of the proposal that Rockefeller endorsed. For good or ill and regardless of his own values, the complex was one of the greatest episodes of real estate speculation in the city, but also a powerful generator of jobs and wealth for New York, during the long years of misery following the 1929 crisis.

Giedion's social nearsightedness

Sigfried Giedion considered modernity as a simple matter of materials and forms, technique and art, in a simplistic interpretation that ignored its diversity and complexity. His utopian faith in the modern movement never managed to understand the complicity of architecture and engineering of the city in the sociopolitical changes of the mid-twentieth century. To Sigfried Giedion, the parkways and Rockefeller Center were mere trifles, *what really needs to be changed is the entire structure of the city* [62: 643].

For the American critic Robert A. Stern, however, *The Rockefeller Center reshaped the City Beautiful Goal of a cohesive urbanism inspired by the Classicism of the American Renaissance to meet the functionalistic challenge of European International Style Modernism* [152:31].



Broadchannel American Park


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11 | Moses

The construction of the city in 1930
Robert Moses (1888-1981)
Gilmore Clarke / Architects, engineers, landscapers
From Coney Island to Jones Beach
Parkways and coastal routes
Road and landscape design
Coastal parkways / Henry Hudson Parkway
Brooklyn Queens Expressway
Beaches and parks in Long Island
Jones Beach State Park (1929)
Jones Beach according to Mumford / Astoria Park (1936)
Surrounding and crossing Manhattan
Arterial Network of New York City
Commission of bridges from Ammann
East Side Waterfront, FDR Expy
West Side Waterfront, HH Pkwy
Crossing Manhattan in three points
Cross Bronx Expressway
Protest of evicted neighbors
Manhattan's overlapping stretch
Vision of the public
The end justifies the damage
Through the neighborhoods
Opening the way with a meat ax
The 'other' Moses
The housing 'projects' / War ends an era
Stuyvesant Town and Cooper Vlg.
Different conduct after 1950
Remaining in the Authorities / Building to overwhelm
Flushing Meadows Corona Park
General Motors Highways
An arrogant Moses and the Fair of 1964
Lincoln Center (1968)
Courtyards, plazas and gardens / A demolishing biography

Robert Moses (1888-1981)

The construction of the city in 1930

The economic and civic model of the great New York City provided by Thomas Adams caught on gradually in Manhattan but assumed enormous difficulties of implementation in the Bronx, Brooklyn, Queens and Staten Island. The structure was taking shape in a center with more or less resolved branches on the East River and incomplete ones above the the Hudson. In the early 1930s, the Brooklyn, Williamsburg, Manhattan and Queensboro (see Chapter 6) bridges fulfilled their role and the Midtown Tunnel to the east and the Lincoln Tunnel to the west begin to be seriously considered.

But the connections between neighborhoods were defective and the lack of a crossing over the Hudson to bring together the economies of New York and New Jersey began to undermine the growth of the entire metropolis. Manhattan had spread like a tree, but it was necessary to connect the branches to revive inaccessible areas and the only chance to decongest the center.

The great railway plan outlined by William J. Wilgus to achieve that structuring of the big city was failing, by the inability of the great interests of different private companies to coordinate their actions. Its delay boded an abrupt ending, mainly due to the failure of the rail link between Midtown and New Jersey, in the form of a railroad bridge over the Hudson. Intended as a key part of the scheme, the disagreements about its location ruined the idea, which already had a difficult technological implementation, given the importance of the Hudson obstacle.

The recent Port Authority, created to overcome the obstacle of the Hudson River, was in the hands of railways and semi-paralyzed pending agreements between companies that never came.

The famous crash of 1929 came to further complicate the situation, and the inability of the city to finance the necessary connection on the Hudson and the necessary connections between neighborhoods became evident. Thomas Adams' plans to improve roads and the arterial network of New York were still only ideas or texts with insoluble budgetary needs.

In the thirties the way of dealing with problems changes and major transformations occur in the meaning of construction itself. While industries and private businesses sank and mass unemployment and despair increased, construction stopped being a private enterprise to become a public and a serious and urgent public imperative. The

meaning of what happened transcended all areas of city life and permeated all subsequent behaviors [131: 636 ff].

Since 1930, practically all the important works including bridges, parks, roads, tunnels or reservoirs — were conducted with federal funds under the auspices of the great New Deal agencies. These projects were planned around complex and well articulated social objectives.

First, they were intended to increase economic activity, increase consumption and stimulate the private sector. Second, to provide jobs for millions of unemployed, helping to achieve social peace. Third, they accelerated, focused and modernized economies of the regions where they were built. Fourth, they expanded the meaning of the public, making symbolic demonstrations of improved life in America, both materially and spiritually, through Public Works.

Finally, through the use of new and exciting technologies, major projects of the New Deal embodied the promise of a glorious future that began to emerge on the horizon, a new day not only for the privileged few, but for the entire nation.

Robert Moses was perhaps the first person in America who captured the immense possibilities of the interest of the Roosevelt Administration in public works [18: 314].

Robert Moses (1888-1981)

Moses has been considered the greatest and most influential builder, unparalleled in the world. He spent 44 years in power between 1924 and 1968, during which he built 658 playgrounds, 36,000 ha (90,000 ac) of parks, 670 km (416 mi) of streets, 13 bridges and 15 freeways. He also built houses, tunnels, beaches, zoos, community centers and exhibition halls for the public. He managed to drastically change the silhouette and the coast of New York. He transformed the territorial system of accesses and recreational areas of New York.

He came from a family of fairly wealthy German Jews and grew up in an atmosphere of luxury in Manhattan. Clever and motivated, he entered Yale at age 17. He graduated in Arts from the University of Yale, did a Masters in Art in Oxford and a PhD in political science at Columbia. He did not have any education or training in specific traditional urban planning [32: vvpp].

Robert Moses was a workaholic, working long days of 15 hours a day. In a given period, Moses juggled 12 projects and, despite reaching the age of retirement in 1953, decided to continue working. However, money was never a problem for him. In many of his jobs he did not accept any salary, which he did not consider necessary for his projects produced a lot of money, allowing him to live your life with luxury. He had many full time servants, a private chauffeur and several chefs among others. Robert A. Caro says Robert Moses spent more money on his own projects that the city of New York.

He also had a strong commitment order, economy and efficiency, inherited from his time with the administration of Mayor Mitchel and the Bureau of Municipal Research, where he had been familiar with politics and finances of the city in the 1910s [32 : vvpp].

In addition to his countless contacts in the world of politics, Moses had close ties with conservationists. As a progressive, he believed in the positive influence of a healthy environment on social behavior, in the virtues of 'good governance' and the primacy of experts. This apparent distance from politicians was welcomed by those who wanted to preserve the parks of their childhood. Moses, as it became clear, had little interest in the natural qualities of the parks… and viewed all parks as places for active, wholesome play, for ball fields, tennis courts, swimming pools, and playgrounds: he believed in recreation not conservation [130:449].

Gilmore Clarke

One of his top aides was Gilmore Clarke (1892-1982), New Yorker, civil engineer and landscape architect from Cornell University, who began working for Robert Moses in 1934. He set up a consultancy with Michael Rapuano which Leslie G. Holleran joined in 1940, with the name Clarke Rapuano & Holleran.

Moses met Clarke in the works of the Bronx River Parkway and was impressed by his work. When years later Fiorello LaGuardia named Moses Parks Commissioner and instructed the reconstruction of city parks, Moses chose him as a landscape architect, and Clarke remained one of his top aides throughout his career.

Architects, engineers, landscapers

One of Gilmore Clarke's first tasks in this destination was assembling a massive team of designers and drafters. Funded by the New Deal, the Parks Department City of New York offered employment to hundreds of designers and engineers out of work. Moses demanded the best and Clarke brought many of his former Westchester colleagues. Many of these individuals — including Ernest J. Clarke, Edmund Passarelli, G. Leslie Holleran, Jack Madigan and Clinton F. Lloyd, who later designed the Boat Basin, key piece in Riverside Park on 79th St. — remained as close Moses partners during his term as 'city's master builder' (director of city construction) and in his subsequent tasks. Between 1934 and 1936, the Parks Department employed some 80,000 men and women.

Lewis Mumford said that Gilmore Clarke had greater impact than anyone else in American cities. One of the biggest projects led by Clarke was the improvement of the West Side, which involved the construction of the Henry Hudson Parkway and reconstruction of Riverside Park. With Moses, Clarke added dozens of playgrounds in Central Park, he rebuilt its zoo, and designed its botanical garden. He oversaw the construction of a dozen new parks and hundreds of playgrounds throughout the city, many of which were designed by wives of the Parks Department staff.

In 40 years of collaboration, Clarke designed the layout and landscape of dozens of streets of the Moses era, highways and housing projects and innovative Harlem River Houses, Stuyvesant Town and Peter Cooper Village. With his partner Michael Rapuano he created the Brooklyn Heights Promenade, designed the site and the motifs for the United Nations Headquarters and planned the 1939 and 1964 World's Fairs, including the still existing 'Unisphere' of the latter one [30:43].

From Coney Island to Jones Beach

In 1922, Robert Moses was appointed head of the State Park Plan for New York (see Chapter 8) and then he started building parkways. Moses' plan to facilitate access to Long Island by car was inspired by the Bronx River Parkway. It was a regional scale version of the landscaping with different level crossings used by Frederick Law Olmsted and Calvert Vaux in Central Park and the Boston Fenway 1880, which treated the Parkway as intercity reach.

By 1925, Moses had completed the Ocean Parkway on Long Island and in 1931 he began work on the Northern State Parkway, which required passing through the area of millionaires in North Fork. At the same time he began to widen the scope of the roads of New York to the Belt Parkway, Grand Central Parkway, the Hutchinson River Parkway and the Henry Hudson Parkway connecting the north of the city with the Saw Mill River Parkway, built by the state.

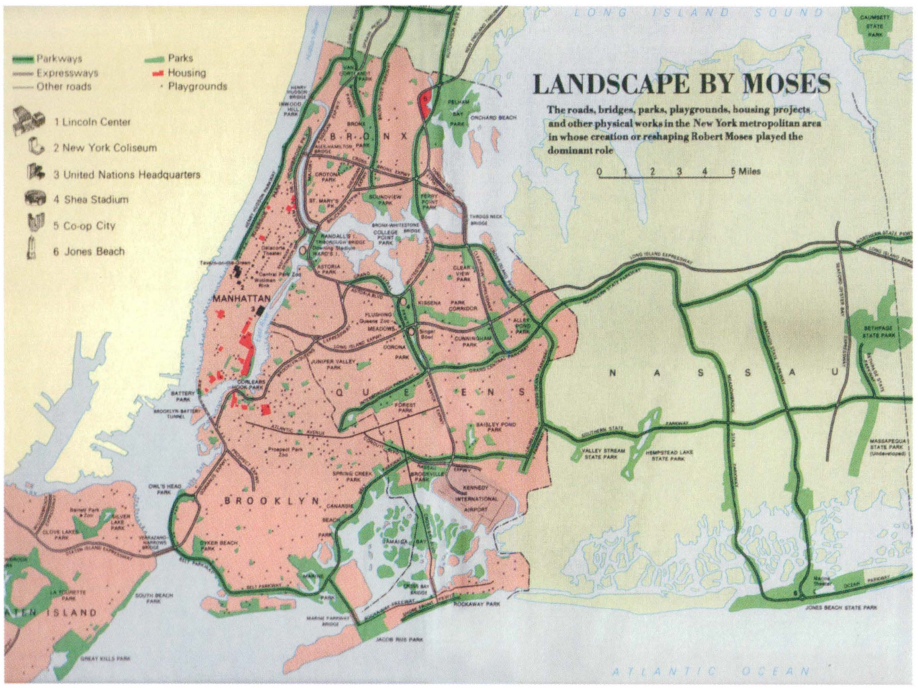
The Northern and Southern State Parkways made by Moses, from Queens to Jones Beach and beyond, opened a new aesthetic dimension — linked to the car — to the modern trend towards rural life. *These gently flowing, artfully landscaped roads, although a little frayed after half a century, are still among the world's most beautiful.* But their beauty does not come so much from the natural environment surrounding the route: it arises from the landscape created by the street itself. These sensations produced by parkways could only be experienced from the car. *It is said that their underpasses were purposely built too low for buses to clear them, so that public transit could not bring masses of people out from the city to the beach* [18: 299].

The enhancement of the landscape seen from the car is a main objective of the overall design of highways during the 1920s, but the parkways add the planting of trees and shrubs in green areas. Improving the driving experience — pushed by manufacturers of automobiles — is extended with the beneficial effects of the parks in the surrounding areas, contributing to a general improvement of the territory.

The ideas underlying the design of the parkways drank from the fountains of the first Bronx River Parkway, whose principles, in turn, were inspired by the landscape ideas of Frederick Law Olmsted. The cars were 'accommodated' in the traditional environment of the parks, through a carefully constructed element isolated from any building. Circulating through the parkways should produce the feeling of being in an infinite park, meandering in the company of trees and shrubs with a few additional elements, such as bridges, poles, signs or barriers, designed in a rustic way [30:42].

Among all the parkways of Robert Moses' first period, the ones built on the waterfront are particularly important. Although the banks of rivers or the sea were always used to install roads, the design sought by Robert Moses and executed by great landscapers such as Gilmore Clarke, G. Leslie Holleran and many others, brings a new value to these roads. That is because the river and coastal scenery of banks tends to extremes: either it is a disaster of neglect and becomes the focus of garbage and waste, or becomes wonderful through minimum, yet careful and maintained treat-

Parkways and Coastal routes



Landscape by Moses [32:1]

Road and landscape design

Coastal parkways

ment. The typical linear development of the parkways favors the continuity of their landscape character and contributes to the sustainability of the waterfront, to deter the spread of outbreaks of deterioration and degrading uses.

Henry Hudson Parkway

For Han Meyer, it is Robert Moses who is really responsible for the New York City Riverside Park, on the left bank of the Hudson. Although Frederick Law Olmsted had presented his first designs in 1864, the unfinished Hudson park had been the object of disagreements between the railroad company, which claimed a large space for a beach road, and various interest groups who wanted to make a big park city on the waterfront [96: 216]. The Parkway managed to dissuade these industrial uses of potential impairment and granted its definitive character to the area.

The Riverside Park hosted the first Moses Parkway in New York and presented it as an absolute innovation. As Robert A. Caro says, if the *Henry Hudson Parkway was built properly and a great park created alongside to on what was now the mud flats of Riverside Park, the city's residents would not even have to leave the city to find beauty. They would be able to drive along the water the river stretching to one side of them, the green park to the other, above the park the spires of Manhattan. It would be a public improvement unequaled in the world!* [32: 343].

Brooklyn Queens Expressway

Another similar project, carried out over the city in the nineteenth century, is the Brooklyn Queens Expressway (BQE) above Brooklyn Heights, the cliff edge of the East River also in the urban waterfront. The great difference in height was a major problem for any attempt to develop it, but Moses took advantage of it to articulate new public spaces by the water, containing parks, ring roads and city streets.

In Brooklyn Heights the effort to fit a large artery of traffic in the most expensive and elegant district of Brooklyn without disturbing their views on Manhattan and its en-





Brooklyn Heights Promenade

tries via the Brooklyn Bridge entries and Manhattan Bridge, consecrated long before as true scenic treasures, is truly remarkable. To achieve this, he separates traffic directions and places one on top of the other, above the local access docks. These three levels of circulation are situated steplike under the Brooklyn Heights Promenade, so that from the original level of the streets and mansions neighborhood the views are maintained intact from the original level, so that one does not see or hear the circulation below.

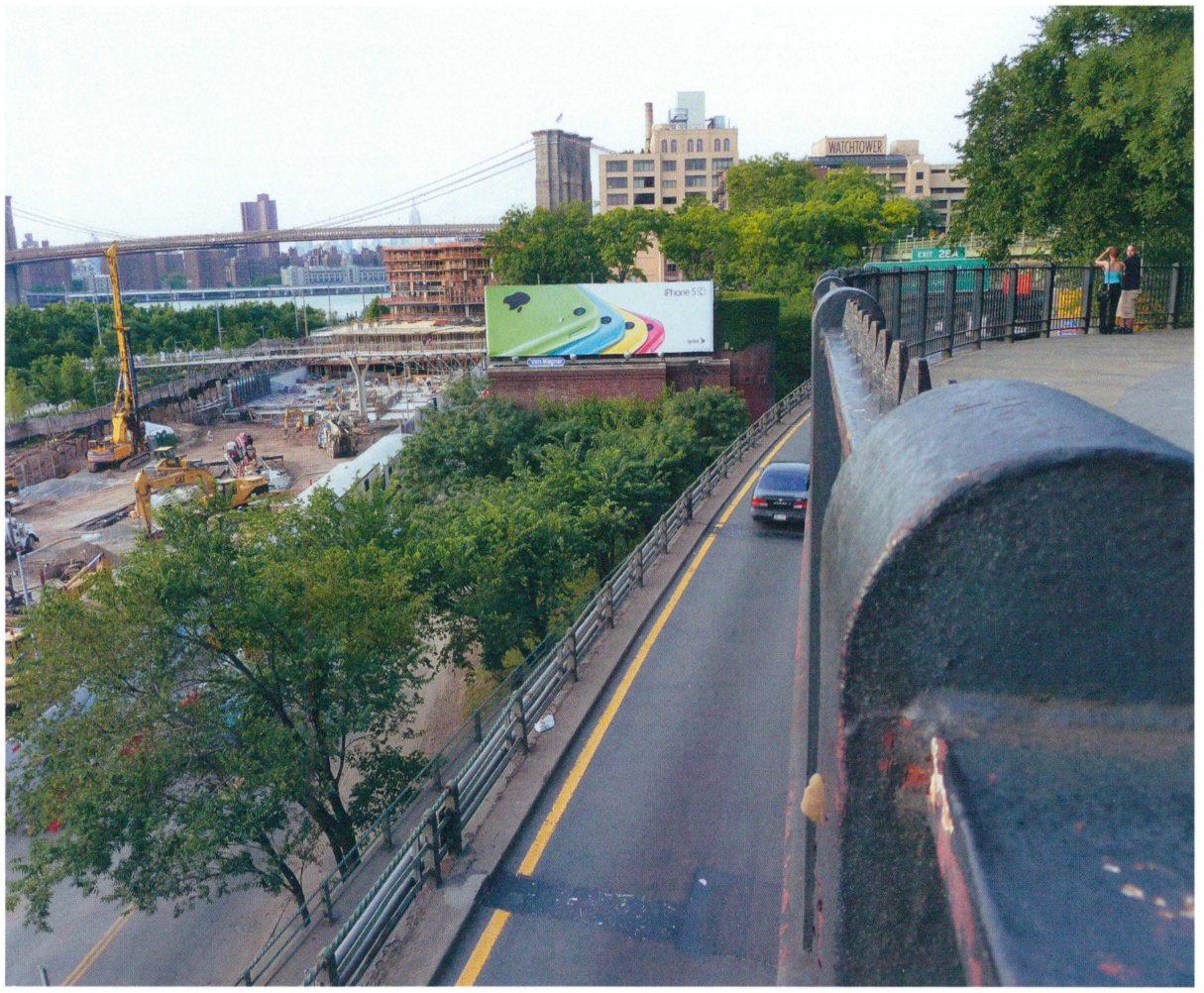
Often the location of roads in the margins of urban rivers is the only way to get a continuous path, but Moses used these places as true elements of suture between the different constituent districts of New York City. The two major freeways on both sides of the island of Manhattan, the BEQ to link Queens and Brooklyn reaching to Coney Island and above all the Triborough Bridge complex, constitute the basic elements of the metropolitan arterial network.

When Mayor Fiorello LaGuardia[40] put him in charge of the Triborough Bridge Authority (TBA), Robert Moses became the only man situated above the five boroughs, with ability to control the main and most strategic connection between them [79 : 320]. In addition, shortly after his inauguration, toll bridges, tunnels and highways became a veritable gold mine for a TBA fully autonomous with regard to the city, the state and the federal government (see below in this chapter).

Beaches and parks in Long Island



Brooklyn Heights Promenade



With these funds, Moses could undertake many projects without any limitation concerning their use. His edge roads, however, could not be accompanied by parks and green areas in areas of high port activity, where Moses had to resort to elevated highways [96: 217].

The new parkways on the waterfront, especially the Hudson were received with enthusiasm, even before their opening. *The new combination of skyscrapers and parkways was portrayed as a harmonious symbiosis of human labor and divine creation, or nature; and big bridges, viaducts, ships, and farms were interpreted in a manner that underlined the alliance between man and nature... The perception of the modern city as a work of art, a symbiosis of man and nature, was so universal that even authors of the most anti-urban books lauded the skyline of New York as a pastoral idyll. F. Scott Fitzgerald's The Great Gatsby is a prime example... The city seen from the Queensboro Bridge is always the city seen for the first time, in its first wild promise of all the mystery and the beauty of the world* [96:227].

At first sight the skyline is perceived as a complete ensemble of skyscrapers, which present themselves as a whole, surrounded by space; and water creates the perfect condition for this perception. The combination of skyline and vast expanse of water points out, as nothing else can, the equilibrium between what man can do and what nature has to offer. Above all, the waterside provides the opportunity to experience this modern cityscape in a modern way: from the car, driving along the highway [96:228].

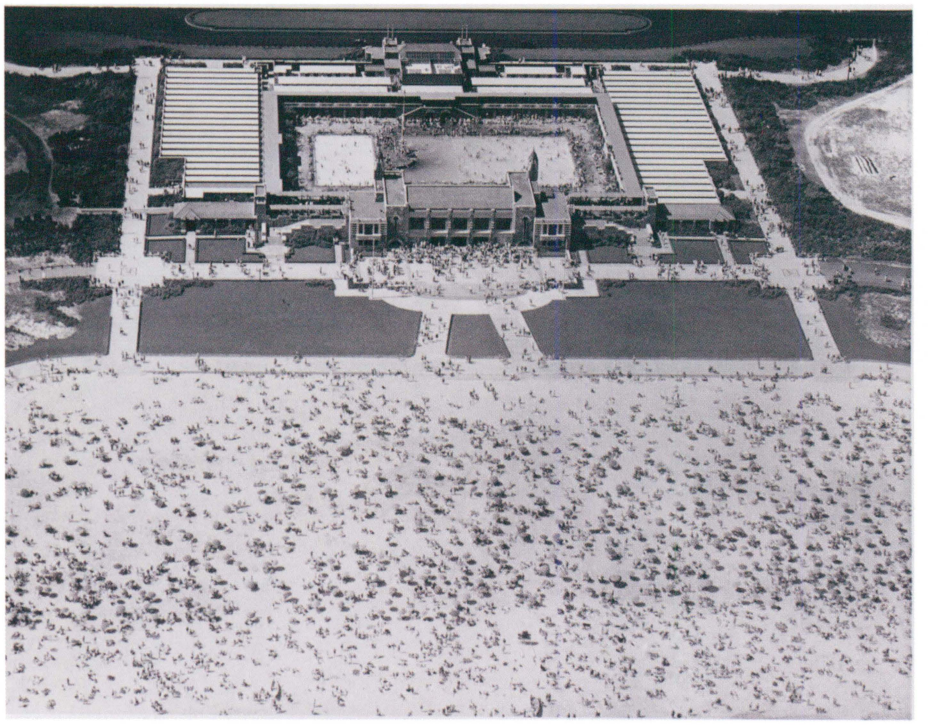
In fact, Robert Moses repeated the motorway scheme on the water in many cities that asked advice on creating parkways. And for more than 30 years, the network of Parkways and Expressways of New York was a popular excursion destination of politicians, planners, developers, architects and engineers throughout the US and Europe. Unlike the New York Parkways and Expressways, European motorway networks — the Autobahnen German, Italian Autostrade or English Motorways — linked cities and regions, but Moses made them enter the city with the aim of transforming the city itself.

Jones Beach State Park (1929)

In August 1929, Moses inaugurates *the most lavishly praised public work for the decade, the Jones Beach State Park*. It was inspired by the clear and precise criteria of Robert Moses and designed by a large team of engineers and landscape architects. These artists include Earle Andrews as an architect and chief engineer, Clarence C. Coombs as a landscape architect, Arthur Howland as chief engineer and Herbert Magoon as an engineer.

It was a completely different beach for treatment, function and meaning from what Coney Island had until then involved for New Yorkers. The spirit of a popular fair full of attractions gave way to *a vast expanse of beaches, its enormous parking lots, its tastefully designed boathouses and restaurants, its workers' neat sailor uniforms, and its scrupulously clean boardwalk* [130:448]. The concept of recreation is clearly imposed over that of fun, up until then the idea behind leisure time for the crowds.







Jones Beach

Located on Long Island, just outside the city limits of New York, on the Atlantic shore, Jones Beach was a radically different public space from anything that had existed prior. As a landscape, its most notable feature is the amazing clarity of space and its formalization: extensions of absolutely flat, dazzling, white sand, stretched toward the horizon in a wide band straight, cut on one side by the clear, pure and infinite blue of the sea, and on the other by the precise unbroken brown line of the access path [17: 310].

Much of this area was once marshy wasteland, inaccessible and impassable terrain, on which designers Moses achieved a spectacular metamorphosis in just over two years. At Jones Beach there is another type of purity that is crucial. There's no intrusion of modern retail business. It contrasts sharply with Coney Island, only a few miles to the west, which captivated a middle-class audience from the moment of its opening. All the density and intensity of Coney Island, its noise and ragged anarchic movement and vitality were eliminated from the visionary landscape of Jones Beach [17: 311].

For Lewis Mumford it was a huge achievement: *The landscaping of the highway and the beach leaves me in a state of ecstatic admiration. The landscape architects have used for the most pan the native heath vegetation of the coast, and they have made the most of grass that I have not been conscious of hitherto in America... a superb grass with a long, pointed blade, like bamboo, with a fluffy efflorescence. The low shrubbery forms borders and background masses that are as lush as they are varied in their quality of green and their contrasting textures. The effect mainly depends upon the use of bayberry, untrimmed privet, and dwarf pine*[41]*. They fit the scene and flourish in the salt air.*

Jones Beach according to Mumford





Above these lines, Ocean Parkway

Above, Loop Parkway

He proves the general design and all its determinations, but is highly critical architecture: *The general planning of the grounds and buildings, the clean separation of the parking spaces from the recreation areas, the ordering of terraces for eating and lounging, the low, curving boardwalk, the disposition and variety of the play spaces are all no less admirable than the landscaping. But the architecture, to speak frankly, is terrible, and if it spoils no one's pleasure, that is simply because the perfection of everything else keeps one in a pleasant, uncritical coma* [103:189].

With that final performance, the amusement model developed in Coney Island gave way to the recreation and naturalistic purity of Jones Beach, intended by Robert Moses and achieved by designers Earle Andrews and Clarence C. Coombs. Both were designed for crowds, but with such a difference as characterized the distinction between the conflicted and disastrous Grand Central Depot, and the fluid and aestheticizing Grand Central Terminal, sought by William J. Wilgus and achieved by architects Warren & Wetmore in 1913 approach (see Chapter 7).

Astoria Park (1936)

On the shore of Queens, between the Triborough Bridge and Hell Gate Bridge, there is a place of great significance for Public Works. After the Civil War the Queens waterfront was invaded by industry, but a popular need for public access to the East River emerged. Therefore in 1913 the council took this plot (19 St. between Astoria Park S. and Ditmars Blvd.) along the river to develop a park. It was originally named William J. Gaynor Park and later East River Park, but in late 1913 the Board of Aldermen named it Astoria Park. Stephen Halsey, founder of the city of Astoria in 1839, gave it the name of his friend and businessman John Jacob Astor. From 1936 and under the command of Robert Moses reforms of further consideration began including the completion of the sports complex and massive pool at its center. It is the largest and oldest city pool, which was used to prepare swimmers for the 1936 and 1964 Olympics. It was also equipped with six outdoor tennis courts, a running



Astoria Park, Queens. Museum of the City of New York

track, basketball courts and two children's areas, all connected by trails. Placed in a privileged location along the East River it has magnificent views over the skyline of Midtown and Triborough and Gate Bridges.

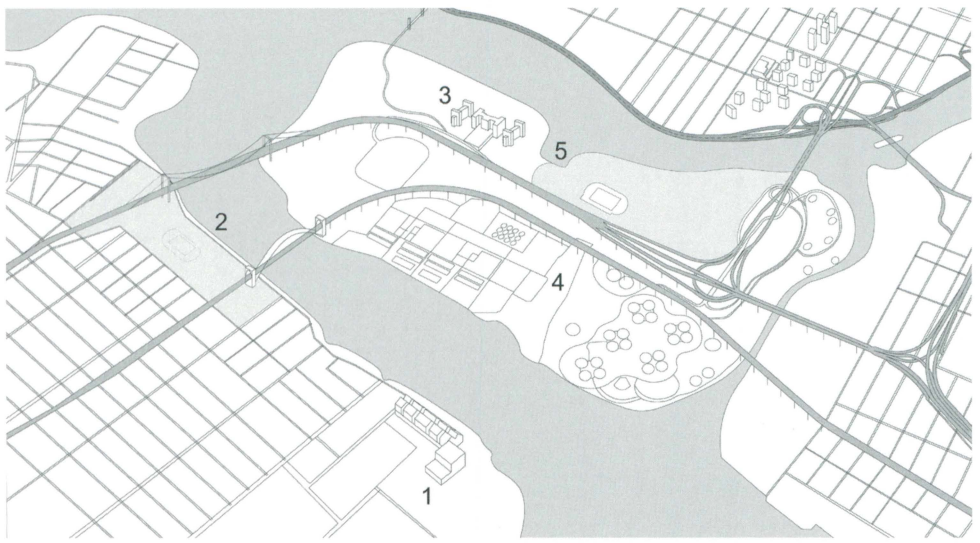
Taking advantage of its great size during the American Revolution the site was occupied by troops. Its location preserves historical reminiscences: the Indian village of Pot Cove, the cornfields of the banks, fishing in Hell Gate and the Linden Brook stream flowing under the south side of the park. In 1937 the park added 18,000 m^2 (4,5 ac) to its 22 original ha (54 ac) to include the land under the Triborough Bridge and in 1969 another 20,000 m^2 (5 ac) of the Ralph DeMarco Park. In 1980 renovation work began in three phases: playground, sports fields and drainage system; restoration of the station and new play equipment with tables, swings and fountains; restoration of the northeastern part of the park with paving of roads and paths, redirection of pedestrian entrances and placement of new banks and vegetation.

Text: Patricia Hernández Lamas

Scheme area around Astoria Pool

1. Astoria Generating company
2. Astoria Park
3. Manhattan Psychiatric Center
4. Wards Island Wastewater Treatment Plant
5. Randall's island park e Icahn Stadium

Prepared by José de la Paz



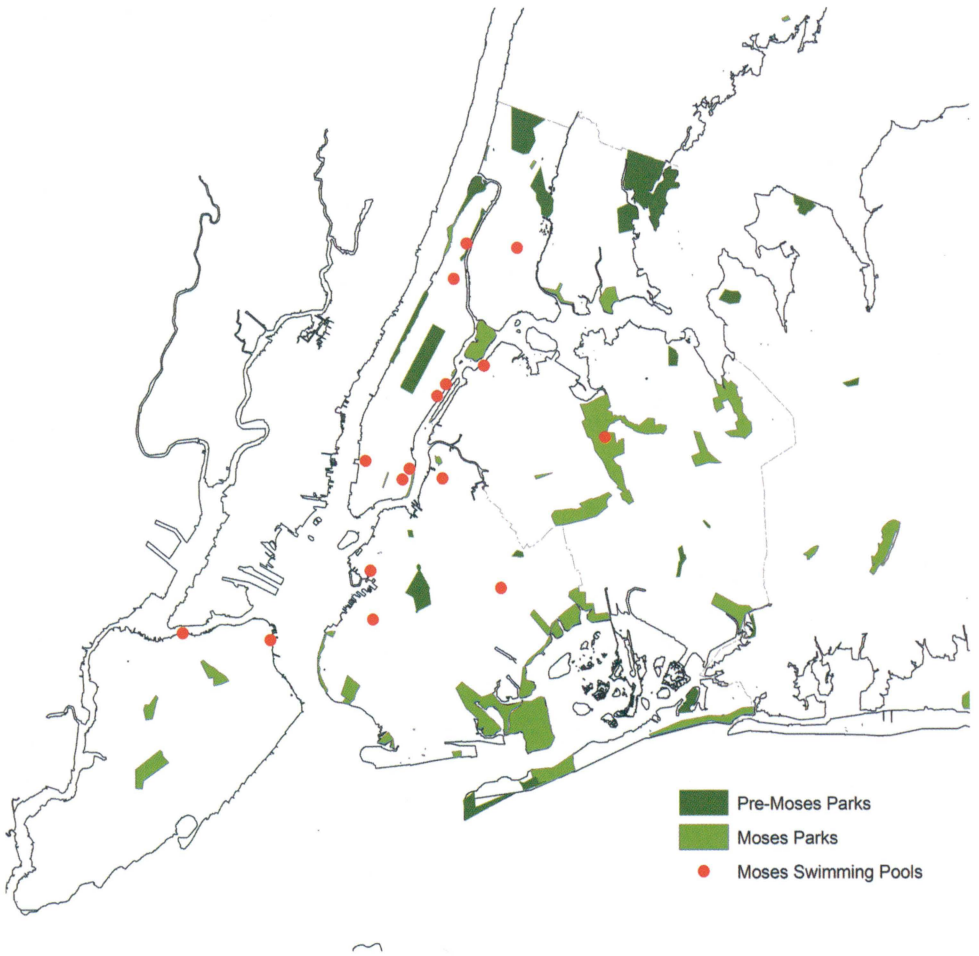
From there, there is a spectacular view of the turbulent Hell Gate — a stretch of the so-called East River that is not a river but an arm of the sea with currents changing direction depending on wind and tides. Behind there is Ward's Island, with a gigantic purifying plant on the right bounded by the graceful curve of the railway, the Ward Island Park, between the two bridges, and the New York skyline to the left framed by the batteries of Triborough Bridge.

Moses built numerous pools, both to give life and use to parks and to justify the corresponding access roads and parking lots for the park, a matter highly valued by neighbors and effectively multiplying the number of users of the park and pool. Asto-

Astoria Park Pool and behind the Robert F. Kennedy Bridge







Robert Moses doubled the number of parks and pools in New York. Prepared by Ana Rubio-Gavilán from the source [59:150]



Moses' achievements. Prepared by Ana Rubio-Gavilán from the source [59:140]

ria Park is especially monumental, for its location and views, but he built them of every size and shape in many parts of New York City.

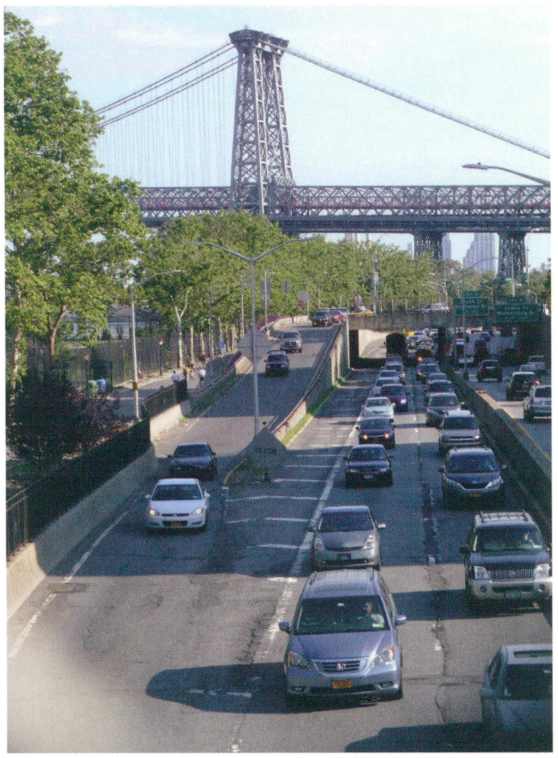
Another interesting example is the swimming pool on top of Highbridge Park, at the foot of the tower, with the Croton Aqueduct above High Bridge crossing the Harlem River at its feet, and a wide view over the Bronx, including Yankee Stadium. The entry on Amsterdam Ave. Has the magnificence of an elongated institutional building with a central body of greater height.

The State Park Plan prepared by Robert Moses contained many previous decisions, but was also an instrument of great flexibility to go fitting new productions of parks where other operations left usable places left for them [130: 449].

Surrounding and crossing Manhattan

Arterial network of New York City

The tremendous public acclaim received for his parks served Moses as a springboard to something far more important to him. A system of highways, park-roads and bridges that interlink the entire metropolitan area: the elevated West Side Highway, which would extend throughout Manhattan, across Moses' new Henry Hudson bridge, to the Bronx, and through it, to Westchester. The Belt Parkway, which surround the periphery of Brooklyn from the East River to the Atlantic, attached to Manhattan via the Brooklyn-Battery Tunnel (Moses would have pre-



FDR Expressway

ferred a bridge) and to the Southern State. And especially — this was the core of the system — the Triborough project, an enormously complex network of bridges, access roads and park-ways unite to Manhattan, the Bronx and Westchester with Queens and Long Island.

They contributed, in the words of Moses, *weave together the loose strands and frayed edges of the New York metropolitan arterial tapestry," and to give this enormously complex region a unity and coherence it had never had [18:301].* They created a series of new and spectacular visual entries to the city, showing magnificent Manhattan from many new angles — from the Belt Parkway, Grand Central or Upper West Side — and nurturing a new generation of urban fantasies. The banks of the Hudson River in the upper part of the city, one of Moses' most beautiful cityscapes, is especially impressive when we realize its condition of wasteland with shacks and dumps until its arrival.

Commission of bridges from Ammann

The construction of these roads entailed performing a series of bridges over rivers and estuaries, which Robert Moses always commissioned from Othmar Ammann. He had a blind faith in the ability of Ammann to design the most appropriate structures and maintained the terms of mutual cooperation all his life.

The greatest are well known and are discussed in Chapter 12, centered around his figure. Ammann made other minor bridges in access ways and over small channels, all commissioned by Robert Moses, the details of which can be followed in reference [119] and [8:94].

With the Bronx-Whitestone Bridge, the third largest bridge up to that point, Robert Moses gave set in motion the second generation of highways built between 1930 and 1939. To build them he needed a decisionary autonomy that he achieved with

FDR in Queensboro

FDR Expressway under the Brooklyn Bridge







Henry Hudson Parkway and Riverside Park

the Triborough Bridge Authority founded in 1933. Robert Moses was the only director from 1934-1968 and configured it as a mini-state with emblem, flag and police included [56:69].

East Side Waterfront, FDR Expy

Two major highways run north to south, glued to the sea on both sides of the island of Manhattan for much of its total length. They have very different character. The highway from the shore of East River, practically invaded by buildings is a necessarily elevated causeway, the Franklin D. Roosevelt Expressway or FDR Expy the in abbreviated terminology traffic signals. Its layout only aspires to its own continuity, with ingenious solutions to go through the more troubled spots, through tunnels, and overlapping itself. Access to water is usually possible in much of the plot, although only recently some sections have been rehabilitated.

West Side Waterfront, HH Pkwy

The West Side has a completely different configuration for a number of different circumstances along its route. In northern Manhattan, the height of the coast, aided by the presence of the railroad, always deterred its use, except for parks such as Inwood Hill and Fort Tryon Park. The adjustment of the layout of the Henry Hudson Parkway to the coastal morphology in that area, managed by Robert Mo-



Riverside Drive Viaduct



ses and Gilmore Clarke, is splendid, although the transversal accessibility to the coast is greatly reduced.

Then it runs under the George Washington Bridge where it is besieged by the input and output branches of the bridge accesses. From there begins the undulating layout of the first Riverside Drive, by Frederick Law Olmsted, which as we have seen in Chapter 5, took good advantage of its elevated position and the amplitude of the coastal band destined to the park. Its continuity to the south has a pair of conflicting sections, though well resolved with sections on arches from 160th St. to 153rd St.

Between 145th and 138th streets, a purification plant (mentioned in Chapter 3) on which the Riverbank State Park is placed, is interposed between the HH Pkwy and the coastline. Then the path narrows down the side of the city from 138th St. to 129th St., where Riverside Drive is placed above Twelfth Avenue with a metal viaduct of excellent workmanship.

At the height of 73th St. the Henry Hudson Parkway, Riverside Drive and its garden zone end, but the coastal road continues as causeway by the name of Joe DiMaggio Highway to 54th St. where it lands and is subsumed in 12th Ave. With slight variations in section and distribution of roadways, it continues to 23rd St, where it merges with 11th Ave. and the great buildings of Chelsea Piers appear. At the height of 12th St. it continues as as an edge road with the name of West St. At Chambers St. its loses its character upon entering the landfill that originated with the construction of the World





Riverside Drive Viaduct

Trade Center and, as simple street, it comes to Battery Park to sink into the entry of the Battery Tunnel.

Before World War II, Robert Moses had proposed three major east-west Manhattan crossings, all elevated: the Upper Manhattan Expressway, off 125th Street, the Mid Manhattan Expressway through 30th-36th streets, and the Lower Manhattan Expressway, which would run on Broome St. and connect the Holland Tunnel to Manhattan and Williamsburg bridges. According to Robert A. Caro, *The Mid Manhattan was, by far, the most spectacular — planned to run at a height of about 100 feet above the busiest streets in the world, trough a forest of skyscrapers* [32:769].

Crossing Manhattan in three points

In 1946 Moses finally launched his plan to establish these transversal crossings of the island, Upper, Mid and Lower Manhattan Expressways through the streets and buildings of the existing city. He built the northernmost, connecting the George Washington Bridge to the Bronx, through a half-sunken road. The star of the project was the middle one, prefigured as an elevated highway that crossed the island two blocks from the Empire State Building up to the seventh floor.

The most feasible seemed the corresponding one south of the city, to connect the Holland Tunnel to Manhattan Bridge. But there Moses struck with tremendous opposition from neighborhood associations, merchants, property owners and- more that led to

failure and his leaving all accrued positions except as director of the TBA [96: 225]. Opposition to the project was channeled by Jane Jacobs and the details of the case are discussed further in Chapter 14.

Cross Bronx Expressway crossing

The only crossing made was situated at the height of the George Washington Bridge, corresponding to the Cross Bronx Expressway. The crossing was envisaged in the 1929 Regional Plan developed by Thomas Adams. Moses began to build in 1945 and took 19 years to complete it in 1964. The route ran in its entirety by a built-up area where, besides buildings, there are all kinds of urban services — pipes, collectors, power lines, Subway or railways — that needed to remain in operation while construction proceeded [31:27].

In February 1946 relocation began of the residents of the buildings to be demolished in the Bronx area. In October 1948 construction of the complex crossing the Harlem River began, using existing the arches of the existing Washington Bridge and was completed in 1952. Later Robert Moses decided to build a new arch bridge, the Alexander Hamilton Bridge, not foreseen in the beginning.

Protest of evicted neighbors

The actual construction on the Bronx side began in 1949 in the section located further east, named section III. Between 1952 and 1953, residents of Tenant and Bronx Park South neighborhoods organized against the demolition of their homes, requesting from Moses a change of plan. Bronx Borough President proposed an alternative route along the edge of a park to save demolitions. An enraged Moses threatened to resign and predicted a long delay and withdrawal of funds by the federal government if the work was not continued.

The neighbors had not yet developed the tools of mobilization and publicity of their options, which will be mastered towards the 1960s in subsequent struggles. Despite protests, the alternative was rejected, but the fight and delays continued and in 1954 there were still many properties for purchase. Estimates of the date of completion of the works were delayed, the costs rose and concrete projects were reformed with new features such as the Alexander Hamilton Bridge over the Harlem River, approved in 1958 with federal funding for 90%. The most controversial section was completed in 1961 and the work completed in 1963 [31:37].



Trans-Manhattan Expressway

Manhattan's overlapping stretch

The most significant cross section, however, was developed in Manhattan with solutions of overlapping the George Washington Bus Station (Nervi, 1963), which had opened in 1963 and the Bridge Apartments (Brown and Guenther, 1963) a group of four towers of 32 residential floors, above the highway recess section. The bus station is located practically on top of the access to the George Washington Bridge (Ammann, 1931), so that the grouping of the bridge, the station and the towers generate a true 'megastructure' of traffic and residence, unparalleled until then (see Chapter 12 for bridge and station).

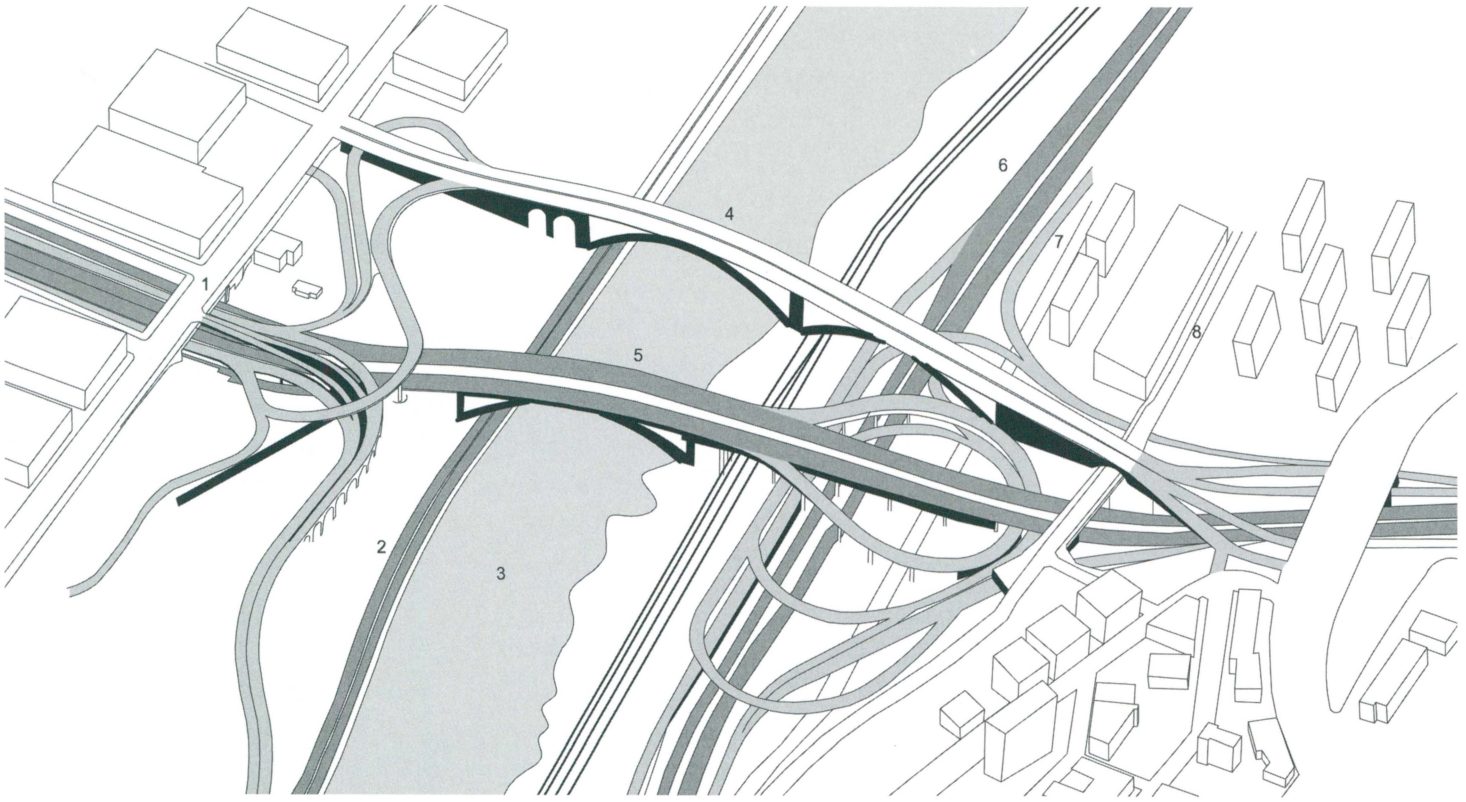
In 1972 the Cross Bronx Expressway crossing the Bruckner Expressway and the Hutchinson River Parkway was completed. It is a complex knot of three highways including a crossing over a river, that is neatly solved in a classical way with viaducts of metal beams on cylindrical cells with straight lintels.







Trans Manhattan Expressway



Entrance to the Cross Bronx Expressway in Manhattan across Alexander Hamilton Bridge

1. Amsterdam Ave.
2. Harlem River Dr.
3. Harlem River
4. Alexander Hamilton Bridge
5. Washington Bridge
6. Major Deegan Expy
7. Sedgwick Ave.
8. Undercliff Ave.

Prepared by Ana Rubio-Gavilán

Cross Bronx Expressway connection
with George Washington Bridge
1. George Washington Bridge
2. Fort Washington Park
3. Henry Hudson Parkway
4. Riverside Dr.
5. J. Hood Wright Park
6. GW Bridge Bus Terminal
Prepared by Ana Rubio-Gavilán



The culmination of this half-submerged highway of 11 km (7 mi) and its structures was a technological achievement of enormous importance in the communications of the state and the city of New York. But it also represented the prevailing of Moses on the neighborhood objections in 1950 and the outbreak of the economic and social decline of the Bronx. The project is still remembered as a case study of the brutal annulment of citizen opposition to a road project [55: 142].

Vision of the public

Marshall Berman believes that Robert Moses had a special vision of 'the public', more oriented to educating people as an audience than satisfying their desires. His assessment of the importance of the meaning and accessibility of the public domain led him to establish a hierarchy where private interests had little importance. In its effort to improve the city for the public he displaced 250,000 people from their homes and completely altered the traditional balance between public and private. He managed to mobilize against the neighborhoods and the city itself and achieve widespread hatred of all those affected by the development of his plans.

However, those who worked with him, and also some others who were convinced of the importance of his efforts, believed in his world. It was not just about making parks and roads, the real project was a New America. Berman claimed that the accomplishment of these works revived the ideals of Goethe





Washington Bridge Riverside Dr.



Cross Bronx crossing and Bruckner Expressways



Cross-Bronx Expwy



and Marx. New York allowed a glimpse of the modern romance of a socialized community confident in the possibility of cooperating to achieve the common good [18: 136].

The end justifies the damage

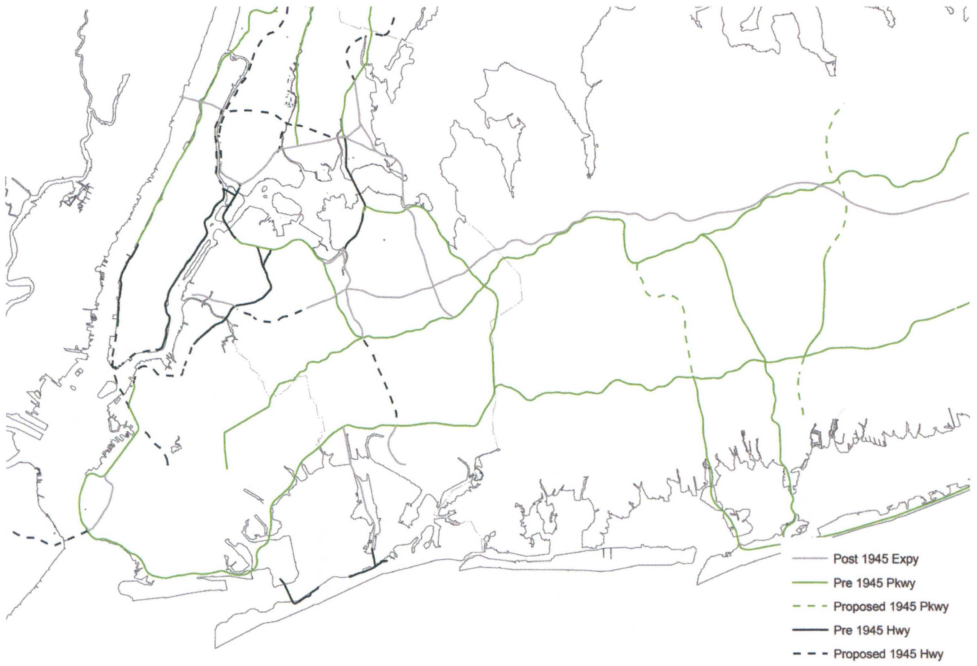
In January 1963, the great act of the joint inauguration of the Alexander Hamilton Bridge, the George Washington Bridge, the GW Bus Terminal and the Cross-Bronx Expressway occurs. Robert Moses takes the floor and justifies the damage with the achievement obtained:

These great metropolitan land and water crossings and incidental traffic facilities represent no happy impulse, no mere gleam in an official eye, no ambitious political and planning gestures. They are thrown open to the traveling public today as the result of much thought, conviction and stubbornness in the face of misrepresentation, misunderstanding and other formidable obstacles. As you ride next year over this roadway to the World's Fair at Flushing Meadow, the rock outcrop below grade on the Cross-Bronx Expressway, which we made into monolithic landscaping, will show no scars and will seem always to have been there. This is no gasoline gully, no elevated eyesore. As it sinks below and soars over the heart of the great city, this is metropolitan architecture in the finest sense [98:sp].

Through the neighborhoods

Most of the trace of the great works undertaken by Robert Moses took place in an open field, without excessive impact on the centers. But both proposals to cross Manhattan, as the inevitable access ways to big bridges and entry points to highways in the city generated enormous damage to the buildings. Aerial images of the demolition 'grooves' made to build large accesses to the George Washington Bridge across the Bronx, or the Verrazano Narrows Bridge through Brooklyn, are frightening. The same happened in much of his urban highways, but the impact of demolition was very different according to the neighborhoods.

For ten years, from the late 1950s to the mid 1960s, the center of the Bronx was crushed, punctured and smashed. Indeed, when the destruction was done, the real



Road map before and after 1945.
Prepared by Ana Rubio-Gavilán

ruin of the Bronx had just begun. Miles of streets alongside the road were choked with dust and fumes and deafening noise — most strikingly the roar of trucks of a size and power that the Bronx had never seen, hauling heavy cargoes through the city, bound for Long Island or New England, for New Jersey and all points south, all through the day and night…Moses was not sensitive to the tragedy of the neighborhood: *Compared with his earlier, rural and suburban highways, the only difference here was that 'There are more houses in the way…more people in the way, that's all'* [18: 307].

Opening the way with a meat ax

Robert Moses did not shrink from confrontation, nor did he shield himself in trifles. Some of his maxims are especially significant: *When you operate in an overbuilt metropolis, you have to hack your way with a meat ax. I'm just going to keep right on building. You do the best you can to stop it.* [56:69].

One of the primary sources of his broad authority was his ability to convince a mass audience that he was the vehicle of impersonal forces of history, the moving spirit of modernity. For forty years he was able to appropriate the vision of the modern. Being opposed to his bridges, tunnels, highways, housing developments, dams, stadiums, cultural centers, was — or so it seemed — to oppose history, progress, modernity itself [18: 309].

The housing 'projects'

In the early years of the New Deal, Mayor Fiorello LaGuardia decided to remodel large slum areas throughout the city. Although the federal funds sought above all to create jobs, 1,200 new homes were undertaken in three complexes, First Houses, Williamsburg Houses and Harlem Houses.

From that first experience, the new Ney York City Housing Authority (NYCHA) initiated a long-term plan to eliminate substandard housing and build new blocks. Meanwhile, LaGuardia sent Nathan Strauss to study the European experiences promoting



Stuyvesant Town



Rutger Houses project `

public housing. A journalist, senator and member of the NYCHA in 1936, he will then be administrator from 1937 to 1942 and following his mandate wrote two books on public housing.

The operations included in the report of Nathan Strauss required funds that Fiorello LaGuardia was not able to get from federal aid but, in 1938, Robert Moses saw a tremendous opportunity to continue building in large public housing projects. He secretly prepared a great plan with his teams of architects, but when he wanted to present it, Mayor LaGuardia, already distanced from him, boycotted it.

War ends an era

When he was elected in 1933, Mayor Fiorello LaGuardia needed a man like Moses to quickly build a city with ambition. But for this he needed some funds controlled by President Franklin D. Roosevelt and went to great lengths to smooth the difficult relationship between him and Moses. He achieved exceptional treatment and billions of dollars to the city, which Robert Moses transformed into buildings of all kinds. By 1938, LaGuardia began to distance himself from Moses and stopped supporting his plans. He appointed Rexford Tugwell chairman of the City Planning Commission to monitor what was done in the city and brought back municipal work towards greater independence. Tugwell lasted only a year and a half, but the war ended with the New Yorkers projects and Moses lost all his political supporters.

The 'other' Moses

After the Second World War and to address the return of thousands of veterans, Robert Moses managed to convince insurance companies to assist build homes

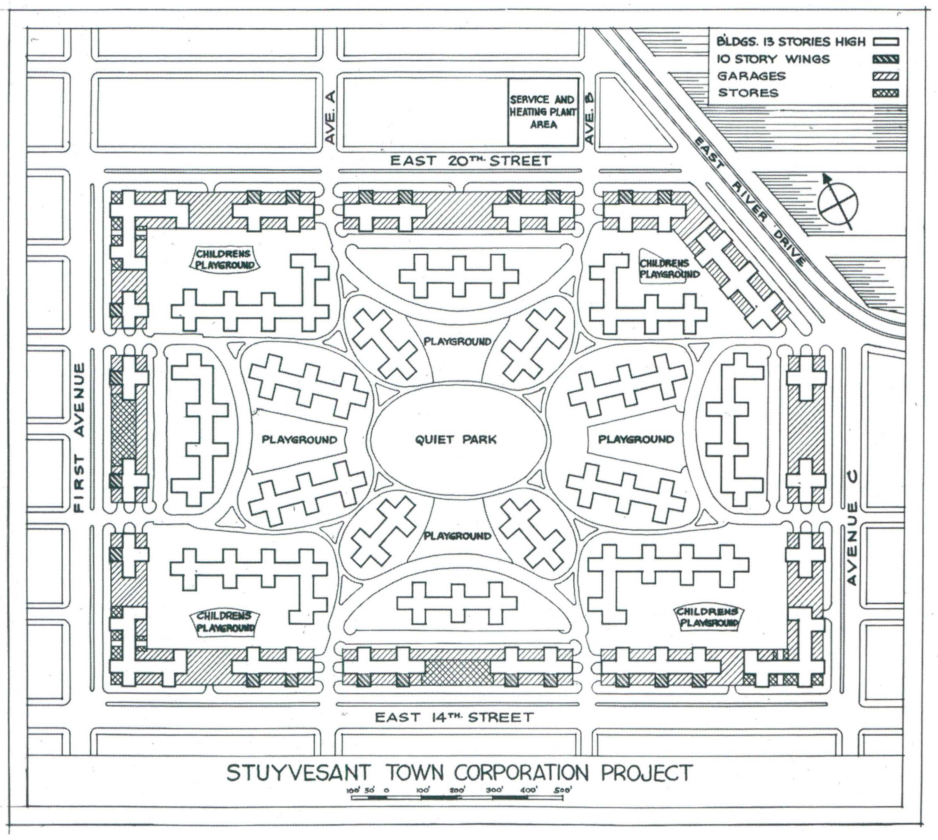
that were going to be necessary. With government subsidies and tax breaks Metropolitan Life Insurance Co. (Met Life) took 32 ha (80 acr) of land occupied by gas meters, industrial buildings and dilapidated housing, the so-called Gashouse District, the East Side.

He built two large complexes, the Town, with the name of the first leader of Dutch New York, and Cooper Village, for the inventor of a steam engine and creator of an engineering school in the heart of the city. At first they were intended only for whites, with a small-scale version called Rivertown in Harlem for African Americans, but courts removed racial barriers [48: 175].

Stuyvesant Town and Cooper Village

Stuyvesant Town (between 14th and 20th St.), known by its residents as Stuy Town, named after Peter Stuyvesant (1610-1672), the last director general of the Dutch colony of New Netherland and New Amsterdam, whose farm occupied this site during the seventeenth century. It features 89 residential buildings and 8,757 apartments. This private resort has its own security guards, vehicles and circuit cameras and sensors. A network of paved ramps and staircases allows access to different areas leaving in between meadows and gardens with vegetation panels. In the center there is located a fenced meadow with a larger surface called The Oval [76:143] for its oval shape and with a circular with jets on the north side. As a cross marking the cardinal points are four loops or main middle rings. The towers are grouped in rows of two, three or four leaving spaces for children's playgrounds or sports fields.

The Peter Cooper (between 20th and 23rd St.) complex contains 110 residential buildings, 11,250 apartments with about 25,000 residents. The complex is crossed by a main road, Peter Cooper Road, connectng the First Ave. with Ave. C. In the center there are



Plan, Stuyvesant Town Corporation Project: E. 14th Street to E 20th Street; 1st Avenue to Avenue C; East River Drive. Courtesy NYC Municipal Archives.



Stuyvesant Town

three rectangular shaped playgrounds surrounded by buildings. The other buildings are arranged around the main network or connected by winding paths between areas of meadow and low vegetation.

Text: Patricia Hernández Lamas

In 2006, many years later, Met Life put on sale part of the homes, generating a series of speculative episodes and the invasion of the blocks by higher rents. Not only ownership of homes was called into question, but the practice of subsidies for lower income and the policy of ensuring housing in New York for every American citizen who requests it, which is a still living controversy in 2014 [44 : 175].

Different conduct after 1950

It is almost a truism that, after World War II, Robert Moses behaved in a manner quite different from before. His motivations have been written extensively, but we preferred to collect here the vision of Marshall Berman, which is pretty balanced and connected with a reflection on modernity [18: 320-325].

Part of the tragedy of Moses was that one of his great achievements not only corrupted him, but finally undermined him. This triumph, unlike Moses' Public Works, was for the most part invisible: only at the end of the 1950s did it begin to be perceived by journalists. It was the creation of a vast interconnected network of 'Public Authorities,' able to raise large sums of money to build all kinds of works, without accountability to any other power, executive, legislative or judicial.

Remaining in the Authorities

Moses quickly realized that these Authorities had no fixed duration or scope of employment. While money entered — for example, from the tolls of the Triborough Bridge — and while the bond market was good, an authority could change its old bonds for new ones, charge more money, build works. While money was coming in, banks and investment institutions would be glad to endorse new bonds and the au-

thority could keep building indefinitely. Once the initial bonuses were paid, it would not be necessary to go to federal, state or local governments or people, looking for money for building.

Moses proved in court that the government had no legal right to even look at the books of an authority. Between late 1930 and late 1950, Moses created or took over a dozen of these authorities — for parks, bridges, highways, tunnels, power plants, urban renewal, etc., — integrating them into an immensely powerful machine.

Robert Moses felt a genuine and blind love for New York and never wanted to hurt it. His public works, whatever opinion they deserve, were intended to add something to the city life, not subtract from it. However, almost all his buildings after the war were conducted in a indifferently brutal way, made to overwhelm and command respect: monoliths of concrete and steel, devoid of vision, subtlety or play, isolated from the city around them by large pits of empty space, taxes on the landscape with a fierce contempt for any kind of human or natural life.

Building to overwhelm

The evolution of Moses and his works in the fifties highlights another important fact regarding the evolution of culture and society after the war: the radical split between modernism and modernization. For Marshall Bermann, *the modernists of the 1950s drew no energy or inspiration from the modern environment around them [...] it subtly ate away at the roots of modernism by sealing off its imaginative life from the everyday modern world in which actual men and women had to move and live* [18: 325].

Flushing Meadows Corona Park

Robert Moses made a special effort to develop the previously marshy area of Flushing Meadows. This large green expanse of 508 ha (1,255 ac) was created on top of a marshy area of Queens and dominated by a huge landfill called 'Mount Corona.' Its interior has hosted two international exhibitions, in 1939 and 1964, so it retains many of its buildings and facilities. It is currently the second largest park in the city and one of the busiest with over four million visitors annually.

The bed of the Flushing River penetrated Queens from the East River leading to a set of swamps and wetlands that generated fertile prairies. At the end of the nineteenth century the builder M. Degnon began to transform the site and dredge the Flushing Bay to build a port. It then became a landfill of ash and waste from street cleaning and, shortly after, the neighbors began to complain of poor sanitation and odors. In 1913 he was provided with funds for a project to drain and rectify the Flushing River while doing a study of the feasibility of canals that would connect it to Newton Creek and Jamaica Bay. With silt and mud dredged from the wetlands, lands were filled up to a height of several meters. The port, not the canals seemed a good opportunity but the outbreak of the First World War did away with the project, the developer Degdon went bankrupt and the property was auctioned in 1924.

Five years later the city acquired land in this place to build the Flushing River Park. At that time Central Park was in the process of reconstruction and Moses pictured construction in the valley of the ashes of a large park as the counterpart to Central Park. The Universal Exhibition of 1939 was the means used to advance the construction of the infrastructure of that park. G. Clark and Aymar Embury designed the park that was to be financed with the expected results of the world's

fair, which was a failure financially. From 1946 to 1950 the United Nations set up its headquarters in the park, but eventually moved to Manhattan.

In 1960 Moses was named president of the Universal Exhibition of 1964, returning to be held in New York. The construction of Shea Stadium was then approved: the largest baseball field in Queens and home to the Mets. This World Fair did not produce funds either for the construction of the park but left as permanent installations some of the buildings and structures made for the event: the Unisphere — great globe 36.5 m (120ft) in diameter and made of stainless steel by the United States Steel Corporation; symbol of the Exhibition and actually from Queens, along with the fountains around it were at the the center of the fair-, the New York City Exhibit Building, currently converted to the Queens Museum of Art which still houses the Panorama, a large-scale model scale of the city, and the World's Fair Space Center, turned into the the New York Hall of Science in 1986. Years after its inauguration in 1964, the park fell into disrepair. In recent times privatization of park has been encouraged with the construction of the Arthur Ashe and Louis Armstrong tennis stadium — headquarters of the US Open-, new Olympic swimming pools and skating rinks. Sometimes it has been considered to host the Olympic Games [10: 197]. There is a bike path that runs along the large lake, Fountain Lake, within the park.

Text: Patricia Hernández Lamas

The overall judgment of Lewis Mumford on the 1939 World's Fair is twofold. In daylight, the fair *it is just a cozy sector of chaos*. But at night he thinks it admirable. *Here is the architecture of light, projected in a way that makes Broadway feel pallid and feeble, because at the fair the buildings themselves are as colorful as the pylons that decorate them, and the play of light through glass towers, through sprays of falling water, and through neon tubes, and the heightening of color on flat surfaces achieve a richness and a radiance that no ordinary architecture can boast.* [103: 237].

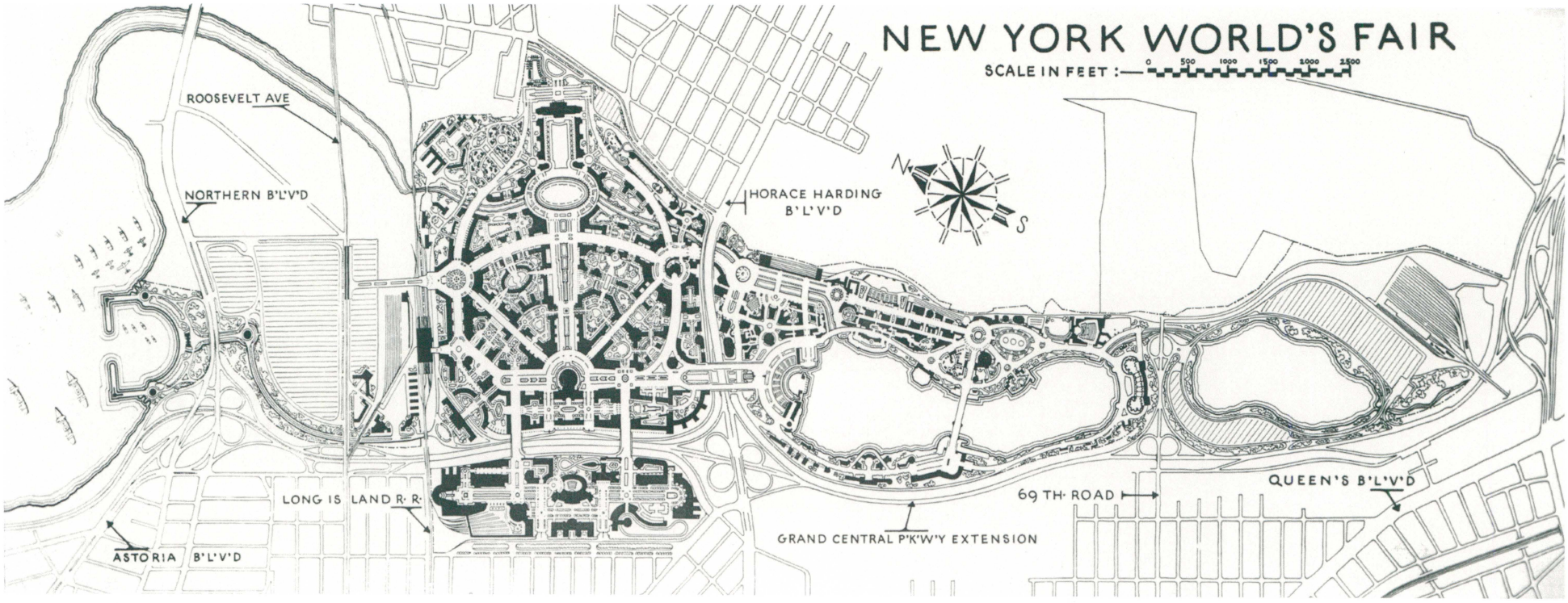
Among the main pavilions, one must emphasize the importance of the two major car makers, Ford and General Motors, for Mumford among the best pavilions of the fair. Ford was more dedicated to vehicles but General Motors was called 'Highways and Horizons' and was dedicated to highlighting the importance of transcontinental highways in the 1960s.

General Motors Highways

General Motors' spectacular assembly was called Futurama and consisted of a huge model with all kinds of roads and civil engineering works, in a landscape of towns, rivers and mountains. You could see this recreation of the world from a sofa for two people located in a loft, while hearing explanations of the various elements of the model.

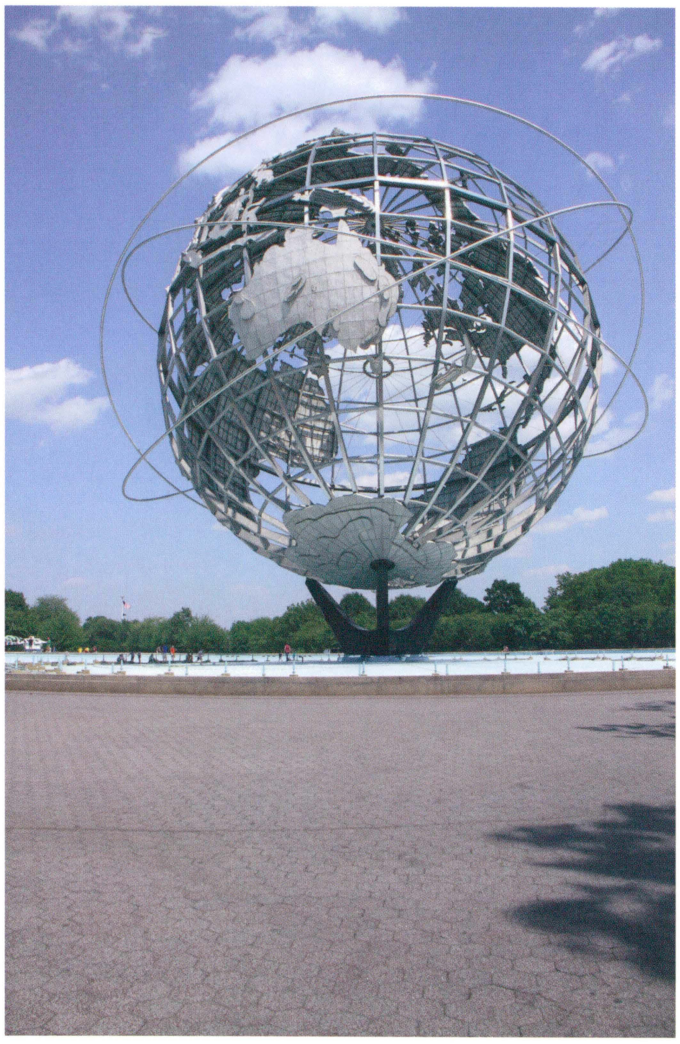
Take for example, the following: *Contrast the straight, unobstructed path of the Motorway at the right with that of the twisting, winding, ordinary road to the left of the quiet and peaceful monastery. One marvels at the complete accord of this man-made highway with the breath-taking scenic beauty of its route.* [169:109].

Lewis Mumford devotes many pages to criticism of the World Fair of 1939, entering not only into the appearance of the pavilions and the layout of the show, but also into the futuristic proposals developed by exhibitors. He is more benevolent to the former and does not fail to point out shortcomings and voluntary omissions of the latter, such as when he criticizes the lack of toll stations necessary to finance the glittering highways proposed [103: 245].



World's Fair 1939 General Plan.



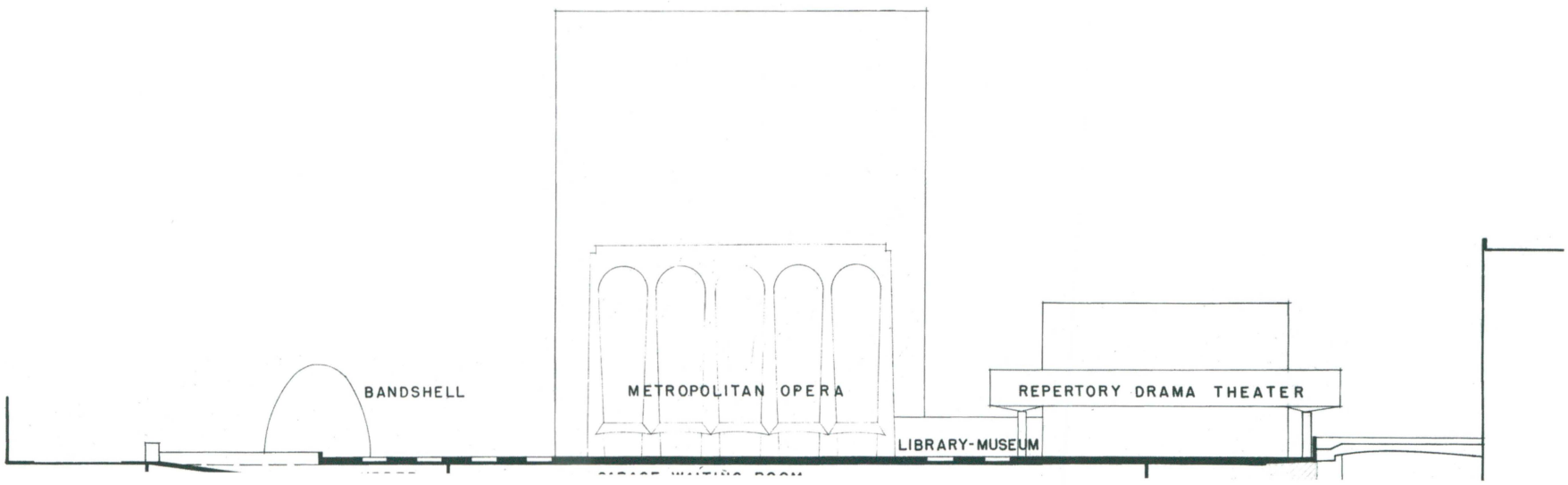


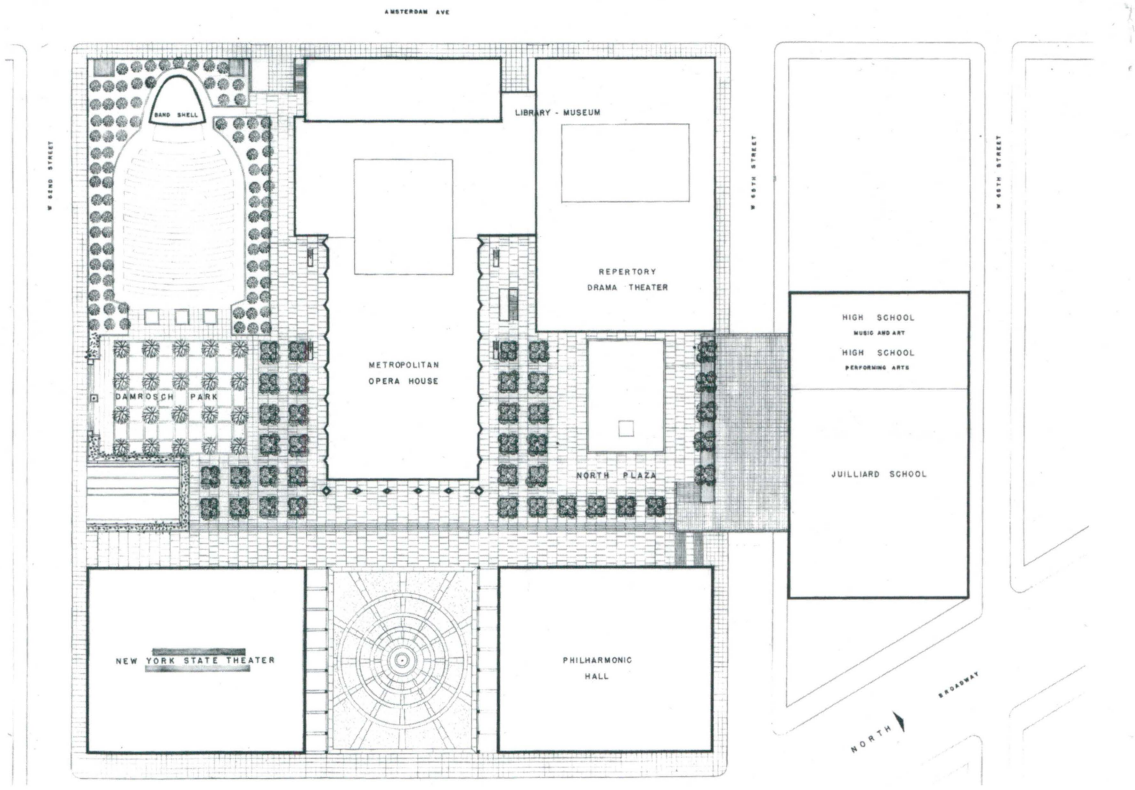
View from the Queens Museum of Art, the Unisphere and the New York State Pavilion with its three observation towers for the Universal Exhibition of 1964 by Philip Johnson



Lincoln Center

Map of the underground garage at Lincoln Center. NYC Department of Records, Mayor Robert F. Wagner Collection. Courtesy NYC Municipal Archives.





Map of Lincoln Center and the surrounding areas 1961. NYC Department of Records, Mayor Robert F. Wagner Collection.
Courtesy NYC Municipal Archives.

Robert Moses and his collaborator Gilmore Clarke succeeded with the New York's World Fair of 1939, which involved a total environmental restoration of the wetland in Flushing Meadows. Moses tried to repeat the feat in the same place in 1964, mobilizing a group of businessmen from New York. But, in a new episode of arrogance, he scorned the rules of the organization and developed an active search for exhibitors.

An arrogant Moses and the Fair of 1964

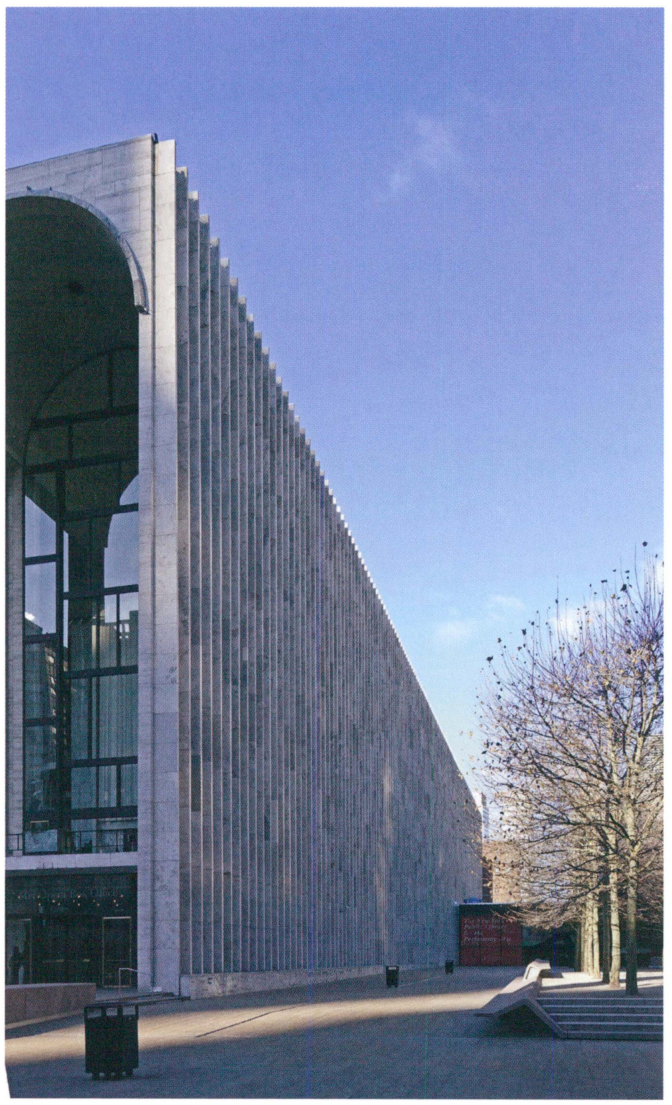
He even traveled to Madrid and made a visit to General Francisco Franco, trying to get artwork for the Spanish pavilion of the fair[42]. The show opened for two six-month periods in 1964 and 1965, but was not recognized by the International Exhibitions Bureau.

Lincoln Center (1968)

The last great project of Robert Moses concerns a degraded neighborhood in the center of Manhattan. The 'Lincoln Center for the performing arts' (Wallace K. Harrison, 1968) is a large rehabilitation project of the degraded urban area between Columbus and Amsterdam Aves. and 62nd and 66th Streets, titled Lincoln Square Renewal Project, developed from 1962 to 1968. A famous photo of a large model of the square shows the project drivers and partners, John Rockefeller, Edward Mathews, Philip Johnson, Jo Mielziner, Eero Saarinen, Gordon Bunshaft, Max Abramovitz and Pietro Belluschi, with Wallace K. Harrison, standing in the middle.

The project, presented by Robert Moses and largely funded by the Rockefellers, converted the old working class neighborhood into a middle class one, with the demolition of several modest houses on the West Side and the construction of new housing blocks. It is configured as a civic square fragmented into three parts for six buildings. Each was commissioned from a famous architect reflecting its independent vision: Vivian Beaumont Theater Repertory from Eero Saarinen,

Lincoln Center







Lincoln Center



Metropolitan Opera House from Wallace K. Harrison, New York State Theater from Philip Johnson, Avery Fisher Hall from Max Abramovitz, SOM Library and Julliard School of Music from Pietro Belluschi. The landscaping was charged with giving unity to all different proportions and details.

Courtyards, plazas and gardens

From Columbus Ave., through a rectangular square and a flight of stairs, one reaches the square, paved with concentric circles and radii from the central fountain and bounded to the north by the auditorium, to the south by the theater and to the west by the opera. From the corners one accesses two patios. The north courtyard forms a collected space with a central pond from which the great bronze Reclining Figure (Henry Moore, 1965) emerges, in direct relation to the Vivian Beaumont Repertory theater, located west. In the southern courtyard Damrosch Park is located



Lincoln Center

(Eggers & Higgins, 1969), designed as a space for outdoor concerts. In front of the library a large steel plate is highlighted, Le Guichet (Alexander Calder, 1965).

Landscaper Dan Kiley's unified project includes alignments of plane trees (now pear), double on the facade of the Opera and single in the Auditorium, in rectangular boxes with azaleas surrounded by a stone bench. The trees create two vegetation courts — south and east of the plaza — in front of the porticoed courts of the other sides. According to Kiley, *the living elements of the landscape became wholly integrated and spatially related to the surrounding buildings* [80:57]. To the north large meadow on a grandstand has been created and to the south there is a triple alignment of trees.

Text: Patricia Hernández Lamas

A demolishing biography

The legacy built by Robert Moses built is used everyday by millions of New Yorkers, but the character has become the villain of the story for most of them. Robert A. Caro's book, *The Power Broker. Robert Moses and the Fall of New York* is an overwhelming and devastating portrait of the abuse of power exhibited by the character [32: vvpp]. It details his worst qualities in a powerful language and with a wealth of information, dates, documents and details which earned him the Pulitzer Prize. Published in 1974, at the same time as the Watergate scandal, it inspired legions of journalists and politicians to fight against backroom deals and secret financial negotiations. It ruined his reputation and he became a case study for abuses of power [55: 187].

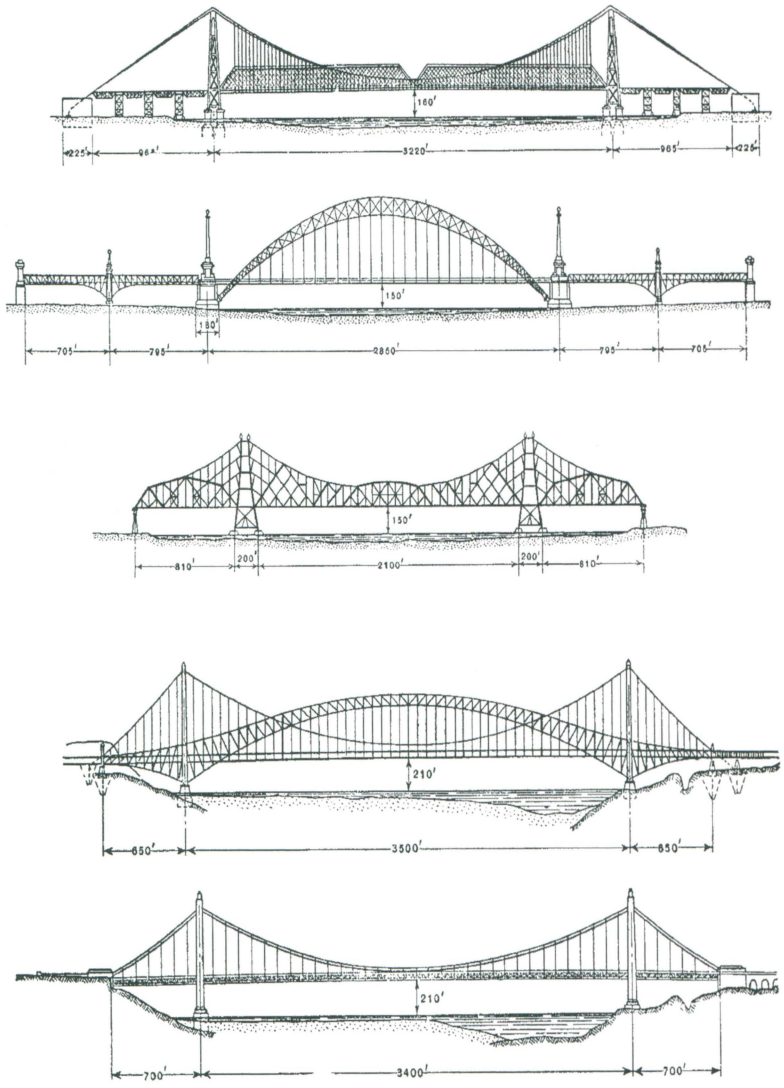


12 | Ammann

Othmar H. Ammann (1879-1965)
George Washington Bridge (Ammann, 1931)
The largest in the world / Decisive location
Unclad towers to save
Ammann defends his design
Opposing opinions of the critics
Support of cables on piers
Territorial and economic impact
George W. Bridge Bus Station (1963)
Links among the five boroughs
Verrazano Narrows Bridge (1964)
Size, cost and simplicity / The new British design
Bayonne Bridge (1931)
Avoiding stone in the abutments
In 2014 the deck is lifted
Triborough Suspension Bridge (1936)
Moses manages to get it started
An inherited and reformed design
Bronx-Whitestone (1939)
Slim and careful / The arch and the pier
Throgs Neck Bridge (1961)
Robust and technological / Conflicts of scale
Traces and anomalies in the city
Landing of the bridges
Span facing columns in Manhattan
From Brooklyn Br access to FDR link
Dispersing traffic in the tunnels
Crossing the street in front of Holland Tnl
One input, six outputs in Tribeca

Othmar Ammann (1879-1965)
Undertaking the Scale

Othmar H. Ammann
(1879-1965)



Proposed bridge over the Hudson, Gustav Lindenthal [110: 92-95]

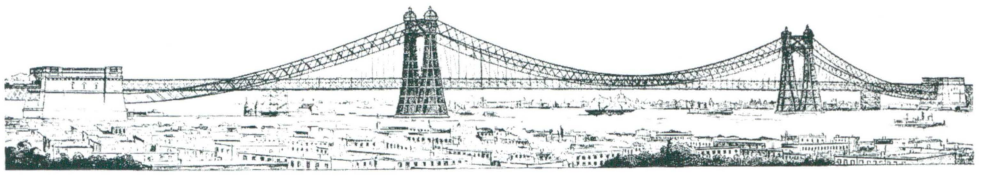
Most biographical sketches introducing the description and analysis of his bridges point to two important features of Ammann, his love of bridges and his obsession to build the largest spans in the world. Born in Schaffhausen, site of the famous wooden bridge of Hans Ulrich Grubenmann, his interest in bridges had manifested itself very early on, during a summer internship at a factory of metal bridges. And the fascination with large bridges came from the hand of one of his teachers, Karl Emil Hilgard, who had worked as a builder of bridges for the Northern Pacific Railroad in the United States. The photos of the bridges required by the great American rivers, the Mississippi or the Ohio, and especially the Brooklyn Bridge in New York were decisive for him, in comparison with European bridges over the Rhine or the Danube that did not usually exceed 200 m of span [122: 97], [157: 36] [119: 2].

He came to America in 1904, at the age of 25, after graduating from the Polytechnic in Zurich and working for two years in Switzerland and Germany. He worked with John Meyer, consulting engineer, and later at the Pennsylvania Steel Company. In 1907 came the collapse of the Quebec Bridge, and he moved there to study what had happened and volunteered to assist engineer Charles C. Schneider (designer of the Washington Bridge over the Harlem River), commissioned by the Canadian government to investigate the disaster. After working two years with Schneider, he met Gustav Lindenthal, who had been commissioned with the Hell Gate Bridge, and he offered him the post of first assistant. There he began his relationship with the great bridge over the Hudson River, which he ended up building a couple of decades later.

George Washington Bridge (Ammann, 1931)

The George Washington Bridge is one of the most significant buildings in New York City on several accounts. First, it is an important bridge due to its span of 1,067 m (3,500 ft) and the large loads considered in its design. Second, by the selection of its final location, much further north than originally planned, and decisive to the organization of the highways of the greater metropolitan area. Third, by the looks of its towers, originally planned with stone cladding, but finally left with the exposed steel lattice, something that had a huge impact on the subsequent design of bridges. And fourth, by the impact of its enormous economic success, with the dual effect of consecrating the car as mode of transportation and the toll as the definitive instrument for the funding of public works.

The extension of the city to the west was handicapped by the huge obstacle of the Hudson River, whose depth and strong currents discouraged the possibility of



Proposed bridge over the Hudson, Gustav Lindenthal [110: 92-95]

building piers on its bed. The largest suspension bridge built so far was the Ambassador Bridge (1929) in Detroit, with a 564 m (1850 ft) span, still within the range of Roebling's exploits with the Brooklyn Bridge's 486 m (1584 ft). Othmar Ammann nearly doubled its span, and the ratio of 1.89 times the previous span has not been achieved on any other occasion. Six years later he was overtaken by the Golden Gate Bridge, whose 1,280 m (4,200 ft) span represented a ratio of 1.2 times the previous largest span.

The largest in the world

It was the first to surpass a span over one kilometer, but a greater difficulty was posed by the width of eight lanes and the weight of its double deck. Being much larger than usual, the incidence of traffic point loads was reduced in the overall design of the bridge. That allowed avoiding placing a stiffening truss until the construction of the second deck in 1962.

As we have seen, the location finally chosen for the bridge over the Hudson was one of the keys to its viability, both for reasons of urban planning, and cost reduction. In Palisades, at 179th St. instead of 57th St., the bed of the Hudson is narrower and required a shorter bridge. The entrances were very simple, as they were at the same level required by the bridge and provided rock solid support for piers and abutments.

Decisive location

The new bridge was cheaper, provided access further away from congestion, had greater clearance, was less confrontational, and presented a promising source of revenue. Othmar Ammann devoted many years to find the best solution to cross the Hudson and got a viable scheme from all points of view. The abandonment of the railroad greatly eased the choice of location.

The first designs arranged mixed towers of steel and concrete to withstand the high weight. The metallic part was to be built first, and upon assembly of the second deck, two wires would be added and the tower would be reinforced, embedding it in concrete cladded in stone. The final project incorporates a reinforcement of the metal framework capable of supporting by itself all the end loads, keeping the concrete coating and the stone cladding. The basic idea was to maintain the stone as a protection for the steel and as architectural finish, reinforcing its resistance to increase the security coefficient of the pile [43].

Unclad towers to save

With the financial crash of 1929, a climate of expenditure savings prevailed, and the NY & NJ Port Authority considered cheaper the maintenance of the steel structure than the construction of the concrete and stone cladding. They then organized a media campaign in keeping with recent structural developments, in favor of a 'new aesthetic' that managed to generalize the controversy.

Othmar Ammann — in a report requested by the port — stands up for the original idea, shared by his collaborators engineer Dana Ashton and architect Cass Gilbert: The writer [Ammann] is not impressed *by the criticism, based solely on theoretical and utilitarian grounds, that the encasement would constitute a camouflage which would hide the true structure and its function. The covering of the steel frames does not alter*

Amman defends his design

or deny their purpose any more than the exterior walls and architectural trimmings destroy the function of the hidden steel skeleton of a modern skyscraper.

He even theorizes his earlier statement in the report, saying what follows: *Camouflage is an essential manifestation of civilization and is not incompatible with sincerity and honesty of endeavor, because an essential part of human effort is to create an aesthetic atmosphere, the value of which cannot be expressed in economic terms.*

Engineer Leon Moisseiff, also part of the design team and later designer of the Tacoma Narrows Bridge, disagrees with the views of his colleagues: *Gone are the days of the stone as the only material capable of providing monumentality* [122: 92-95].

Opposing opinions of the critics

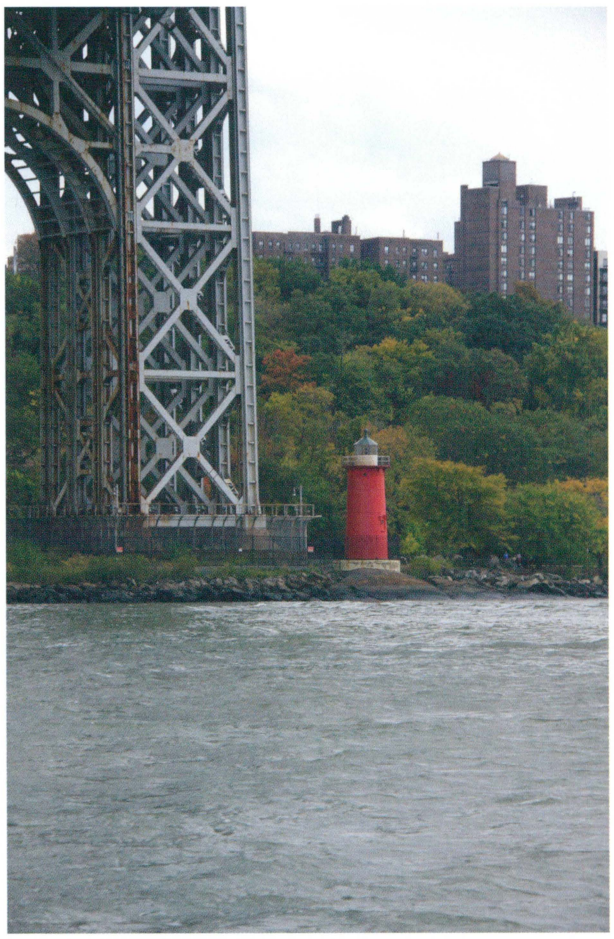
For his part, critic Lewis Mumford sees positively the lack of encasement of the tower: *Happily for the aesthetic success of the bridge, the stonework would cost more than two million dollars, and this part of the program was suspended. Let us hope that the lack of funds will last long enough to abolish in everyone's mind the notion that the steel should be encased* [103:61].

But there are opposing criticisms of equal sharpness. Critic and historian Carl Condit said in 1961, The naked trusswork of the tower is unattractive in itself *the proportions*

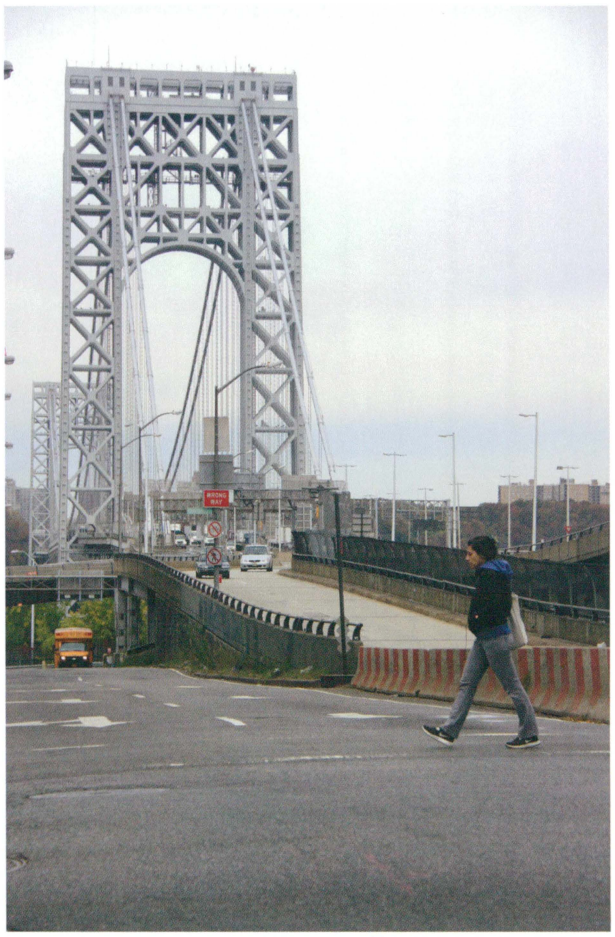
George Washington Bridge











George Washington Bridge

are ungainly and inharmonious with those of the suspension span, and the arch is poorly related to the rectangular elements [39: 139].

And there are also ambiguous opinions. In 1963, Joseph Gies stated The architectural consultant designed towers encased in masonry. But in 1931, the heyday of functionalism, a number of art critics and art lovers protested that the towers were better left in their original steel. Ammann and the Port of New York Authority decided to leave them and no one has regretted the decision. The naked towers give the great bridge a distinctive and characteristic appearance. Seen close up, the vast geometry wears a truly awesome aspect [63: 240].

Contrary to the opinion of its designers Othmar Ammann and Cass Gilbert, the towers were left unclad, exposing something that was not designed to be exposed. As the author of the present book wrote in 1983, *Not only were we deprived of what, judging by the drawings of Gilbert, may have been the most impressive monument of modern engineering, but the unsustainable functionalist notion that the mathematical and empirically true must also be beautiful was reinforced. By virtue of such a confusing and peculiar argument a prosaic budget cut was justified, resulting in a poor and vulgar formal outcome* [1: 648]

Support of cables on piers

For Lewis Mumford, *the critical point in the design of a suspension bridge is the relations of the cables and the piers. While Roebling apparently solved this problem in the original Niagara Railroad Suspension Bridge, which was demolished in the eighties, none of the later bridges followed this solution. Even the Brooklyn Bridge fell down at*

this point: the heavy masonry cornice spoiled the line of the cables and gave no indication of their continuous passage across the vertical support. As far as the eye could gather, each end of the cable might have been embedded separately in the pier. In the Manhattan Bridge, the big globes atop the piers were irrelevant and worthless; in the Williamsburg Bridge, the cage-effect spoiled the flow of the cables.

Mr. Ammann's solution of this problem is excellent. The cables are carried on the cradle over the tower in full view: for once one sees a suspension bridge aesthetically as well as mechanically in a state of suspension. And that is the whole point-the point that our bridge-builders have, with every good and honorable intention, so steadily missed. The squares shouldered towers are plainly there to carry the weight; in masonry these towers would look more bulky, but they could not possibly seem more sturdy and firm-set. At no other point in the design does one have the faintest feeling of weight: the cables draping themselves in a catenary curve —the curve made by a chain hanging between two fixed points— seem doubly delicate in contrast with the broad steel trusses of the towers.

Lewis Mumford makes a very positive — even superlative — assessment of the entire bridge: *But all in all the structure is a delight to the eye: a piece of harmonious and imaginative engineering, the like of which is not yet to be found in any of our skyscrapers* [103:62].

Territorial and economic impact

From every point of view, the impact of the George Washington Bridge over the metropolitan region and the future of the Port Authority was immense, and it deployed in various directions. First is the impact of the crossing of the Hudson itself, decisive in the urban development of northern New Jersey and the organization of transit in upstate New York. Until then, the only link was the Holland Tunnel, opened four years earlier, but located about 15 km (9 mi) to the south, with the system of ferries as the only means of crossing the Hudson.

The bridge dramatically decreased the time of passage over the river and facilitated truck traffic to deliver goods from Bronx and east of the city towards the continent, far to the north of Manhattan, bypassing the congested center to take the tunnel and then cross the center of Jersey City. In turn, it prompted many New Yorkers who worked in the center to find housing in the new northwestern suburbs, redistributing the population.

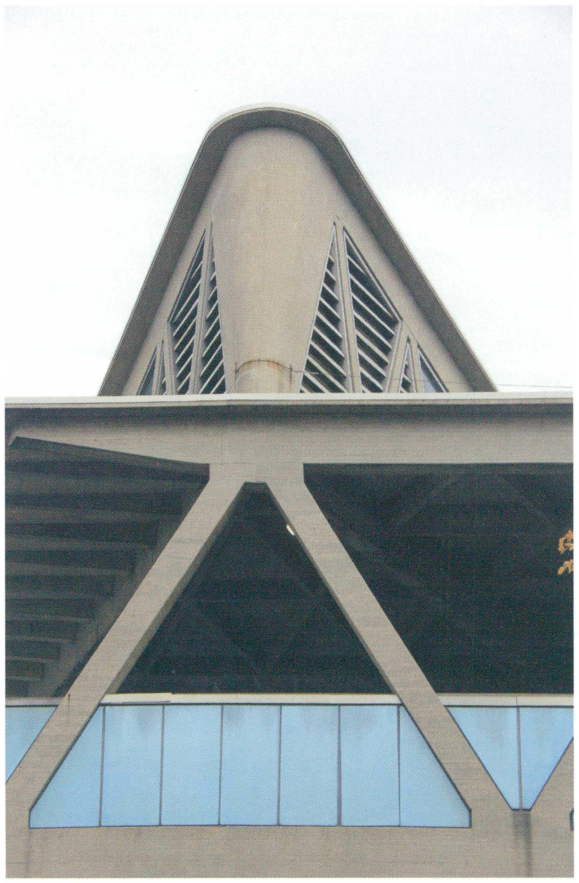
The opening of the George Washington Bridge in 1931 caused a large residential expansion of Manhattan to the west and generated a lot of bus traffic, organized into three smaller stations close to the subway. The Port Authority authorized to build a new bus station on the highway itself, using its air rights. The functional project was conducted by John M. Kyle, and the structural design was by Italian engineer Pier Luigi Nervi (1891-1979), fitting a long three-story building above ground level. The elevations are sorted out with a triangular lattice of reinforced concrete that supports floors and roof.

The structure has a row of intermediate supports of rectangular section. From each pillar emerge a pair of angled beams that rest on the exterior facade on a blade or



George Washington Bridge Bus Station
(Kyle & Nervi, 1963)

Bus Station
George W. Bridge
(1963)





George Washington Bridge Bus Station

equilateral triangles. The deck plan is organized by adjoining isosceles triangles of two types: the one on the base in the facade is opaque with a ribbed slab in triangles; the one on top in the façade rises vertically in planes of increasing height on both sides to form a triangular pyramid that lets the light in through its two vertical sides. The third, upper surface is also sorted out with a triangular ribbed slab.

The result of this complex arrangement is somewhat surprising but not overly attractive. The volume of these pyramidal elements is too contrived, although it actually lets light through, but the cover is too heavy. It has little to do with the graceful covers of his two sports centers in Rome or his industrial warehouses with organic ribbed vaults [105: 81].

Links among the five boroughs

With the George Washington Bridge over the Hudson River the great connecting bridges are completed on both sides of the island of Manhattan, also connected with the Bronx to the north and northeast by a dozen bridges —most of them moveable— over the Harlem River. But the meshing of the arterial network requires some more crossings over the large water bodies to give cohesion to the greater New York City of the five boroughs, interconnecting them with each other, and with the neighboring Jersey City.

The largest and best known obstacle is the Verrazano Strait, located south, inlet of the Port of New York, and gap between Brooklyn and Staten Island. Towards the west,





The entrances to the Verrazano Bridge from Brooklyn [119].

Gaps between the five boroughs and Jersey City. Prepared by Ana Rubio-Gavilán

the Kill van Kull separates Staten Island and Jersey City, to the east is the small gap of Newton Creek between Brooklyn and Queens, and further north is the extension of the East River (actually, an inlet of the sea), as border between Queens and the Bronx. Finally, upstream Manhattan, and out of New York City, the Hudson River continues halving the State of New York, now between White Plains (north of the Bronx) and Spring Valley (Northern New Jersey), dealt with in the following Chapter 13.

Verrazano Narrows Bridge (1964)

Undoubtedly the mightiest bridge in the world, Shirley Smith notes about the Verrazano Narrows Bridge [145: 201]. Weighing in at 150,000 t, it bridges a main span of 1,298 m (4,260 ft), and it was the longest in the world at the time, as had been customary in New York. Along with its ways of access, it has 4,176 m (13,700 ft) in total length and it connects the arterial network of Staten Island to Long Island, giving continuity in the south to the New York City of the five boroughs. It thus lightens the traffic in middle and lower Manhattan, and it ranks Staten Island as a real participant in the metropolis, although much of the traffic it carries connects to New Jersey.

A product of the Robert Moses factory, the Triborough Bridge & Tunnel Authority, it is a key element, a permanent closure of the entire system of roads in the city and the state, with a notable interstate role. The strait was a clear strategic site to accommodate a bridge. It was the optimal site for obvious reasons of location and was waiting for the development of the necessary technology to deal with the construction of the bridge. It has a navigation gauge of 610 m (2,000 ft) wide by 66 m (216 ft) high, in principle sufficient for the largest ships in the world.



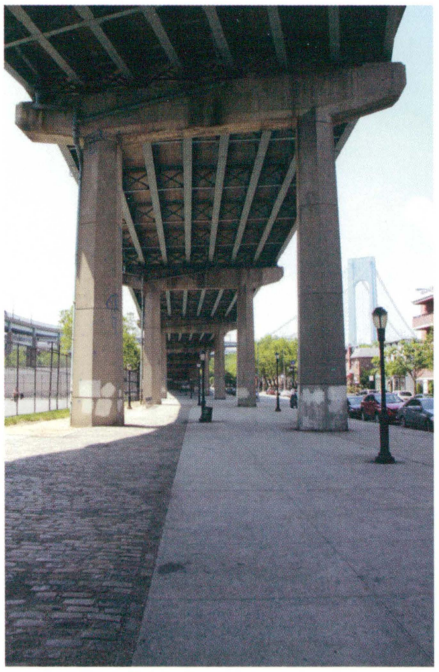

SPEED
LIMIT
45





Verrazano Narrows Bridge







Size, cost and simplicity

It cost $ 325 M, about ten times the cost of the Golden Gate (1937), completed over thirty years earlier, and with a span of only 18 m (60 ft) less, though it was twice as wide with twelve lanes of traffic. Its passage through the urban fabric of southwestern Long Island generated a breach as destructive as the one caused by the Cross Bronx Expressway in the last 1950, but much less contested.

Its design is rather classical, in line with the previous bridges by Othmar Ammann: the Bronx-Whitestone, made 25 years earlier, and the Throgs Neck, almost contemporaneous with it, and with a similar flat pier topped with a round arch. The piers are also quite classical, with the advantage of being located in relatively shallow waters near the shore, and the gravity anchors are comfortably grounded in tight sands. Four cables of 90 cm (36 in) in diameter support the deck, designed from the outset to bend with the increase of traffic, with a solution similar to that used in the George Washington Bridge. All of it bore the brand of Moses and Ammann, but at a much larger scale.

New British design

There are notable differences between the way of designing these large suspension bridges in the United States and in England. To Shirley Smith, *In the States, where engineers have been in the lead in building big suspension bridges by many years, the tendency is to make the structures more and more massive with a very much greater weight of steel. In Great Britain, which has only just entered the field, the tendency is quite the reverse.*

Both the Forth Road (1964) and the Severn Bridge (1966) are much lighter than their American counterparts, and the difference cannot be explained by reasons of load-bearing capacity or main span [145: 204].

Bayonne Bridge (1931)

It gaps the firth between Staten Island and Jersey City, important passage for navigation between the two parts of the unified port controlled by the New York and New Jersey Port Authority, a two-state agency (see Chapter 13). The canal for the passage of ships was only 120 m (405 ft) wide, but the requirements of the War Department included a gauge of 40 m (135 ft) all along the width of a future navigation canal of 305 m (1,000 ft).

With the other requirements that resulted in a span of at least 450 m (1,500 ft) which, for an arch, increased to 495 or 500 m (1650 ft). Finished in the same year as the George Washington Bridge, the Bayonne Bridge was also the largest in the world of its type, just as the George Washington Bridge was among suspension bridges [8:49]. And it also competed with earlier references in the city, in this case with the railway bridge to Hell Gate, built by Ammann's teacher Gustav Lindenthal on the north branch of the East River.

As the bridge had to finance itself, they went for the cheaper type of bridge, choosing the arch with intermediate deck, placed at the right height required for not raising the cost of the access. The construction process took advantage of the special conditions of the crossing, being the only one of the major arch bridges that did not need temporary intermediate supports for its construction [145: 158].

Avoiding stone in the abutments

In Bayonne, the Port Authority also decided to refrain from the encasement of granite in the abutments, as was being done at the George Washington Bridge, and to build a very light metallic structure. This time, Othmar Ammann did not fight to keep the massive piers. The result is confusing, because the lines of the arch intersect with





Bayonne Bridge (Ammann, 1931)

those of the light pier, without providing visual support to the thrust of the arch. There, also, the width of the board is reduced and the piers are partially visualized from behind, offering a new facing.

The result of leaving the steel pier, as Othmar Ammann will do years later in his Bayonne Bridge over the Kill van Kull, would be much worse. Moreover, the weight of a solid pier is fitting to verticalize the inclined thrust of the arches, both in terms of aesthetics and of strength. Perhaps that is why the Sydney Harbour Bridge (Freeman, 1932) completed 15 years later, adopted a similar solution. In fact, the Hell Gate Bridge is known as the heaviest bridge among all large span bridges.

According to Condit, the Bayonne Bridge is structurally similar to the Hell Gate Bridge, but it looks considerably different. In fact, it is clearly an inferior bridge in one respect, without there being any mistake on the part of its designers but the decision of the Port Authority produced an unfortunate outcome, due to the poor harmony of the fragile skeleton of the abutments with the arch, and the poor impression of support for such an extended arch [39: 232].

The navigation gauge initially set was very tight, in fact, it is one of the lowest in the country. The gauge of the Verrazano Narrows Bridge, located at the mouth of the port, sets the maximum height of ships to enter New York at about 65.4 m (217 ft). To approach this value, in 2014 the bridge is being raised about 19.2 m (64 ft) above its current level, while remaining open to traffic at all times. Meanwhile, the port is dredging the canal to allow larger vessels. [44]

In a way, the project responds to the competitive tension the port of New York, triggered by the expansion of the Panama Canal, whose completion was scheduled for 2015, but appears to be delayed. Although the critical variable in the Canal is the beam of vessels allowed by its greater width, any increase is immediately reflected in the other dimensions to fully exploit the volume. The vessels admitted into the canal will be wider, but also longer and higher, and perhaps would not be able to pass under the bridge.



In 2014 the deck is lifted

Triborough Suspension Bridge(1936)

Ward Island is the joining link in the chain between northern Manhattan, at 125th St., and northern Queens, for it is there where the East River forks and narrows. A first movable bridge crosses the west branch and connects in a big hub with the Bruckner Expressway, which comes down from the north bordering the Bronx. After a steep and beautiful curve, it lines up over the eastern branch of the East River, bridged by the Triborough Bridge, placed beside the Hell Gate Bridge for rail, to penetrate into the neighborhood of Astoria in Queens and continue east to Grand Central Parkway.

The two bridges and the connection node, although not particularly graceful in design, are of great importance for traffic in New York, leading to an area of difficult access from Manhattan. The first mention of the need for a bridge at that site dates from 1916, and comes from Edward A. Byrne, chief engineer of the New York City Department of Plants and Structures. The general agreement about its significance was not followed by practical measures until 1925, when the first surveys are undertaken and the first schematic drawings of the structure are made.

Moses manages to get it started

The abutments and the foundation of the anchor piers began in 1930, but in 1932 the works were stopped due to the lack of funds. As the city could not take over the construction of the piers and the deck, in 1933 the state transferred the project to the Triborough Bridge Authority, chaired by Robert Moses. Before continuing the work, Moses appointed Othmar Ammann chief engineer of the project, office that he combined for six years with his duties as chief engineer of the Port Authority.

Moses financed the whole of the works, including expropriations, access and ancillary works with funds from the federal government to fight the depression for the most part, supplemented with municipal funds and his own funds, financed by issuing bonds guaranteed by the future tolls.

Inherited and reformed design

When he took over the work, Othmar Ammann started out with the plans of the original project, by Arthur I. Perry, and put them thorough a careful review to save costs. He did not alter the maximum span of 420 m (1,380 ft) of the central span, nor the height of 90 m (298 ft) of the towers, because their foundation was already built. But he reduced the double deck to a single deck, reduced to two legs the four original vertical pillars of each pier, removed the two gothic arcs between them, changed the rigidity system, and altered many aspects of the design, making substantial savings.

The resulting design is clearly better than the original, but it fails to convince. The two pinnacles located over the towers conceal the continuity of the cables and clearly appear as useless and ornamental. Their superfluous presence is added to that of a slight lattice located between the two legs, that connects rather ineffectively the straight latticed beam on top with the arched lattice below. The rigidity of both lattices and the side legs is so much greater than that of the framework that it deprives it of any structural sense. In the Triborough Suspension Bridge, Othmar Ammann also did not get the piers right, although he clearly improved the previous design.

Bronx-Whitestone (1939)

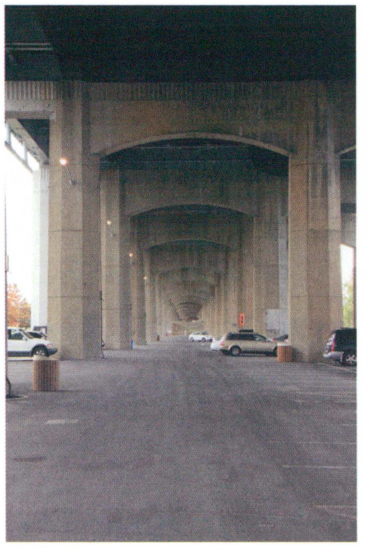
Farther northeast, the same obstacle of the East River widens again, and again requires large suspension bridges to cross it. In the area of Throgs Neck area, east of the Bronx, and the area of Whitestone, north of Queens, Robert Moses and Othmar Ammann built two large suspension bridges that carry the names of both neighborhoods.













Triborough Bridge (Ammann, 1931)



Bronx-Whitestone (Ammann, 1939)

The first one to be reached is the Bronx-Whitestone Bridge (1939), located southwest of the Bronx, where the East River is approached from the Fort Point Peninsula. In spite of it, the bridge requires a total length of 2,714 m (7,132 ft), with a central span of 701 m (2,300 ft) and two lateral spans of 224 m (735 ft). The deck has a width of 23 m (74 ft) and six lanes, bearing an annual traffic of 40 million vehicles [119: 170].

Slim and careful

Othmar Ammann Bronx makes one of his most exquisite designs, and provides important innovation at the time, replacing the rigid lattice with a solid beam of slimmer edge. He dispensed with it to stiffen the tower, of 115 m (377 ft) height from sea level, trusting the frame to provide transversal rigidity. With that, the design takes on an unprecedented simplicity and great economy of materials and maintenance, also observable in the disposition of the abutments and viaducts of access.

Years later, the Tacoma Narrows Bridge disaster forced a reform of the system of deck rigidity, to avoid its oscillation by resonance with weak winds. Rigidity was added in the horizontal plane of the deck, improving its connection to the piers, and the edge of the beam was augmented with a lattice placed over the solid beam. But the reinforcement is careful, and the general appearance of the bridge was not hampered. Instead of being overly slender, it came to be just slim, in a harmony of proportions and lightness.

The arch and the pier

Somehow, the bridge approaches total minimalism in design, with a single concession: the round arches at the top of the pier and under the deck also minimally expres-



Bronx-Whitestone

sive and with no ornamentation, but arches nonetheless. An arch always offers a great symbolic charge but Othmar Ammann was here prisoner of the fondness of New Yorkers for arches in the piers of their suspension bridges.

After its appearance on the Brooklyn Bridge, the arch is consciously avoided in the Williamsburg Bridge and, as we saw in Chapter 6, the bridge was not well received. It reappeared badly in the Manhattan Bridge, and was the subject of controversy in the George Washington Bridge, where the Port Authority forced Ammann to dispense with the stone cladding designed by Cass Gilbert and display its skeleton not meant to be seen.

It is in Bronx where Ammann is able to fit the arch on the pier in a simple and perfect way. And so he reuses it in the Throgs Neck Bridge, but only above and with a very different character, to use it with fullness in the great Verrazano Narrows Bridge. There, despite the fact that it is unnecessary from the point of view of the resistance of the bridge, which scandalized many, it already appears as consubstantial to the shape of the pier.

The Bronx-Whitestone Bridge was the third largest bridge constructed until then and paved the way for the second generation of highways built between 1930 and 1939. The entire region east of the island of Manhattan established a north-south axis backbone of Queens Bronx connections and of great importance for the integration of Long Island in New York City.

Throgs Neck Bridge (1961)

The second crossing over the East River is the Throgs Neck Bridge (1961), northern-most and last link with Queens to reach Long Island, where Ammann simplifies and

Throgs Neck Bridge
(Amman, 1961)





Robust and technological

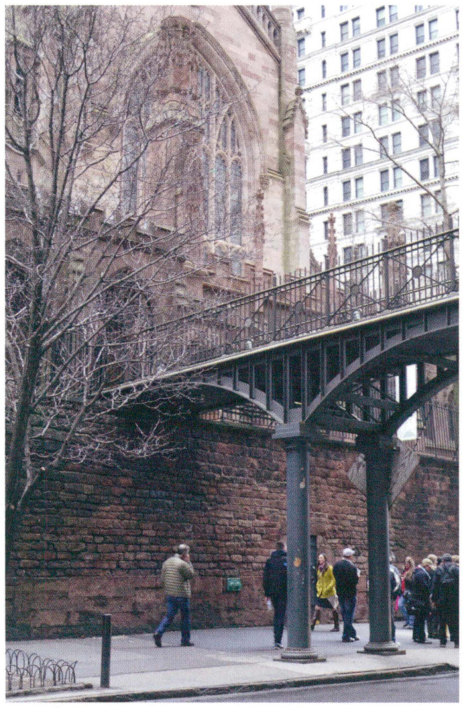
strengthens the same design, but with a more solid result, of very different character to the previous one.

The total length of the bridge is 887 m (2,910 ft), with a main span of 549 m (1,800 ft) and two side spans of 169 m (555 ft), significantly smaller than the Bronx-Whitestone, but the accessways are higher and are located over the water surface in a high proportion, so that the total length of the crossing amounts to some 4,250 m (13,953 ft). The foundations of the two abutments are also laid over the water surface, so that the length of the bridge is visually shortened, and it appears to be more robust.

In the towers, Ammann further simplifies the basic design adopted in the neighboring Bronx-Whitestone Bridge, made 22 years earlier. He eliminates the arch under the deck and uses a low-rise arch on top of the pier instead of a round arch. The result is undoubtedly more technological and less symbolic, but clearer and more emphatic, especially due to the removal of the lower arch. Another major change is the choice of a fully prismatic tower, instead of the more pyramidal design of the Bronx one, whose legs have decreasing width from the base to the apex. There, the pyramidal effect was mitigated by a continuous increase of the width from top to bottom that conferred great slenderness to the pier.









Trinity Place Bridge (Pomeroy, Amman & Whitney, 1989)

The gateway connects the rear of Trinity Church with the rectory, above Trinity Place St. Designed by Lee Harris Pomeroy, with engineers Ammann & Whitney, it is 25.5 m long by 2.4 m wide (85 x 8 ft). The design was inspired by the wrought iron fences in the surroundings and by an old cast iron pedestrian walkway in lower Manhattan, called Loew Bridge (Richt & Griffiths, 1867) that spanned over Broadway at Fulton St. and was taken out of service after only one year of use. The structure weighs about 32 tons of steel and includes some ornamental iron railings with the coat of arms of Trinity. It was made in one piece in Pittsburgh and assembled at 4.8 m above the street.

Conflicts of scale

The embodiment of extensive metropolitan modernity, undertaken by Robert Moses, had to be embedded into the existing urban reality. At that point two very different scales of action came into conflict. On the one hand, the works undertaken by Moses were measured according to the distances run by the roads or the spans crossed by the bridges by Othmar Ammann and earlier ones. The territorial obstacles confronted by his works required dimensions, details and constructive processes proportionate to their geographical character.

Meanwhile, the urban environment in which these works 'landed' had, and still has, measurements, details and uses proper to the common lifestyle that develops within it. The sidewalks are crossed at the pace of everyday walking, there are parked cars in the streets, and lights to regulate traffic, there is domestic life behind the windowpanes. Everything happens in a manner that fits cultural usages established in slow processes over long periods of time.

Too often, the conflict between these two worlds is sanctioned with the easy resort to populist phrases like 'the clash was inevitable,' 'conflict was meant to happen', 'the fuse was about to blow,' or some other expression along those lines, to continue with the story of the battles between 'the powers that be' and 'the people under attack.' They are necessary and illuminating stories of behaviors and relevant facts, but often distorted or little known. But it is worth considering the proposals and the implemented solutions to mitigate this potential conflict between the two scales of action.

And probably, New York is the best place in the world to try to do it, both on account of the magnitude of the works done, and the rigidity of the grid in which they are hosted. Naturally, there was social conflict, open opposition to certain actions, and subsequent victories or defeats for the defenders of one or the other attitude. This is momentarily postponed to the next chapter, established around the emblematic figure of Jane Jacobs, who starred in the fight against the excessive proposals by Robert Moses, and won many grassroots battles against them.

Traces and anomalies in the city

Regardless of the harm to the neighbors, these projects made a series of dramatic and almost fatal forays into the grid of Manhattan [18: 316]. And their traces are one of the main keys to peer into the characteristic processes of building the city. Many of them have become evident in the previous pages, but beyond the account of what happened, it is interesting to examine some of their physical characteristics, because some of the solutions have become obligatory references for facing similar problems elsewhere.

Landing of the bridges

A first scale conflict is manifested in the transitions between the major bridges used to access the island of Manhattan and the streets that host the huge volume of traffic deposited in the city. At first, the bridges did not go beyond placing their deck in the corresponding abutment and securing the connection to the road. The Brooklyn Bridge went directly into the heart of the city, a few meters from City Hall, and did not use any resources to announce its presence, already proclaimed in the gates of entry to each city suggested in the monumental piers designed by John A. Roebling.

Over the years, car traffic called for multiplying the entrances to prevent the formation of traffic jams. Queueing theory explains that the existence of several entry possibilities



Access to the Midtown Tunnel

decreases the length of the queue formed when the input is unique. Thus, before reaching the point of contact with the urban network, it is convenient to have several departures to other destinations. With them, users can always decide at any given moment which one of them to take, in order to avoid being stalled.

The neighboring Manhattan Bridge was built to relieve the increasing traffic on the Brooklyn Bridge, and it reaches the island by a roundabout with several exits, which distributes the flows and avoids queues. As the design of its towers does not recall at all a gate of entrance, this symbolic function is implemented with a monumental portico. Located before the bifurcation, it is formed by a large triumphal arch, flanked by two circular colonnades inspired by St. Peter's Square in Rome.

Span facing columns in Manhattan

The conflict is manifested here in the disparity between the modern and technological style of the pier of the bridge and the classical entrance portico, between the dimension of the span, of several hundred meters, and the narrowness of the arch of entrance, between the height of the piers with regard to the river and the human scale of the columns with regard to the monumental heritage of culture. The message was clear: one abandoned the land to enter the city.

In any case, the topography of the banks imposed many constraints on the solutions. In the next bridge, the Williamsburg Bridge, the access viaduct to the high abutment

was extended where the cables are anchored to deposit the cars about a thousand meters further into the town. The George Washington Bridge, however, reaches the appropriate level directly, which was one of the reasons given by Othmar Ammann to locate it there.

From access to Brooklyn Br to connection with FDR

However, when Robert Moses built the coastal highways, their connections with the bridges brought about many complications for the bridge landings. In the Brooklyn Bridge, for example, two ramps were installed on either side of the access, rising from the FDR on the bank of the East River to the City Hall, where the two loops to return towards the river were positioned, so as to gain enough height to reach the deck. If we add to this the crossed ramps to give way to the opposite directions and auxiliary structures for the continuity of the adjacent streets, the complexity increases. And if we consider the dual carriageway for cars and the presence of the railroad, it is further multiplied.

The Bridges of Manhattan, Williamsburg and Queensboro have exclusive access without direct connection to the FDR, and it continues like that until the big hub of the Robert F. Kennedy Bridge, the first moveable bridge over the Harlem River, and passage into the arterial network of the Northeast. The other bank belongs to Wards Island, and connects with the access to Triborough Bridge. Shortly before this connection, two major roads that surround the Bronx converge, the Major Degan Expy on the east, and the Bruckner Expy on the west, accumulating an enormous flow of traffic. The hub is quite compact and it is located over a green area, so that the conflict with the built-up area is scarce.

Dispersing traffic in the tunnels

Very different is the case of tunnels, whose entrances are not visible, except through the queues of vehicles trying to gain access to them, or the stream of cars poured into the city through their exits. Conflict of scale between tunnels and streets manifests itself no longer in the presence of structures, but in the difficulties posed by the assimilation of the huge flow of vehicles concentrated by them.

In the outputs, the goal is to spread the traffic throughout the city, which has led to very different solutions. In the entries, the goal is to provide sufficient length in the ways of access to accommodate the vehicles without paralyzing traffic. Casuistry is large, but a few examples suffice to perceive its scope.

Crossing the street in front of Holland Tunnel

The Holland Tunnel, for example, lines up with Canal St. to connect with the Manhattan Bridge into Brooklyn. As discussed in Chapter 8, in the New Jersey side it was necessary to build a long elevated road — the General Pulaski Skyway — to not collapse the downtown of Jersey City. A large loop was also built on the banks of the Hudson River, so that the wait for the toll at the exit of the tunnel did not take place underground. In the New York side, the tunnel affects a large area on both sides of Canal St., and hinders its use by pedestrians, i.e., leaves no possibility of effective urban use.

Michael Sorkin describes the conflict of the residents of the neighborhoods of Hudson Square and Tribeca with the city administration to achieve a safe pedestrian crossing of Canal St. The crossing can be made at many points, but the most logical, being the orthogonal and direct one, required to be crossed in an extremely short period of about four seconds of green light, which made it 'virtually impossible' to cross the street without being extremely careful. This cycle was the object of long and heated negotiations, with the happy result of two seconds of increase in the duration of the green light for pedestrians [147: 182].



Holland Tunnel Access

One input, six outputs in Tribeca

Meanwhile, devices to achieve a fluid traffic are also conspicuous north and south of Canal St. In Tribeca (TRIangle BElow CAnal), the exit ramp runs parallel to Canal St. until Hudson St., where it emerges next to a large triangular building, whose lower floors have no street access or natural light, then turns right and reaches a traffic distributor. This device is a spiral with a single input and six outputs around a central roundabout, which allows taking any of the four cardinal directions.

The entrance to the Holland Tunnel is in Hudson Square, between Canal St. and Houston St., west of SOHO (SOuth of HOuston), and consists of a wide array of inputs from Hudson St., Canal St. (in both directions), Varick St., and Watts St. The design is quite compact, but the flow of cars, plus the numerous traffic signs and billboards on the buildings make the area unlivable.



13 | Tobin

Negotiating difficulty
Tobin's new goals
Containers arrive to the port
Snatching the airports from Moses
Newark Airport, 1953-1974
La Guardia Field, 1940
Idlewild / JFK Airport
City terminal, WK Harrison
Saarinen TWA Terminal
Enlargement, threats and closing
Air Train and Jamaica Station
Tobin is dismissed for ignoring the railroad
Entry into the real estate business
World Trade, unassumingly huge
Manhattan's waterfront
Battery Park City shore
Ports of North and South Cove
South end in Battery Park
East River Park
Carl Schurz Park, on the East River
North of the Manhattan Island
East Shore of the East River
Brooklyn Bridge Park
Long Island City in Queens
'Residual' parks to the north
Port of Red Hook in Brooklyn
Hudson River Tappan Zee Bridge



Austin Tobin (1903-1978)

Negotiating difficulty

In July 1942, Austin Tobin takes office as executive director of the New York & New Jersey Port Authority (NY & NJPA). He will be 30 years in office, while six presidents of the nation, four governors of the state of New York, and five chief executives in New Jersey succeed each other, until his retirement in December 1971.

The first eight years of his term were years of great change. In them the Port Authority expands from being an agency of tunnels and bridges in the port of New York, to embrace a wide range of new objectives and projects, including three major airports, a bus terminal in Manhattan and a major port facility in Port Newark. Alongside managing these new tasks, Tobin transformed the agency into a coherent institution with a clear mission and a staff dedicated to its achievement, and loyal to their boss [49: 248].

Born in Brooklyn, Austin Tobin became assistant to the general counsel of the Port Authority in 1938, and he made for himself a reputation defending the tax-exemption of municipal bonds, vital element for the financing of the agency. In 1942, he became executive director. Then he expanded his original idea to develop the port and began to collect tolls on the Holland Tunnel, bought in 1930, the George Washington Bridge, opened in 1931, and the Lincoln Tunnel, whose first tube was opened in 1937.

At that time, the Port Authority was a moneymaker, and once he took over, Tobin was formalized this, insisting that it did not assume projects that could not finance themselves. This rule largely disqualified rail, the initial concern of the agency, that was reformulated in broader terms. With Austin Tobin, the objective of the agency is to channel and harness the new forces of technology and transport organization so that the Port area would maintain its position as the gateway for world commerce. The breadth of purpose and the self-financing requirement led to the conversion of a public company, created to support trade in the port, into a for-profit machinery beyond any political control [49: 251].

Tobin's new goals

Dependent as he was on the bond market, Austin Tobin was closely linked with investment circles that, in turn, collected large fees by placing the debt of the Port Authority. The board of commissioners, controlled by him, was full of bankers and brokers, isolated from hassles such as elections. When Tobin left office in 1972, he was the second highest paid public official in the country, after the president. At that time, the Port Authority had 8,000 employees, well above the 300 of its beginnings in 1927.[45]

Meanwhile, the port under his control remained inactive. The rail tunnel from the Brooklyn docks to the railway terminals in New Jersey, original aim of the Port Authority, was never built. There was no potential for profit in it. Tobin stated that he could not put his funds in the rail, because rail caused deficits, and without taxing authority, it was necessary above all to maintain the first rate credit of the Port Authority, even at the expense of the survival of the port it was supposed to preserve.

Instead of the rail tunnel, the Port Authority opened the way for containerization, with its large loading drawers fitted to the truck and railcar. The first test was in Newark on April 26, 1956; in 1962 the first container port in the world opened in Elizabeth. It could not work in Brooklyn, because it was not linked to the railway lines.

Containers arrive to the port

That was the end of the docks of New York. Labor peace was obtained in with a 'Guaranteed Annual Income' for unemployed stevedores. The Manhattan docks became abandoned ruins and, later, green areas; Brooklyn docks lost their activity. Where once worked 30,000 longshoremen, there were fewer than 500 by the end of the century.

Currently there are several container terminals in the port of New York, whose combined volume makes it the largest on the East Coast, the third in the United States and the twentieth worldwide. The most active is the Port of Newark-Elizabeth Marine Terminal. In 2010, the Port Authority of New York and New Jersey agreed to buy 52 ha (128 ac) in the Military Ocean Terminal in Bayonne, where additional container port facilities will be created. The new terminal is meant to handle the largest container ships able to pass through the new Panama Canal.

Airports

In the late 1940s, Austin Tobin managed to secure the support of the airlines to snatch from Robert Moses control over both airports and, gradually the original activity of the agency changed. Instead of seeking improvements for transport in the port of New York, it sought opportunities to improve its income. Theoretically, these revenues were aimed at maintaining and improving the structures and facilities required for transportation, but soon the priority became to maintain the financial autonomy of the Agency.

Snatching the airports from Moses

When the success of the George Washington Bridge required to place the second deck (the lower) planned by Othmar Ammann, Austin Tobin chose to devote it exclusively to cars. He avoided giving way to railroads because they did not produce income but expenditure, and that contributed to the worsening of both the public transport and the traffic flow of cars. That did not provoke any confrontation between the two Authorities, because the rule for both Robert Moses and Austin Tobin was to work together, as they did, for instance, in the large Verrazano Narrows Bridge.

After careful consideration of the airport business, Tobin decided it could be an attractive activity to promote the growth of the turnover of the Port Authority and its reve-



Newark Airport Terminal (1974)





Newark Airport, 1953-1974

nues and profits. He prepared a careful network planning justifications in parallel with a network of political support, and decided to start by the Newark Airport [48: 262 ff].

Newark Airport had started operations in 1928, albeit not in a very bright way, due to the limited investment in facilities and an inadequate personnel policy. The city was more oriented to solve port problems, related to the docks and the adequate connections to the consumption center in New York, which, it was believed, should be sorted out with a railway tunnel (see Chapter 8). And the airport was not first in the priority list.

In 1950, the Port Authority announced the construction of a new terminal of 14,000 m^2 (150,000 sqft), designed by their own architects and the aid of consultant A. Gordon Lorimer, quite similar to the bus terminal in Midtown. In 1960, The Porth Authority considered a new extension, but the airport did not quite start until 1965, when it decided to invest a large sum to make a really important new terminal.







La Guardia Airport Terminal (1940)

The new terminal was designed with the help of Minoru Yamasaki, the architect in charge of the Twin Towers, and the architects of the agency. It followed a basic scheme of a large continuous oval, with access and parking in the interior, and the airside in the exterior, assisted by circular satellites connected by gate-ways to the terminal building. The building was built gradually by oval sectors, as the need for access and check-in to the boarding gates of the new satellites increased [153: 1022].

In 1947, the New York Port Authority took over the operation of La Guardia Airport. The first terminal, built by Delano & Aldrich in 1940, was a lovely building with functionality issues and which looked more like a residence. Passengers had to break through a crowded building to enter and exit the aircraft, and even handling operations on the platform were not well resolved. The first improvement, introduced in 1948, was the construction of a modern temporary aluminum and glass building to house a cafe designed by Lester Tichy, and soon after international traffic was deviated to the new Ildewild International Airport (later JFK).

La Guardia Field, 1940

In 1957, the agency began implementing a reform plan, with two new wings for the existing terminal, and later the construction of a new semicircular terminal, tripling the existing surface. In 1956, the airport moved five million passengers and the reform aimed to accommodate seven million by 1965.

Halfway though the works, the Port Authority decided to revise the project and increase the surface — up to 46,000 m^2 (500,000 sqft) — and the capacity, and sought help from Wallace K. Harrison and Max Abramovitz. The curved floor plan with two flights and a sloping canopy on a sundeck to watch the planes was accompanied in the interior by a two-level driveway, connected by concrete stairs. The center of the oval formed by the access roads was occupied by a garage linked to the terminal by walkways at different levels, resulting in a very compact building [153: 991].

Idlewild/JFK Airport

But the real bet of New York was the new Idlewild Airport, located in Jamaica Bay, Queens, further east from La Guardia and therefore further from Manhattan, on a site surrounded by marshes with few houses nearby. The first installation, small and functional, started operating in 1947. In 1948, the major foreign airlines were already operating with only two hangars and a small administration building.

From 1950, continuous investment began: new accesses designed by Gilmore Clarke, Michael Rapuano and Leslie Holleran G.; the hangar supported by the largest metal arches in the world designed by engineers Robert & Schaefer; a federal building; the highest control tower in the world; but the needed large passenger terminal was not addressed.

City of terminals, W. K. Harrison

Between 1954 and 1960 developed a large expansion, coordinated by Wallace K. Harrison, with a radically different approach to the single terminal. This new concept of 'Terminal City' consisted of seven separate terminals for domestic airlines, plus a building for foreign airlines, around an open landscaped area of 65 ha (160 ac). This idea of fragmentation of operations, as opposed to their traditional concentration, was highly appreciated by critics, as it opened new possibilities for the treatment of crowds, an issue already raised with the occasion of the design of Grand Central Terminal (see Chapter 7).

The first building to be completed was the international arrivals terminal, designed by Skidmore, Owings & Merrill — SOM — in 1957, followed by the American Airlines terminal by Khan & Jacobs in 1960; the PanAm by Tippetts-Abett-McCarty-Stratton in 1960; the United Airlines terminal by SOM in 1960; the BOAC by Gollins, Melvin, Ward & Partners in 1970; and above all, the Trans World Airlines — TWA —, by Eero Saarinen and Kevin Roche in 1962.

TWA Terminal Saarinen

The TWA terminal was undoubtedly the most discussed building at Idlewild airport. It is a small building, compared with the rest, of 101 x 68 x 15 m (332 x 222 x 50 ft), in concrete molded in expressionist manner. It was built by architects Eero Saarinen and Kevin Roche, and engineers Ammann & Whitney (founded in 1946 by Othmar Ammann and Charles Whitney) in 1962. The great hall is covered by four intersecting layers of concrete that emerge, cantilevered, over four massive piles, ending in large glass curtain walls toward the platform of the aircrafts. Inside, the lobby is molded with ramps and flown areas finished in smooth and continuous curves that suggest a new experience of fluid motion.

The central building is connected to the gates by two long arms in the shape of tubes, sprouting like tentacles from the two joints of the piers. According to Robert A. Stern, the terminal was laid out not only to provide the passengers with a smooth flow of travel between arriving at the building and boarding their planes but to dramatically elevate that journey to a rite of passage; travelers would become part of the drama of flight itself [153: 1014].

The building received great attention from critics for its powerful figurative form and its structural daring, which was compared to 'a giant bird in flight' and was considered very suitable as emblem of an airline.







TWA Terminal

Expansion, threats and closing

The TWA terminal was expanded in 1970 by Kevin Roche, according to the initial project, and was kept in regular service. In 1990, TWA commissioned a project for a major expansion combining the Saarinen building with the neighboring terminal of the National Airlines, but financial difficulties paralyzed it, and in 1992 the TWA went bankrupt. That same year, the terminal turned 30 and was eligible for consideration as a 'historic landmark,' which was granted by the Landmarks Preservation Commission in 1994.

In 2001 new plans for a United Airlines terminal arose involving it, leaving it without chance of usability. Then the National Trust for Historic Preservation placed the terminal in the list of 11 most endangered buildings and the Port Authority finally arrived at an agreement, kept isolated and without direct operation but with the possibility of access and check-in in the new terminal placed in front, now in the hands of the new company JetBlue Airways [151: 1342]. In 2014, the building was closed with surveillance and access is prohibited.

Air Train and Jamaica Station

The connection by public transport from JFK Airport to Manhattan was done with a shuttle bus from the terminals to the Metro station in Jamaica. After the usual discussions of lengths, outlines and connections, the option of a high automatic railroad, the Air Train, was chosen, and building started in 1998. After a delay of one year by a derailed test train, it began to provide service in December 2003.

The Air Train arrives at Jamaica Station, an important hub of Metro and Long Island Railroad, with about 200,000 passengers daily. There a new terminal for receiving the Air Train was built. The building is a glass structure next to the south side of the railway station, designed by Architects Voorsasanger. The raised platform has two tracks and a central platform and is covered with a dome. It connects to the street through a narrow hallway seven stories high with lifts and a long escalator. From above, the great arch of 80 m (263 ft) long and 22 m (72 ft) of light that covers the entire building on the railroad is visible [151: 68].

Tobin is dismissed for ignoring the railroad

Austin Tobin had a policy not to undertake railway projects, which he considered expensive, unprofitable and potentially dangerous for being able to ruin any body or company that took them on. That earned him a serious battle with the governors of both states for many years, and in 1971, eventually cost him his job.

New York and New Jersey wanted to undertake new rail projects for internal freight within the port and then they tried to avoid bankruptcy. But the priority of Tobin was the JFK Airport rail link, first with Manhattan and then to Newark Airport. The idea was to facilitate transfers between both airports, which concerned both to improve the whole system of destination connections.

Over time he was proved right on two accounts: the governors failed to carry out the railway projects after dismissing him, and the JFK connection with the city ended up becoming reality via the Air Train Station and Jamaica Station. In addition, the government initiative intended to save the Brooklyn docks but 40 years later political action had failed to prevent their disappearance.

Entering the real estate business

In its dedication to raise funds, the Port Authority entered the real estate business, and made it big. In 1960 it proposed to build a giant office building to get income with its

rental and Lower Manhattan was chosen as location, to develop the whole area. To get permission, the Port Authority agreed to keep the Hudson & Manhattan Railroad (later called PATH), which was bankrupt and carrying commuters between New Jersey and Manhattan.

The project was commissioned from the architect Minoru Yamasaki, who proposed two equal towers instead of a single building, located on the waterfront, right next to the Hudson. The structural system of towers consisted of a resistant core in the shape of a concrete pipe embedded in the ground and a supporting facade around, so that no intermediate columns were necessary. The supporting facade nerves were very fine and were placed 56 cm (22 in) apart. That left tall and narrow windows like fortress arrowslits of only 49.5 cm (19-1 / 2 in) wide. On the third floor, pillars gathered in threes with smooth transitions to reach street level with greater separation, forming a high inner lobby more permeable to the flow of input and output.

But above all this, the World Trade Center was a huge building, wisely interpreted to not seem so. It was not just the world's tallest towering over New York, but was also the largest, nearly triple the surface of the Pentagon in Washington, with room for 50,000 people. Each of the twin towers added more space than two buildings such as the Pan Am, a total of 930.1 m^2 (10 million sq ft) of office space to rent

World Trade, unassumingly huge

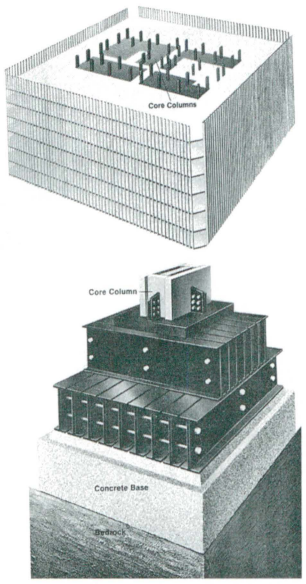


World Trade Center Towers
(Minoru Yamasaki, 1971, 1972)

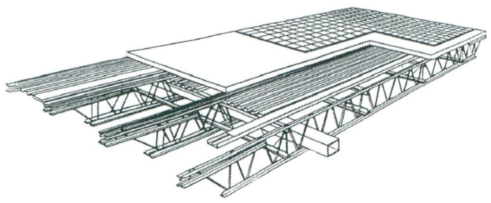
World Trade Center Towers
(Minoru Yamasaki, 1971, 1972)

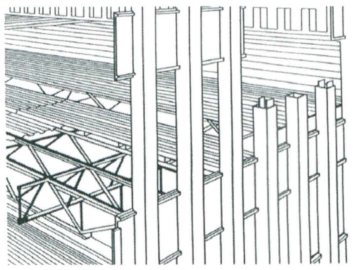
Nelson A. Rockefeller Park

Winter Garden (architect Cesar Pelli,
landscapers M.Paul Friedberg & Partners, 1988)

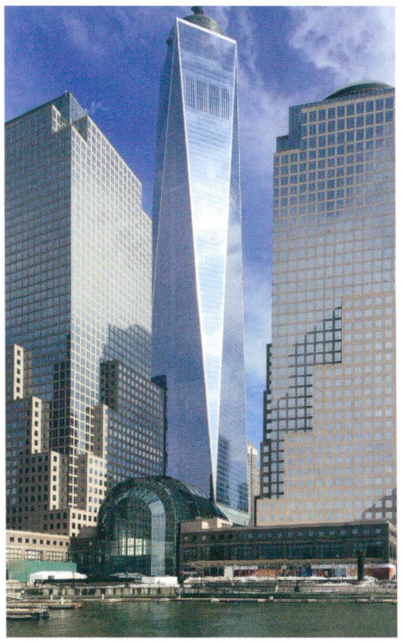














In fact, it was pretty much criticized as a model of financial harvesting and for its gigantism, and for its careful and soon accepted aesthetics. In Minoru Yamasaki's own words: *It was a terrifying program from the standpoint of size…You just run scared before you get adjusted* [153: 201].

However, the monetary greed of the Port Authority did not stop there and continued with two performances. First it undertook the development of a city, Battery Park City, on a giant landfill of 37 ha (92 ac) on the waterfront. Then it undertook the development of its surroundings under the concept of World Financial Center, a set of huge office buildings spread around and decorated with different 'hats' to achieve a distinct look within a common identity. The only public spaces in all that great speculative operation were the Battery City Park (see Chapter 16) and the small and attractive Winter Garden, currently under reconstruction [151: 160-170].



Battery Park City, landfill in the Hudson River, Battery Park to Chambers Street. View to the southeast, 1975.

Manhattan's waterfront

Shores of Battery Park City

This new district taken from the Hudson exploiting the land extracted from the works of the World Trade Center in 1970, was the largest town planning of the city in the 80s, creating a whole new front of the Hudson from Manhattan to Village height [24: 205]. The new office buildings in polished granite and glass forming the Three World Financial Center, alternate with wide open spaces. The entire set has spectacular views over the river. Along the route a succession of different spaces alternate with views over the river and are accompanied by various games and sculptures.

At its northern end is Nelson A. Rockefeller Park with sweeping lawns, gardens, playgrounds, sports fields and a small pavilion for storing sports equipment. Next at the beginning of Vesey Street is the Irish Hunger Memorial, a memorial that is dedicated to the Irish who came to the New World and starved to death between 1845 and 1852, and recalls the efforts made to abolish hunger in the world. The project, designed by artist Brian Tolle, is an authentic cottage of the time of the famine, donated by his extended family, the Slacks of Attymass, the Irish county of Mayo.

The cottage has been painstakingly rebuilt on the site of 0.20 ha (21,500 ft^2) as an expression of solidarity. It tries to create a piece of Celtic landscape, even importing the earth, rocks and debris from Ireland. A trail ascends through a rugged landscape and leads to a viewpoint with stones from different counties. From this viewpoint of 7.6 m (25 ft) high you can see the Statue of Liberty and Ellis Island. This landscape is built cantilevered over a tunnel or passage glass and Irish limestone engraved with historical and modern sentiments about world hunger. Crossing this tunnel leads to the top while an audio installation on hunger pervades the atmosphere. The engraved texts are repeated in the lower part of the exterior, surrounding the monument.

Ports of North and South Cove

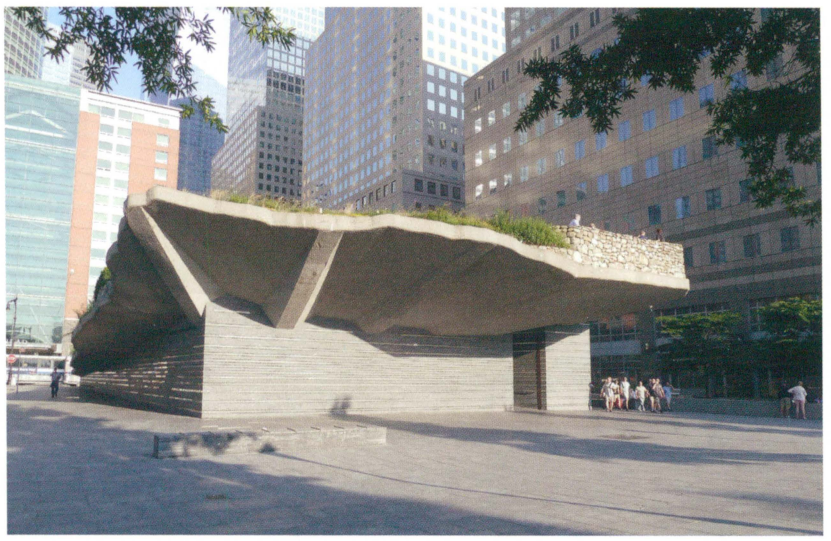
Another memorial is the New York Police Memorial, dedicated to the policemen killed in 9/11. Next is the ferry



Waterfront Parks

1. Palisades Interstate Park
2. Inwood Hill Park
3. Fort Tryon Park
4. Fort Washington Park
5. Riverbank State Park
6. Riverside Park
7. Hudson River Park
8. Battery Park City
9. Battery Park
10. South Street Seaport
11. East River Park
12. UN Gardens
13. Sutton Place Park
14. Carl Schurz Park
15. High Bridge Park
16. Roosevelt Island Gardens
17. Brooklyn Bridge Park
18. Empire-Fulton Ferry State Park
19. Brooklyn Heights and Brooklyn Bridge Park
20. Red Hook
21. Gantry Plaza State Park
22. Queensbridge Park
23. Rainey Park
24. Socrates Sculpture Park
25. Governors Island





Irish Hunger Memorial

terminal, and then North Cove and South Cove, two water inlets harboring small marinas in which some vessels are anchored, such as the Shearwater — a schooner from 1929 — and from where the water taxis depart that sail around Manhattan. In North Cove are the Manhattan Yacht Club, a sailing school, and the Waterfront Plaza at Brookfield Place. The latter is located west of the World Financial Center and houses lounge areas, restaurants, shops, and an indoor complex called Winter Garden.

The South Cove has a promenade dotted with wooden poles, from which cobalt blue boat lamps hang, in keeping with the old piles of the docks; following the same aesthetic, the benches and the railing are also wooden. At the end of the walk there is an observation tower and, through an arched bridge, you reach a curved pier with a gazebo and benches from which you can enjoy magnificent views.

Next, past the Museum of Jewish Heritage, the Robert F. Wagner Jr. Park is located in a large, high quality lawn accompanied by manicured gardens with tree well mats and beds of perennial and annual plantings. A team of volunteer urban gardeners is responsible for the transformation of this place, which also boasts not using herbicides or pesticides. The last pier of the Lower West Side is Pier A, already remodeled, with the old white and green building with a huge clock and campanile from 1919; all in process of restoration.[46]

Southern end to Battery Park

To the south, below the landfill where Battery Park City is located, is the Battery Park. This former enclave has an exceptional location at the southern end of the island, and is quite a relief in the density of the financial district with a current area of 8.5 ha. Its name comes from the defensive line of cannons deployed on the coast during the war and the revolutionary period. Between 1807 and 1811, there stood the fort named West Battery, on an island 100 meters from the shore, and in 1812 John McComb designed the circular fort of stone walls 2.5 m (8 ft 2 in) thick which in 1815 was renamed Castle Clinton in honor of DeWitt Clinton, the Mayor who strengthened the port defenses. It was given to the city of New York in 1824, transformed into a garden: Castle Garden, and turned into an amusement park. From 1855-1890, it hosted the center for the reception of immigrants until that was moved to Ellis Island. Between 1896 and 1941, it housed the New York Aquarium, and the building was extended with a project of McKim, Mead & White. Now, it houses the museum of military history and architecture. During these changes in the fort, some irregular landfills incorporated it into the land of Manhattan. In these landfills stands the current Battery Park, dotted with sculptures of various characters and motifs.

After several projects of expansion and beautification of the park that were never implemented, it was with the arrival of Mayor LaGuardia that building a tunnel was planned to attach the tip of Manhattan to Brooklyn. Robert Moses was, however, in favor of building a bridge whose ramps would have occupied a significant portion of the northern boundary of the park, the reconstruction of which was proposed under this project. Gilmore Clark was the landscape architect in charge of the project.

In 1939, the proposal was defeated with the announcement of the War Department withdrawing support for the project of a bridge. The draft by Robert Moses and Gilmore Clark foresaw the demolition of Castle Clinton, and its replacement by a square place that would open the view from Broadway to the Statue of Liberty. A heated battle of opinions took place that, finally, managed to preserve the Castle within the context of the remodeled park. It was restored and declared a historical monument, and later it housed a small museum. In 1950, two tunnels were opened: one connecting with Brooklyn, and another one linking the two riverside driveways of Manhattan. The park was open to the public in 1952.











North Cove in Battery Park City

South Cove Walk in Battery Park City

Robert F. Wagner Jr. Park (Olin Partnership, Machado & Silvetti, Lynden Miller, 1989)



Battery Park.
1. Castle Clinton National Monument
2. Museum of Jewish Heritage
3. Hugh L. Carey Tunnel
4. Battery Park Underpass
5. 9/11 Museum and memorial

By José de la Paz



Battery Park from the Staten Island ferry



Bird's eye view of Lower Manhattan. Courtesy of NYPL.

East River Park

The East River Park is born of the opportunity offered by the construction of the Franklin D. Roosevelt East River Drive (FDR Drive), and the landfill over the East River, as much as of Robert Moses' ability to coordinate his interventions in parks with the initiatives of other branches of the administration. He intended the layout of the driveway to leave the bank of the river available for the construction of a linear park of almost 2,5 km (8.200 ft) long with gardens, tennis courts, shallow swimming pools, a baseball field, and running tracks. This project from 1939 illustrates in a very accurate way R. Moses' conception of active leisure, with the seal of landscape architect Gilmore Clark.

The construction of the FDR was the window of opportunity for the transformation of a series of neighborhoods of the East End that ended up constituting the close environment of this park, specifically the Vladeck Houses in 1940, Jacob Riis Houses in 1946, Lilian Wald Houses in 1947, Baruch Houses in 1953, and, south of Williamsburg Bridge, Corlears Hook neighborhood [10:187].

The South Street Seaport area around the old fish market (currently relocated in the Bronx) has been turned into a restaurant area that attempts to recover its former commercial and seafaring tradition. The docks, in which some old vessels are preserved, have been refurbished. It has views over Brooklyn on the opposite bank, and the Brooklyn Bridge.

Carl Schurz Park, on the East River

In 1891, the parks department acquired land along the East River, between 84th and 86th streets, to which a plot, in which stood the Gracie Mansion, built by Archibald Gracie in 1799, was added later. In these lands a park was originally built in 1903 by Calvert Vaux and Samuel Parsons Jr. It bears the name of the Secretary of the Interior in 1910, the German-born Carl Schurz, a resident of the area. In 1936, the parks department, headed by Robert Moses, and the city, decided to rehabilitate the front of the East River and proposed to build a six-lane roadway with adjacent parks and playgrounds. Finally, two buried carriageways were buried, gaining ground to the river. This is the first *promenade* of the city, which would set the precedent for the Brooklyn Heights Promenade, built thirteen years later.[47]

These *promenades* are elevated walks designed for recreational purposes and usually at the water's edge. Nowadays, in its north end the tunnel entrance of the FDR Drive is located next to the ferry terminal; this highway runs under the riverside walk along the river. This park of 6 ha (14 ac) contains the historic John Finley Walk for pedestrians and bicycles, whose upper part offers a magnificent view overlooking the East River, the lighthouse at Roosevelt Island, the Triborough Bridge, and the islands of Randall and Wards. In the southern area, there are playgrounds, sports fields and two dog runs. The Gracie Mansion was the first museum in the city, and is now the official residence of the mayor of New York since 1942.

Franklin D. Roosevelt Four Freedoms Park (Roosevelt Island, 2012)

The *Four Freedoms* are those referred to by president Franklin D. Roosevelt in his famous speech from 1941. To-





East River Park





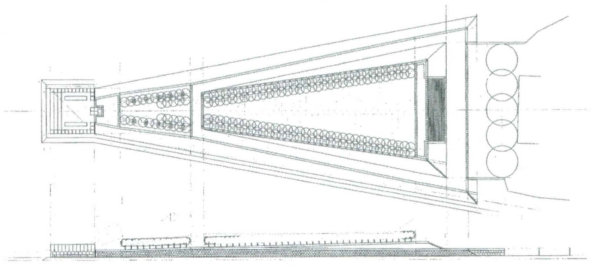
wards the end of the 1960s, in a period of nation-wide urban renovation, the *New York Times* proposed the construction of this memorial. The design, planned in 1973 by Louis I. Kahn, employs a strong geometry of pure shapes with a northeast-southeast axis that conveys a deep compositional symmetry. Its location, in the middle of the East River, emphasizes the references to the marine world, one of the passions of the president.

The north of the island of Manhattan

The northern end of the island of Manhattan continues to show a more maritime character than the urbanized north-south shores of the East River and the Hudson River. It is occupied by Fort Washington Park, of nearly 65 ha (160 ac), and has fantastic views over the Hudson River, the George Washington Bridge, and the Palisades.

Cliffs, woodlands and meadows succeed each other along its route. It houses a building from the Revolutionary War built by the rebels, and later conquered by the British.

The confluence of the fairway of the Harlem River with the Hudson gives it a certain nautical character, for therein lies one of the few beacons of the city, Little Red Lighthouse. This lighthouse of 12 m (40 ft) is located under the George Wash-



Franklin D. Roosevelt Four Freedoms Park



The Palisades of the Hudson. Emmet, Thomas Addis.



Palisades of the Hudson River, New York (1908-1909).

ington Bridge and marks the end of Jeffrey's Hook. Made of steel and with tapered shape, it was originally built for Sandy Hook in New Jersey in 1880, and then moved in 1921 to its current location [7: 138]. It has various sports facilities, including tennis courts, basketball courts, a baseball field, and playgrounds that serve the neighborhood of Washington Heights. Currently some renovations are under way (a ramp connecting Henry Hudson Parkway and Dyckman St., a new playground, a stretch of greenway, improvement of the access to the sea, etc.).

Texts: Patricia Hernández Lamas

East bank of the East River

The whole waterfront of Brooklyn is in the midst of reconstruction and transformation. Along the coastline new promenades and parks with lawns, gardens, stairs, small beaches, restaurants, lounging areas and scenic lookouts follow each other. These public spaces are used as catalysts for the regeneration and development of the surrounding neighborhoods, according to the policies of Mayor Bloomberg and Amanda Burden, the director of the New York City Department of City Planning (see Chapter 16).



Little Red Lighthouse under George Washington Bridge in Fort Washington Park

Brooklyn Bridge Park

Brooklyn Bridge Park is a work by the landscape architecture studio of Michael Van Valkenburgh Associates, and it develops in a narrow and irregular strip of just over 2 km long and 34 ha. In 2002, Mayor Michael Bloomberg and Governor George Pataki approved its construction and three years later Van Valkenburgh developed the master plan. This area was marked by the six piers of warehouses built in 1950 by the Port Authority and the Brooklyn-Queens Expressway (BQE), the large traffic artery that isolated this coastal area from the hinterland. Part of the structure of these old piers is recovered, and sports fields, covered stages for concerts, etc. are created. Through earth embankments, barriers are created to protect from the loud noise of the BQE. An undulating topography and lush native vegetation is introduced to break the linear monotony.

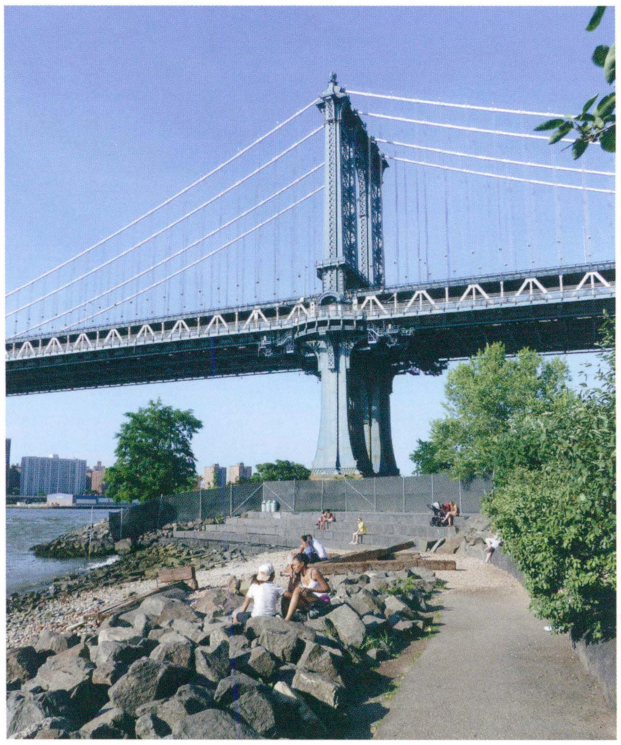
The new project aims to bring the water to the population, so that residents can enjoy it: beaches, floating rides, piers on stilts, bleachers, cliffs, tide pools, a marina for fishing, ecological habitats, etc. Grasslands alternate with shrubs and ground cover vegetation; water species such as sumac, lindera, salix or ferns are incorporated. It offers spectacular views of the City on the opposite bank of the Statue of Liberty and the Brooklyn and Manhattan bridges. At the foot of the Brooklyn Bridge is the Empire Fulton Ferry State Park with access from the corner of Main and Plymouth streets, and Dock and Water streets; where ferries formerly docked, before the construction of the bridge. The old restored carousel stands out: Jane's Carousel. This intervention is regenerating the area and transforming the surrounding neighborhoods; it makes the area alive with walkers, skaters, cyclists and people who practice water sports.

Long Island City in Queens

The waterfront of Long Island City in Queens is being completely renovated as part of the recovery process of a degraded area, earlier dedicated to maritime activities. The predominant intervention is the Gantry Plaza State Park, a park of 4 ha (9 ac 38,000 ft2) parallel to the East River with spectacular views of Midtown and the United Nations. This project, conducted by Thomas Balsley with Sowinski Sullivan Architects and Lee Weintraub, was the first phase of a system of longitudinal parks covering twelve blocks and intending to regenerate this residential area. In the words of the authors, *evolved from a meaningful public process, the park is an environmentally appropriate and artistic response to the site's history, cultural diversity and a natural shoreline*.[48]

Its design incorporates the remains of gigantic black port cranes, formerly used for the loading and unloading of car fleets brought by rail and barge. In this way, it is as if the





Brooklyn Bridge Park



past of this port front dedicated to industrial activities is the stage, and the city is the backdrop. Like in the High Line, there is a will to recover the historical memory of the layout of this infrastructure that reached the port, with the presence of cranes, remnants of railroads, and rough granite blocks.

It is zoned into three areas: Gantry Plaza — entry to two of the main piers, the interpretive garden — with gravel paths and natural vegetation and grass — and the lawn headland with its four restored piers. The southernmost pier is dedicated to fishing, with a long, continuous bench of 12 m with a wave shaoe, and a large stainless steel table to clean the catches, turning fishing into a community and family sport. The following pier has wooden loungers for sunbathing and the other two have a serpentine bench and a café-bar beside the river. The park opened in 1998 and has several facilities, such as basketball and handball courts, areas for children, a dog run, and sprinklers.



Aerial view of parachute jump ride, Coney Island.

'Residual' parks to the north

From here on, the continuity of greenery ends, and parks become gaps between buildings. This is the case of Queensbridge Park, Rainey Park and Socrates Sculpture Park. The latter is located a little further north from the Noguchi Foundation, off Broadway (32-01 Vernon Boulevard, Long Island City); it has a natural character, with views over the river. It was founded in 1986 by Mark di Suvero, who manages to maintain it through his foundation, Athena Foundation [35:35]. The abandoned site on the banks of the East River was converted into an outdoor museum-workshop for young artists where temporary exhibitions of large sculptures are organized. This experimental and alternative park has turned the original industrial space into an urban space for art that can be enjoyed by all neighbors. This park, alongside the Noguchi Museum, MoMA PS1 and Sculpture Center, constitute the Queens Arts District.[49]

Shore Road Park is a typical example of the construction of linear parks along the roads of the arterial network. Originally this park was designed by Frederick Law Olmsted, and it was expanded and remodeled with the construction of the Belt Parkway. Jane Jacobs was highly critical of this type of elongated, monotonous parks in which Robert Moses was focusing his interventions to improve living conditions in the city of New York.

Located in the southern Atlantic front of Long Island is Coney Island, Manhattan's beach par excellence since the early twentieth century. The first connection, first via tram, and later with the subway, allowed the arrival of masses of people, making it the most popular beach thanks to its proximity and accessibility. Its name comes from the rabbits that lived









Eastern shore of the East River

Shore Road Park, next to Verrazano Bridge

Socrates Sculpture Park

Coney Island boardwalk

there before it was urbanized with hotels, amusement parks, and horse tracks.

This coastal strip has a huge sandy beach dotted with rescue stalls and a promenade of wooden boards (boardwalk), lined with shops and restaurants.

The attractions of the first amusement park are still preserved: the Coney Island Cyclone (1927) — one of the few gravity roller coasters, and with wooden rails that are still preserved in the world, the Wonder Wheel (1918-1920) — a Ferris wheel 46 m (150 ft) high and with 24 passenger cars, and the Parachute Jump, which comes from the Universal Exhibition in New York in 1939. The latter was moved to Coney Island in 1941, where it has become a landmark, and it was listed in the National Register of Historic Places in 1980. Actually, Coney Island had three amusement parks that have disappeared: Steeplechase Park (1897), Luna Park (1903) and Dreamland. Currently, the modern Luna Park is there, with new coasters for all ages. All this architecture of the amusement parks carries with it an atmosphere of fantasy that gives rise to different styles in buildings; originally many of them were the result of the creative work of local carpenters.

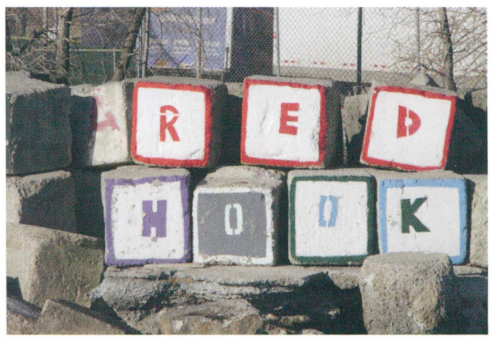
It also houses the Aquarium of New York (1955), which was originally located at Castle Clinton in Battery Park. Later, the animals were provisionally moved to the Bronx Zoo, until their permanent transfer to this building, which is currently undergoing renovations.

Texts: Patricia Hernández Lamas









The renovated area of Red Hook retains the postindustrial spirit of the old port, with old cranes and warehouses, many of which have been converted into art galleries, artists' studios and commercial spaces

Red Hook Port in Brooklyn

The industrial area around Gowanus Canal and the port of Red Hook is crossed by the Gowanus Expressway, a highway that results from the merging of the Brooklyn Queen Expressway coming from Brooklyn Heights to the north, and the exit of Battery Tunnel to the northwest, with a huge traffic density. And, further north, a shared pathway of the Subway lines F and G.

Robert Moses decided to place the highway on the pillars of the old elevated railway BMT, and he evicted 1,300 families from the port area, now separated by the highway in its non-elevated sections. The area began to lose population, from 22,000 in 1950 to 11,000 in 1990, with a large number of families living on welfare. The process of containerisation, in turn, led the Port Authority to move the harbor front to New Jersey, accelerating the degradation [67: 183].

Both roads generate long viaducts that fly over a wide area, whose modernization is ongoing in 2014. To the elevated bridges of the highway and the subway, we should add a small drawbridge over the Gowanus Canal for local traffic on 9th St., Brooklyn. The movable bridge is practically under the viaduct of the subway, which at that point is enlarged to accommodate the Smith St. subway station [151: 1157].

Hudson River Tappan Zee Bridge

Not coincidentally, a little beyond the jurisdiction of the NY & NJPA is the Tappan Zee Bridge (1955), the second bridge over the Hudson located north of the city. It aimed to avoid the control of the port authority, and another institution built it, the New York State







Gowanus Canal: Drawbridge, Expressway Bridge and Subway Station

Thruway Authority (NYSTA), which operates a system of 917 km (570 mi) of limited access highways located within the state of New York. The toll stretches some 800 km (496 mi) from the border of New York City in Yonkers, bordering the state of Pennsylvania in Ripley, via Albany, Syracuse, and Buffalo. According to the International Bridge, Tunnel and Turnpike Association, it is the fifth busiest highway in the United States.

In recent years, the current bridge has shown signs of decay and become unsafe. A large piece of road was recently dislodged, disrupting traffic for hours. On the bridge circulate about 130,000 vehicles per day, 30% above its capacity.[50] And it is unusually expensive to maintain, because it is very long, having been built at the widest point of the Hudson.

The site was selected in 1950 to locate the bridge as close as possible to New York City, but outside the jurisdiction of 25 miles of the Port Authority of New York and New Jersey, which apparently opposed the bridge because it competed with its own crossings. [51]

Several factors contribute to the precariousness of the bridge, already labeled as 'one of the most decrepit and potentially dangerous bridges' in the United States. Successive evaluations have determined that 'any cause, from the corrosion of steel, to an earthquake or a maritime accident, could cause major damage, perhaps catastrophic.' A status report in 2009 noted that the bridge was not designed 'with long-term durability,' but with a 'non-redundant' design, so that 'one critical fracture could completely destroy the bridge,' as its supports could not transfer their loads to others.

138,000 vehicles cross each day the current Tappan Zee Bridge, despite the fact that it was designed for a maximum of 100,000. Designed during a period of shortage of materials after the Korean War, the current crossing was built for a lifespan of 50 years. With almost ten years more than that, the Federal Highway Administration considers it a critical bridge. Since 2007, works were being done to consolidate the structure, reinforcing rusty steel piles, and patching the crumbling concrete. To maintain the bridge, the state would have had to spend 3,000 or 4,000 M $ in the next 20 years in maintenance, plus the 750 M $ spent in earlier reforms.[52]

The chroniclers note its replacement as a relevant fact. *Twenty miles north of New York City, a remarkable and unprecedented historical event has been taking place over the last 50 years: the construction of a new $3.9 billion bridge over the Hudson river, 5 km (3,1) miles north of the city. And, given the fact that we are talking about New York, it will be big, very big. If we take into account the 12 m (40 ft) gap between decks for a future commuter train, it will be one of widest bridges in the world. It will be an achievement, and a cornerstone of the transit system, and, best of all, it will not need major repairs for about 100 years.*

The new bridge consists of two parallel decks with a spacing of 12 m (40 ft) to locate a possible commuter rail with a combined width of 67 m (223 ft). Upon completion of the two decks, in 2018, each one will have six lanes, plus one lane for emergencies and express buses. The luxurious northern board will even have a path for cyclists and pedestrians. If the railway line between the decks is added, the towers can be joined above to form a frame to support the additional weight.

To build the foundations of the new bridge, barges are used with enormous vibratory hammers for driving 964 pilings — giant tubes of hollow steel of 1.2 to 1.8 m (4-6 ft) in diameter and up to 110 m (360 ft) long — in the bed of the Hudson. The piers in the eastern side of the river are driven between 70 and 80 m (200-250 ft) deep, through sediments and bedrock. However, the bedrock on the west side of the river is at an unattainable depth of about 210 m (700 ft) below the surface and, for added stability, the piers are driven into the bed of the river a supplementary 30 m (100 ft).

The bridge supports the deck with cables anchored to four tilted towers at a height of 126 m (419 ft) above the road. The tubes driven into the riverbed are filled with rein-



Tappan Zee Bridge (1955)

forced concrete. Every tower needs a group of 60 tubes, previously tested: an empty barge is placed on top of the piling, then filled with water to create a load of 3,200 t (7,000,000 pound) for a day.

For the construction, the Left Coast Lifter is used, a tower crane used named thus after its employment to repair that stretch of the San Francisco Bridge — Oakland Bay Bridge — destroyed by the earthquake in 2009. The crane sailed 6,000 miles from California, across the Panama Canal, on a barge longer than a football field escorted by tugboats. It is one of the largest floating cranes in the world, with a jib height of almost 100 m (328 ft), a boom length of 25 floors, and a lifting capacity of 1,900 t. It will be used to lift heavy steel beams and prefabricated sections of the deck, and as an aid in the demolition of the old Tappan Zee. Its use will shorten the construction period by several months, and will reduce equipment costs in about $ 800 million.



14 | Jacobs

Defending the neighborhoods
Jane Jacobs
Written contributions on the city
Social critique of the 1960s
Recommendations to improve the city
Modernity in the 1960s and 1970s
The modernity of re-creation
Celebration of the street
The constant innovation of the street
The process of gentrification
Cities & Neighborhoods: Tribeca
Greenwich Village
The cultural landscape of bars
Threats to the SoHo
Consequences of victory
Iron Architecture
Land Art Museums in SoHo
Iron forges character
Canal-Lower Manhattan Expressway
Designation as blight area
Scant and confusing explanations
Initiative paralyzed in 1962
Other crossing schemes
The failure of the Westway (1977)
Problems of scale in mergings
Hudson River Park
Urban anomalies
Discredit of urban planning
Local and global are necessary
Physical framework over theories
Heterodox Jane Jacobs C. Alexander

Jane Jacobs (1916-2006)
Defending the Neighborhoods

Jane Jacobs

Born in Canada, briefly studied geography, a journalist and activist famous for battles won against Robert Moses, has had a great influence on the processes of defense of neighborhoods against large projects of change or development.

She moved to New York in 1934, with the slight credentials of having worked at a newspaper in her hometown, and it took her long to find a job as secretary in the stagnated labor market of the Depression. She wrote short notes on her impressions in her numerous tours around the city in search of jobs, and managed to publish some articles on various parts of the city in Vogue and Cue magazines and to collaborate with the Sunday Herald Tribune. This way she complemented her income to meet the cost of renting a shared house in Greenwich Village.

Later she followed some courses at Columbia University's School of General Studies on various subjects, such as chemistry, geography, geology, law, political science, psychology, and zoology. With these credits, she tried to graduate from Barnard College at the same university, but failed for not meeting the basic studies requirements [55: 9].

Written contribution on the city

She then devoted herself to journalism and to writing longer essays. Besides the famous *The Death and Life of Great American Cities* (1961), Jane Jacobs published: *The Economy of Cities* (1969), *The Question of Separatism: Quebec and the Struggle over Sovereignty* (1980), *Cities and the Wealth of Nations* (1984), *Systems of Survival: A Dialogue on the Moral Foundations of Commerce and Politics* (1992), *The Nature of Economics* (2000) and *Dark Age Ahead* (2004).[53]

For many critics, her contribution is not new, and comes from overly idiosyncratic positions. Historian Robert A. Caro notes that she was not the first theorist to emphasize the importance of neighbors and communities, but no one did it so brilliantly. Critic Lewis Mumford suggested that her comments were impregnated with a certain aesthetic *philistinism* with the aftertaste of revenge.

Social critique of the 1960s

According to the *New York Times,* her vision of American cities belongs to the critical current of many writers of the 1960s, dedicated to shaking the foundations of an entire social culture: such as Paul Goodman's attack on teaching, Michael Harrington's crude portrait of poverty, Ralph Nader's charge against the automotive industry, and Malcolm X's dismal take on racial division in the United States. But she is still influential on a third generation of students.[54]

Her recommendations to improve cities are based on direct examination of people's lifestyles, and seek to maintain the diversity and mixture of many of them. The cre-

ation and maintenance of this diversity can be summarized in four rules of municipal action: *a)* the street or district must perform several primary functions, should never specialize; *b)* the blocks must be short to favor unity over separation; *c)* buildings should vary in age, condition and use to maintain different groups of people; *d)* the population density should be high, to promote exchanges.

A quick consideration of these rules recalls the basic principles of ecological science to maintain the diversity of any population of living organisms, or of sociology regarding humans. But Jacobs never resorted to scientific principles to explain herself, she appealed to the direct observation of street life. Hers was an almost proto-scientific stance, positing the need for direct observation of the target living organisms and their context, with minimal indications and transfers from other scientific fields.

Her stance could also be seen as a kind of return to the basics, characteristic of those facing disciplines considered of little value, and that have failed to correct the phenomena they study. And it is as radical, influential, and seminal as Rachel Carson's Silent Spring (1962) is to the conservationist movement, and Betty Friedan's The Feminine Mystique (1963) is to feminism.

Certainly, her enthusiastic commitment was much more productive in the acceptance of her ideas than in their theoretical formulation. She acquired renown for the battles fought in her name, still full of meaning in neighborhoods and cities around the world. Her departure from the theoretical debate and her direct appeal to urban facts earned her much criticism, probably inevitable as a result of academic rejection of someone who had not completed her studies and had shown no interest in becoming a professional in the discipline.

Recommendations to improve the city

The strength of the idea of modernity lies in the desire to wipe out whatever came earlier, so as to achieve a radically new departure, a point that could be a true present.[55] The touchstone of modernity started from the Nietzschean idea of deliberately forgetting the past to achieve or create something in the present.[56] *Nietzsche's ruthless forgetting, the blindness with which he throws himself into action lightened of all previous experience, captures the authentic spirit of modernity. In this perspective, where modernity and history are diametrically opposed to each other, we could include all types of modernists interested in a variety of media and genres in the 1960s [18: 348].*

Modernity in the 1960s and 1970s

Some of the most creative modernisms of the 1960s consisted in visions of worlds and values trampled or abandoned by the triumphal march of modernization. However, those artists, thinkers, and activists opposed to developmentalism saw their deeds and actions as a dialectical duel with those who fought to silence all the screaming and delete all the streets of the modern world. Indeed, this struggle between radically opposed modernisms gave life in the 1960s much of its interest and consistency.

But in 1970, when the engines of growth and economic expansion stopped, modern societies lost their ability to wipe out their past. Before the question was whether or not to do it; now, that could not even be raised. Modernity could no longer afford to erase whatever came earlier in the hopes of finally achieving a true present [...] a new starting point.[57] Moderns in the 1970s could not annihilate the past and present to

create a new world from scratch; they had to deal with the world they were in, and act from it.

The modernity of re-creation

Many modernisms from the past found themselves through forgetfulness, but those from the seventies were forced to find themselves through memory. Previous modernists had swept the past in order to find a new starting point; the new points of departure in the 1970s were attempts to regain past forms of life, which were buried but not dead [18: 349].

But Jane Jacobs showed that modernism was very close. She understood that much of the meaning desperately sought by the moderns was close to the surface and close to their lives, they just had to learn how to look for it. In her famous book, she recounts a succession of everyday life facts in the street or at work that make them inexhaustibly rich and varied. And this celebration of the vitality, diversity, and fullness of urban life is, according to Berman, one of the oldest events of modern culture.

Celebration of the street

Baudelaire, Joyce, and Benjamin celebrated the street, always lived as the medium in which the totality of modern material and spiritual forces could meet, clash, interfuse and work out their ultimate meanings and fates. However, the architects of the 'modern movement' wanted to do away with the street, and this arbitrary way of thinking managed to prevail in the ideology of reconstruction of cities undertaken after the Second World War.

For over two decades, and in every city, streets were passively abandoned and often, as in the Bronx, actively destroyed. The money was channeled into the highways and culture of the developments, shopping centers and commuter towns, and the street came to symbolize everything dingy, disorderly, sluggish, stagnant, worn-out, obsolete: everything that the dynamism and progress of modernity were supposed to leave behind [18: 316 ff].

The constant innovation of the street

For Jane Jacobs, that was a big mistake. It was leaving behind the richest source of novelty, the only way to be in the world with full and active awareness of participating in it. But not out of nostalgia, or to avoid the loss of other ways of living, but because in the physical and everyday presence of others resides the driving force, both economic and artistic, to continue improving. For her, the art form of the city is in the vibrant flow of street life, an order composed of change and movement, which involves an intricate use and a succession of eyes that look (Baudelaire). And one could compare it with dance, stressed Jacobs.

The defense of neighborhoods

Jane Jacobs' struggle in defense of neighborhoods was alien to architectural or artistic considerations of the built and its cultural manifestations. It stemmed from the deep conviction of the importance of economics in the type of housing and industrial or commercial establishments that gave life to each specific neighborhood. There was no nostalgia for the loss of cultural experiences or the demolition of old buildings, whether of patrimonial value or lacking any interest. She was especially concerned

with the difficulties of old residents in accessing the buildings constructed to replace older ones, always more expensive and better equipped. And the direct consequence of this, the inability of newcomers to assimilate to the civic values and social behaviors of residents who had been forced to change their neighborhood. The defense of neighborhoods was not about architecture, but about rent.

Many places have implemented policies to curb the abandonment of former residents due to the escalating rents or taxes on the revalued housing, higher prices of everyday items in the neighborhood or the closing of bars, restaurants and stores that were part of their life. It is not easy for old residents to live with new residents with greater purchasing power, with tastes, habits and behaviors alien to their daily life. New stores and businesses are out of their reach, they are left without friends, and they can no longer behave as they always had. They have no other choice but to leave.

Active official policies go from tax breaks depending on the number of years lived in a neighborhood to impediments to new neighbors attracted by the centrality of a rehabilitated neighborhood. It is about finding a certain balance, but there are many different policies, sometimes contradictory. Many cities continue to encourage the influx of young professionals with tax cuts or by building facilities to attract them, such as bike paths, dog parks or athletic fields.

Recently, problems seem to worsen, as new residents do not just occupy the old houses, now vacant, with minor repairs or modifications. They prefer and drive the complete remodeling of neighborhoods, demanding new lofts or apartments more in tune with their lifestyle. The former appeal of the character or the way of life of the old quarters has been replaced by the simple convenience of centrality. Chelsea, SoHo, the Village and many other old neighborhoods with marked character are now desirable mostly because they are closer to the workplace and living there saves time in daily journeys to distant suburbs.

According to an analysis of the Federal Reserve Bank of Cleveland, the city with the greatest impact of gentrification is Boston, followed by Seattle, New York, San Francisco, Washington, and Atlanta. In Boston, a quarter of its population lives in gentrified neighborhoods.[58] In these areas, it is not easy to maintain the old vitality, as new residents have no local ties and do not hesitate to move downtown in search of leisure, as suburban residents go to the malls.

In New York, the triangle known as Tribeca (Triangle below Canal St.), is one of the neighborhoods most affected by the phenomenon of gentrification. The streets of Tribeca reflect the tastes and demands of a wealthy clientele, with restaurants and luxury hotels, boutiques, 'beautiful people' in the streets, and a general atmosphere of prosperity. This is something that appeals to everyone, and the possible negative effects, which afflict those forced to leave the neighborhood, have little visibility. Its long-term repercussions, such as loss of identity, and the homogenization with other neighborhoods or places, and the widespread increase in the cost of living, are hardly perceived as a risk or threat.

These measures and theories have come since Jane Jacobs, probably thanks to her actions. But she argued that each neighborhood is different and some, like Green-



Tribeca

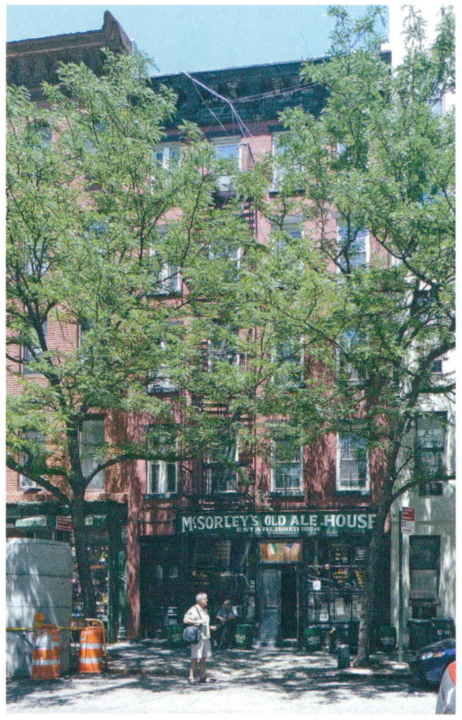
The process of gentrification

Cities and neighborhoods: Tribeca

Greenwich Village

Bar Mc Sorley´s Old Ale House





wich Village, are too varied to allow a unified treatment of possible problems and solutions.

Greenwich Village

From one street to another, from one block to the next, the Village changes, and only in certain areas it is possible to categorize it. The streets further north, with classical looking houses of the Greek revival and some federal buildings, belong to a glamorous area, always in fashion. The three tree-lined streets of the West Village retain their quiet and residential feel, much from the time of Allen Ginsberg, Jack Kerouac, or John Reed, with few loopholes for change despite the threatening presence of commercial tourism.

Cultural landscape of the bars

However, The Lion's Head in Sheridan Square, highly regarded place full of writers and journalists, and frequented by Jessica Lange and Rod Steiger, where the The Clancy Brothers used to play, closed in the early 1990s. The White Horse Tavern is still open in Hudson St., in its day meeting point of Dylan Thomas, Norman Mailer, Michael Harrington and Jane Jacobs herself [67:69]. McSorley's Old Ale House Bar, or simply McSorley's, the oldest Irish pub in New York also remains open. It is located at 15 East 7th St., in the East Village, and was one of the last taverns to deny access to women until 1970, when they were legally required to admit them.

In the Village, the very structure of the street and the housing prevents the loss of character, although changes take place in the use and in the income level of residents. Perhaps for this reason, no other district has been so spoiled by films, literature and music. A recent film by the Cohen brothers contains abundant reminiscences and evocations of the Village, equating it to other major cultural landscapes: Both literarily and musically, it is difficult to find an enclave as rich in legendary stories, featuring mythical characters, as the tiny grid of streets that make up the Greenwich Village.[59]



Little Italy

The neighborhood known as SoHo (South of Houston St.), in lower Manhattan, was an unnamed district of workshops, warehouses and small factories of the nineteenth century between Hudson and Canal streets. After the Second World War, it was about to be destroyed to make room for one of the flagship projects of Robert Moses, the Lower Manhattan Expressway. This pathway would make its way from the East River to the Hudson, knocking down or isolating large parts of the South and West Village, Little Italy, Chinatown and the Lower East Side.

Threats to the SoHo

As plans for the construction of the highway gathered strength, many industries abandoned the neighborhood, anticipating its destruction. But then, in the early and mid-sixties, a coalition of various groups, generally antagonistic, young and old, radical and reactionary, Jews, Italians, WASPs, Puerto Rican and Chinese, fought doggedly for years, and finally succeeded, managing to paralyze Moses' project.

Consequences of the victory

This victory brought about a sudden abundance of warehouses available at unusually low prices, ideal for New York artists. In the late 1960s thousands of artists moved there, and in a few years this anonymous space became a world center of artistic production. This transformation infused the decrepit streets of SoHo with astonishing vitality. Much of the aura of the neighborhood is due to the interaction between the streets and modern buildings of the nineteenth century and the modern art of the late twentieth century created and exhibited in them [18: 355].

But in the late 1970s, real estate agents began buying properties and reselling them at prices exorbitant for artists. Life became more and more expensive around, and virtually all of them were forced to leave their homes and workshops, soon acquired by fancy stores that completely changed the neighborhood. The battle of the residents led by Jacobs was won and made history, but in a few years everyone was leaving the district, having lost the war of prices.



Cast-iron architecture in Lower Manhattan

Iron architecture

Now, for better or worse, SoHo has little resemblance to the neighborhood that Jane Jacobs tried to save.

The cast frame buildings and facades so abundant in this part of the city were well suited to the changes. Thanks to their radical novelty, they offered an attractive mix of functionality and expressive possibilities. With more free space inside, by virtue of their structure supported on a just few pillars, they appeared towards the exterior with the new possibilities of molded cast iron facades.

They provided suitable locations for light industry, with production workshops in the upper floors and windows for marketing at the street level, within an open, very resistant, and easily adaptable structure. These cast iron buildings proliferated in other American cities, including Boston, Chicago, New Orleans, St. Louis and Baltimore, but outside of New York have been mostly demolished [67:97].

These buildings could be remodeled infinitely, to be adapted to any use. And this was the case in those places in which they did not come to disappear, with the SoHo as paradigmatic example. They could fit the old and the new, workshop and store, housing and office, even a single-work museum in one floor.

Land Art museums in SoHo

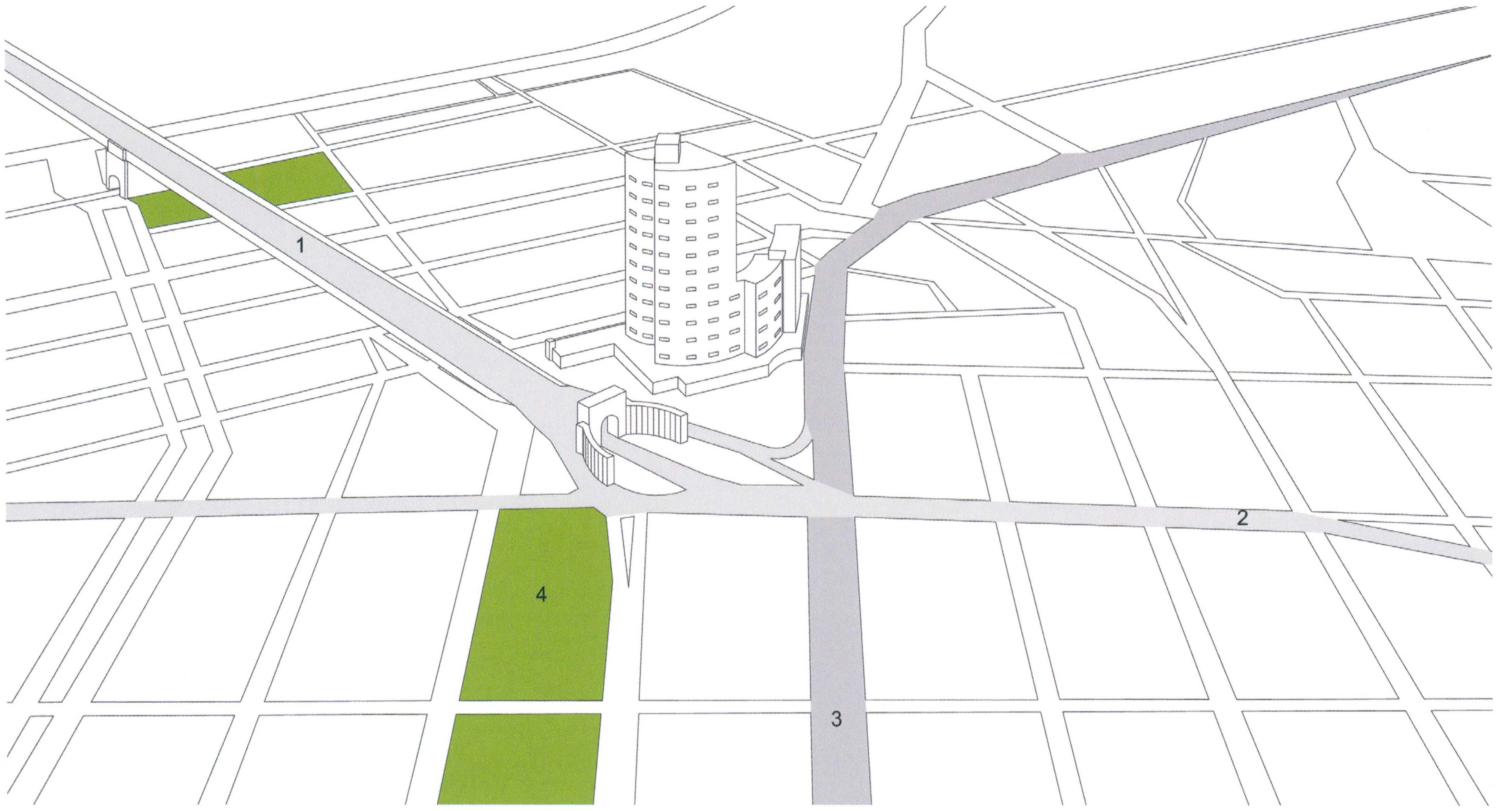
In a large space of Corinthian cast columns on 393 West Broadway, the Dia Art Foundation permanently displays the work of Walter de Maria, The Broken Kilometer (1979). It consists of 500 solid round bars of polished bronze, 2 m (6 ft 6 in) long and 5 cm (2 in) in diameter. The total length of the bars is a kilometer (3,280 ft), and they are placed directly on the wooden floor in five parallel rows of 100 bars, with a gap between them that increases 5 mm (13/64 in) with each bar. The space between the two front rows is 80 mm (3 5/32 in) and between the last two rows it increases to 570 mm (22 7/16 in). The increased separation partially cancels the effect of perspective and creates a certain perceptual uneasiness.

On the second floor of another building in SoHo, at 141 Wooster St., there is another museum of the Dia Art Foundation. It also houses a single work called The New York Earth Room, by the same artist, Walter de Maria. It consists of a large room with cast iron columns, Doric in this case, where were deposited 191 m^3 (250 yd^3) of sand, which can only be watched from a fixed point near the entrance. In the house next door there is a store, which back in the days sold sofas, and across it there is another store, which used to sell clothes. Above are several offices, but when the museum opened in 1977 above were housing quarters.

Meanwhile, the presence of casting facades fixing guaranteed a character, difficult to alter by changing uses. Jane Jacobs remarked in her writings on the ductility of the streets to accommodate new uses. Among the most admirable and enjoyable sights to be found along the sidewalks of big cities are the ingenious adaptations of old quarters to new uses.

Iron forges character

With character ensured by the cast iron, examples and possibilities are endless: the stable turned into housing, the basement turned into club for immigrants, the hair salon as ground floor of a duplex, or the butcher shop as restaurant. And its nobility supports the preservation of neighboring buildings and promotes the mixture of old buildings, which are renewed with other uses and are essential for the city to achieve diversity of businesses, residents, and ways of life [192: 207].



Access to Manhattan from the bridge.

1. Manhattan bridge
2. Canal street
3. Bowery
4. Sarah D. Roosvelt Park

By José de la Paz

The main threat to these capabilities is the breaking of the daily flow of exchanges between such a variety of people, situations and activities. By prioritizing the strategic interests of the arterial network in New York, Robert Moses directly attacked the basic livelihood of that lifestyle. And it so happened that Canal St. offered the perfect alignment to cross the island of Manhattan to join New Jersey to the island under the Hudson River through the Holland Tunnel, and the island with Brooklyn, over the East River with the Manhattan Bridge. Canal St. was the best chance to make the third of the planned crosses of Manhattan, the southernmost.

Canal-Lower Manhattan Expressway

The completion of the Holland Tunnel prompted the inclusion of the crossing in the Regional Plan of 1929, and in 1956 Moses proposed to Mayor LaGuardia to integrate it in the Interstate and Defense Highways Act, alongside three other crossings at 34th, 59th and 125th Streets. La Guardia agreed and federal funds were obtained to finance 90% of the investment.

Designation as blight area

Then Moses designated the current SoHo area as blight area, which was the trigger for the end of any development opportunities for private ownership in favor of the highway. The aforementioned flexibility of the neighborhood and its buildings to take on modifications was canceled by this administrative decision that entailed a certain death for the neighborhood, ensuring its real ruin. Jane Jacobs made this immediately clear:

Sure, a scheme like that either causes or accelerates deterioration. Businesses leave when they see the handwriting on the wall or don't even *try to establish*

themselves in such a location. Property owners hold out for the lucrative buyout. […] But the bankers are never ignorant about it and stop giving loans. When there's a death sentence like that on an area, you always have to work around it and get odd bits of money and so forth, which can make a very good area in the end, if it's done [67:98].

Scant and confusing explanations

The problem was the delay in understanding what was happening. Hearings for the urban renewal of the district took place coincided with the duly explanations about the highway project. Newspapers did not fully clarify what was going on, and it was necessary to go directly to the City Hall to get information. People only became aware of the seriousness of the proposal in the late 1950s or early 1960s, when the expropriations began and people were evicted from their homes.

The demolition of a parish in Broome Street was the trigger for mobilization, when those affected sought help from Jacobs, who had won the battle of Washington Square. But Jacobs only understood that it was the same story in the spring of 1962. The ramps and access ways that they had managed to stop over there reappeared in SoHo: These monsters come back, you know'. But Moses' plans were filtered and his intentions about highways and his real estate interests became evident.

Initiative paralyzed in 1962

Jane Jacobs had just published her book Death and Life and could devote all her time to the struggle to defend the neighborhood. The protest managed to make the city reject the plan in 1962, but Robert Moses and the new Mayor Robert Wagner revised the decision and some time later designated again buildings to be demolished. The battle was reopened — again with the leadership of Jane Jacobs — and the proposal was rejected again in 1969.

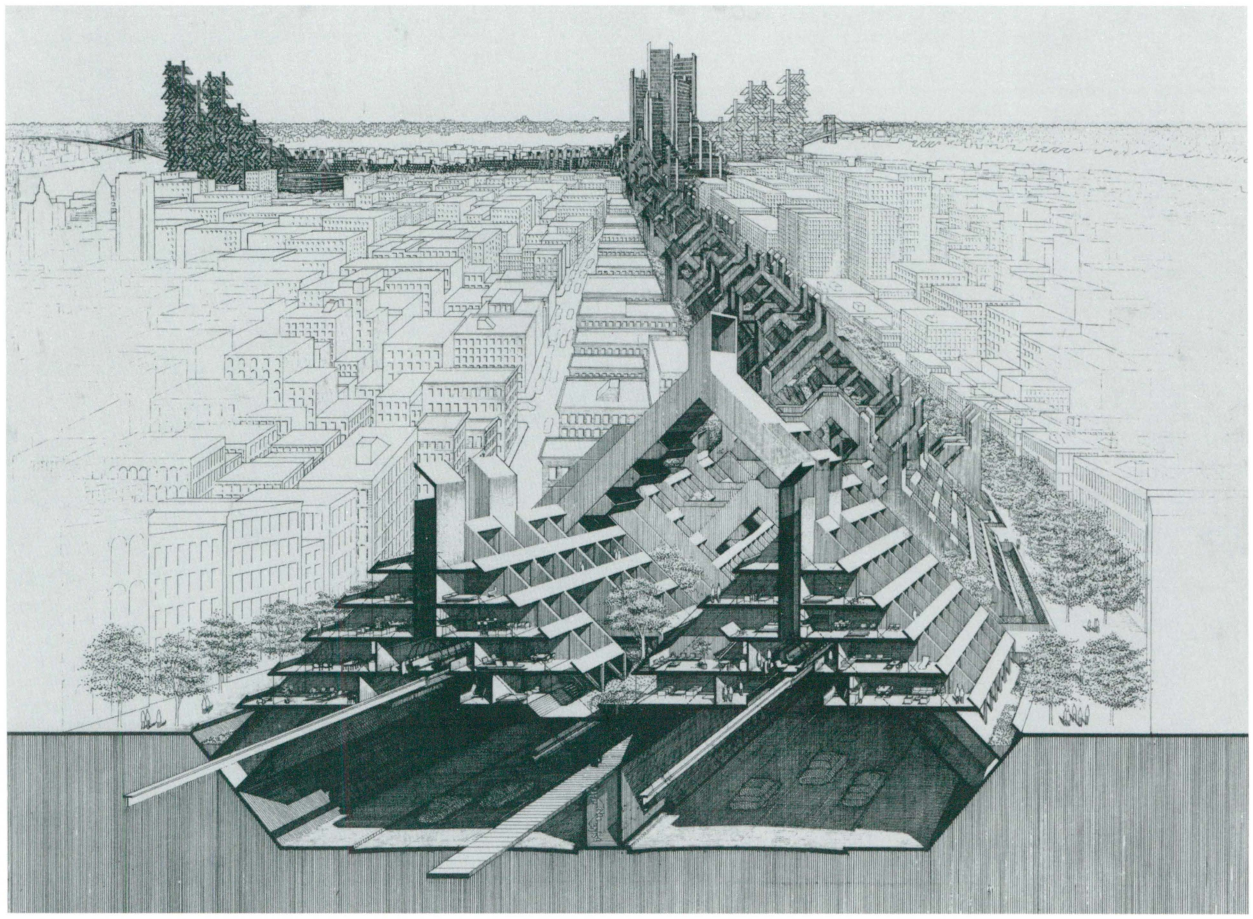
Despite the double defeat, numerous proposals still emerged to revive the crossing. The first was a direct tunnel from New Jersey to Brooklyn under the island of Manhattan, proposed by the American Institute of Architects (AIA). The second, led by Major John Lindsey, advocated a highway circling the island at its southern tip. This idea reappeared after the disaster of September 11, in a simplified version, consisting of joining the Holland Tunnel with the Battery Tunnel, which leads into South Brooklyn.

Other crossing schemes

According to Michael Sorkin, the craziest was the proposal of Paul Rudolph, commissioned by the Ford Foundation, to unite the mouth of the Holland Tunnel to Manhattan and Williamsburg bridges by a gigantic Y-shaped mega-structure. A huge construction would serve as channel at different levels for all types of vehicles — metro, automobiles, trains, driverless trains, streets lined with stores — including residences, offices, and other spaces. Sorkin sees a true modernist nuance in his articulation of the flows by transverse planes, which allows for a certain flexibility to adapt to the peculiarities of each zone crossed [147: 189].

The failure of the Westway (1977)

By the 1960s, the port functions began to move away from the shores of Manhattan and the thriving waterfront went into decline. Under the ubiquitous elevated tracks abandoned areas and a real underworld dreaded and avoided by citizens emerged. *The waterfront became the tangible symbol of the collapse of the city, which drew to a dramatic climax in 1973, when a truck carrying tar to fill the umpteenth hole in the West Side Highway sank through the surface of the road itself* [96:234].



Lower Manhattan Expressway, New York City.
Bird's-eye perspective section.
Rendering by Paul Rudolph [ca. 1970]

Jane Jacobs was immediately against the continuation of the Henry Hudson Parkway to the south of the city. She saw the project as a simple extension of Robert Moses' attempts to cross Manhattan from above, in the middle and below, now manifested as an extension of the ring road along the sea front. Against the continuity and flow of traffic crossing, she believed that access from the neighborhoods in Lower Manhattan to the river should be prioritized, to provide enough greenery in an area that lacked it.

Although only an initial segment was planned, she thought that, once built, pressure to prolong it north of 42nd St. and to turn it around Battery Park would be even stronger. It was like building a bridge before its access ways; they would eventually be built, since the bridge was there [67: 216].

Problems of scale in mergings

She was particularly critical of the presumed effects of scale generated by the inclusion of the inevitable links required by the highway. As discussed above (see Chapter 12), the first suspension bridges were simple access without direct bearing on the downtown. But as the traffic grew, the construction of knots and links with the roads of access and distribution of traffic entailed a huge tear in the urban fabric, condemning whole areas to be unviable for public use.

The highway was presented as a remedy against the deterioration of an obsolete port area. Jacobs argued that its construction could not be justified as a remedy for a bad initial situation of the neighborhood. It was a wrong, very expensive and very polluting idea with internal contradictions difficult to justify.





Winter Garden (architect Cesar Pelli, landscape designers M.Paul Friedberg & Partners, 1988)

Hudson River Park

Hudson River Park

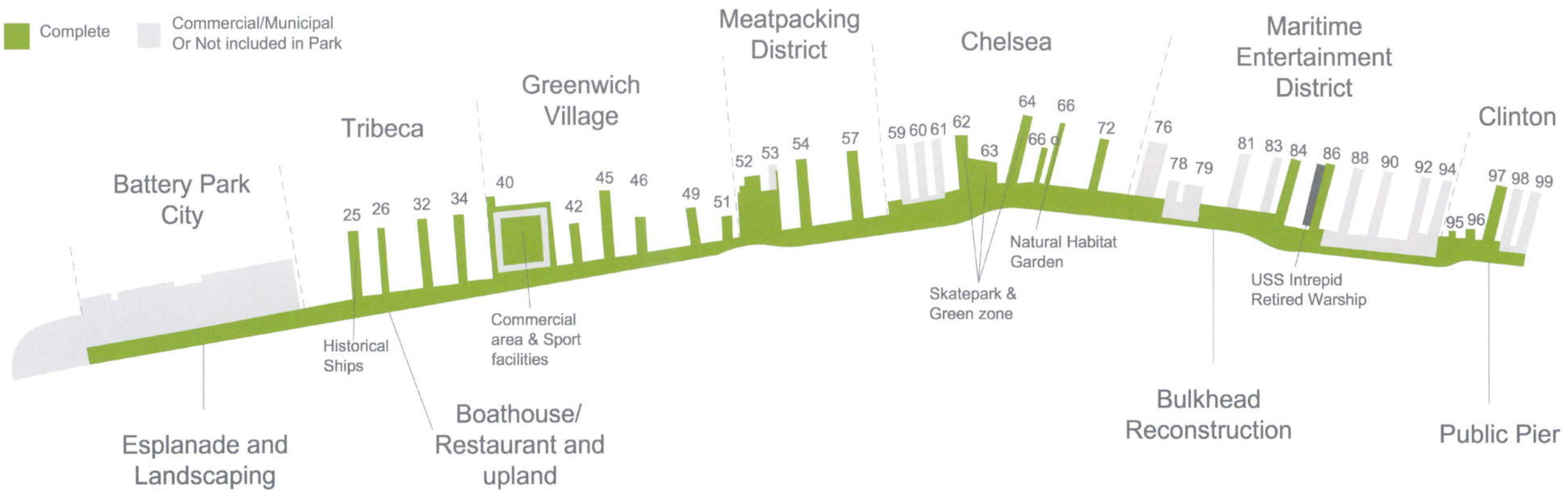
The creation of the Hudson River Park on the western maritime front of Manhattan is the result of the defeat of the Westway project. The *New York Times* welcomed it as a great success story unparalleled in New York in the last hundred years.[60] Apart from being a success in itself, it is the biggest physical change to occur on the waterfront since the occupation of its piers by the famous 'liners' coming from Europe (see Chapter 3). And its opening in 2003 marked a serious trend of improvement and care of the waterfront by the City and State of New York, now in force [67: 240].

The Hudson River Park occupies about 8 km (4.2 mi) of seafront with an area of 223 ha (550 ac). It is located below the Riverside Park between 59th St. and Battery Park City. The old docks from 99 to 25 have been recovered, and a bike path connects the southern part of Riverside Park to the tip of Manhattan. The route runs parallel to the recently restored Joe DiMaggio Highway, with continuous views of the Hudson, the skyline of New Jersey on the opposite bank and the Freedom Tower, which dominates the profile of Lower Manhattan. Along the entire route a series of walkways and lookouts were built. This is the beginning of the proposed Hudson River Valley Greenway bike path that extends 241 km (150 mi) from New York to Troy.

The edge of the river is interrupted by several docks or piers rehabilitated for different recreational uses. In pier 86, at the height of W 45th Street, a World War II aircraft carrier, the USS Intrepid, is moored, which since 1982 houses a museum of history of naval aviation. And at the height of pier 66 the Natural Habitat Garden occupies three blocks; it is an estuary with native plants that attract insects, birds and small mammals.

But most of the garden area is in the compound of piers 64, 63 and 62, the 1910 port where once the ships docked at the time of the Transatlantics: the Chelsea Piers. It includes

Hudson River Park. By José de la Paz



a vast lawn, a public garden designed by Lynden Miller with many grasses and herbs, Pier 62 Skatepark, sitting areas with pergolas and linear benches, and a carousel with animals.

The largest sport area is located at Pier 40 where an old passenger terminal has given way to a commercial space and parking on whose roof the sports fields are located.

Pier 25 maintains historic ships that recall the time when the Hudson river was used for trade and transport. Conditioning reforms are continuously carried out, such as the current one in the children's area on Pier 51. The offer is completed with a collection of sculptures located throughout the park.[61]

Text: Patricia Hernández Lamas



Hudson River Park



Aftermath of the struggle

The narrow and elongated shape of Sara D. Roosevelt Park, also known as Grand Park, suggests an accidental origin, residue of a previous operation. Indeed, the park was the result of the demolition of seven residential blocks, to place a large accessway to the Manhattan Bridge, located just south of the strip lined up with Canal St. This is another one of the scars, a green one, in this case, left by the attempts to remodel Washington Square and Greenwich Village led by Robert Moses.

The layout of the accessway did not have a single goal, but was part of the 'modern' idea of eradicating slum areas or poor quality housing neighborhoods to substitute them by green areas, from which clean and sleek skyscrapers would emerge Coexis-



Sara D. Roosevelt Park. By José de la Paz

Descredit of urban planning

tence in the street and its sidewalks was left at the mercy of traffic flows, condemning it to a certain death, as advocated by Le Corbusier.

At the time of her death in April 2006, the New York Times published a review of the impact of Jane Jacobs on the city of New York and its dwellers, recalling the two fundamental achievements of her book and her fight to save SoHo. New Yorkers retain the fixed image of the antagonism between two positions. On the one hand, Robert Moses as czar of an imperial planning; on the other, Jane Jacobs as tireless advocate of the people. The pendulum of opinion has swung over to the side of Jacobs, closer in her ways and methods to the idea of the city as a collective endeavor.[62]

But, continues the New York Times, this entails a widespread discrediting of institutional urban planning, as the authoritarian imposition of officers and planners in tie and gray suit. SoHo was saved, but activism failed to prevent it from becoming an outdoor mall. *The old buildings are still there, the streets are once again paved in cobblestone, but the rich mix of manufacturers, artists and gallery owners has been replaced by homogenous crowds of lemming-like shoppers. Nothing is produced there any more. It is a corner of the city that is nearly as soulless, in its way, as the superblocks that Ms. Jacobs so reviled*

Local and global are necessary

New Yorkers love variety, so the 'islands' of Moses, such as the Lincoln Center or the former World Trade Center, are welcome as a contrast of scale and atmosphere in the endless grid of brick towers and sterile spaces of New York. But, the answer to such superficiality is not to resurrect the spirit of Robert Moses.

But in retrospect his vision, however flawed, represented an America that still believed a healthy government would provide the infrastructure — roads, parks, bridges — that binds us into a nation. Ms. Jacobs, at her best, was fighting to preserve the more delicate bonds that tie us to a community. A city, to survive and flourish, needs both perspectives.



Sara Delano Roosevelt Park

The park is set up as a long narrow green strip that extends south from East Houston St. to Canal St., between Christie St. and Forsyth St. It is about seven blocks long, and one block wide, about 1000 x 70 m. It was built on land that until 1929 was occupied by rental properties that were purchased by the city. In 1930, these were demolished. The project included expanding the streets in its perimeter, and building new homes financed by JD Rockefeller, but despite the projects by Howe and Lescaze, plans did not advance. In the first months of his term, Mayor F. La Guardia decided to abandon the construction plans and allocate the land to accommodate a park. Moses and La Guardia inaugurated it at the end of 1934, naming it in honor of the president's mother and philanthropist. Four streets were partially closed (Hester, Broome, Rivington and Stanton St.) to accommodate seven separate playgrounds for children, two children's pools, a skating rink and several banks and avenues with plane trees arranged in the perimeter. This park was used by J. Jacobs to criticize Moses on account of his elongated parks, of boring and unoriginal design [10: 178]. The 1996 reform raised the park to the street level and new sidewalks, basketball courts and a new playground were built. It is currently the largest expanse of open space in the neighborhood. It is a place of great activity where one can find children's playgrounds, sports courts, a skating rink, community gardens (Wah-Mei Bird Garden, M'Finda Kalunga Garden), and a center for the elderly: Golden Age Center.

Text: Patricia Hernández Lamas

Impact of her ideas

Jacobs was a journalist and developed her urban thought observing the lives of people in big cities and participating in various urban movements. However, she considered cities as 'complex systems,' and her book The Death and Life of Great American Cities uses concepts from biological sciences to explain why cities need to be diverse, heterogeneous, confused and disorganized for survival, in an argument consistent with the idea of evolution.

Mostly, she paid much attention to the physical environment, the framework where coexistence had to cope with high population density. She based her research on data collected in public spaces and she derived from them patterns and trends to understand urban behaviors. Recent positions with similar starting points can be found in Richard Sennett, for the high importance granted to urban public space and the visual and physical in the city, over discourse and sociology [140: 47]. And also in the position of Amanda Burden as commissioner of planning in New York, discussed later (see Chapter 16).

Physical framework over theories

In a revision of the urban drift towards the idea that social problems can be solved by manipulating the built environment, English professors Batty and Marshall point to the importance of the figure of Jane Jacobs. Against the widespread acceptance of planning and urban design as the initial step to tackle the city, Jacobs advocated a radically different approach. For her, diversity was at the origin of urban quality, of good cities. And this diversity was the result of countless individual decisions, always generated from the grassroots, and not from the plan or project in a process from the top down. For her, planning from above destroyed the qualities that bring about the true essence of cities, the origin of what they really were.

Her ideas had great impact on the consideration of the city and the antisystem movements, but were ignored by the dominant programmatic positions in urban planning throughout the twentieth century. In parallel, it is worth noting the position of the controversial Christopher Alexander, with similar arguments in his 'Notes on the synthesis of form' in 1961. For him, good architecture was always well adapted to the context, itself the product of many decisions about the form, tried and tested by those who live in buildings and wish to adapt them to suit their needs and purposes. This collided head-on with the dominant and despotic ideas of the modern movement, defended and canonized by Le Corbusier and others [15: 566].

Heterodox Jane Jacobs C. Alexander

In fact, the ideas of Jacobs and Alexander can certainly be regarded as heterodox positions with little following among professionals of urbanism and architecture. This was quite reasonable, given the subtitle of her book, 'the failure of urbanism,' and a way of thinking that denied their legitimacy. But this way of thinking and living the problems of both disciplines from personal commitment has been exemplary in terms of its influence on the alternative movements. Her fight against more or less routine ways of thinking, but well rooted in making administrative decisions about the house and the city, created a school. Given the current theoretical dearth, her possible role in urban planning today is rather a symptom of how desperate the theoretical search is, than possible practical interest in any formulation of new bases to substantiate it.

Despite its limited impact on the institutionalized practice of urbanism, her intellectual production is important and, according to the New York Times, The Death and Life of Great American Cities [192] is probably the most influential book in the history of urban planning.



15 | Johnson

Controversial Philip Johnson
Skidmore, Owings & Merrill (SOM)
Sculpture Garden at MOMA
Lever House (SOM, 1952)
Seagram Building (1958)
Guggenheim Museum (1959)
PanAm Building (1963)
ATT (Sony) Building (1984)
Lipstick Building (1986)
Times Square (1981, 2010)
Morrisania Air Rights Houses
Tracey Towers (1974)
Waterside Towers
Harlem River Park Square
The Trump brand
The future of New York in 1982
The end of skyscrapers
Cycles of splendor and inaction
Rem Koolhaas' joke
The Noguchi Museum (1985)

Philip Johnson (1906-2005)
Canon and rhetoric

Controversial Philip Johnson

The architect Philip Johnson (1906-2005) was for seven decades at the center of the architectural universe, as a designer, critic, historian, curator, friend of the great figures of the profession, and promoter of younger architects. However, he was not a typical architect, and his work has been understood very unevenly. His private life and beliefs have also been the object of different interpretations, ranging from the highest praise to the worst of considerations.

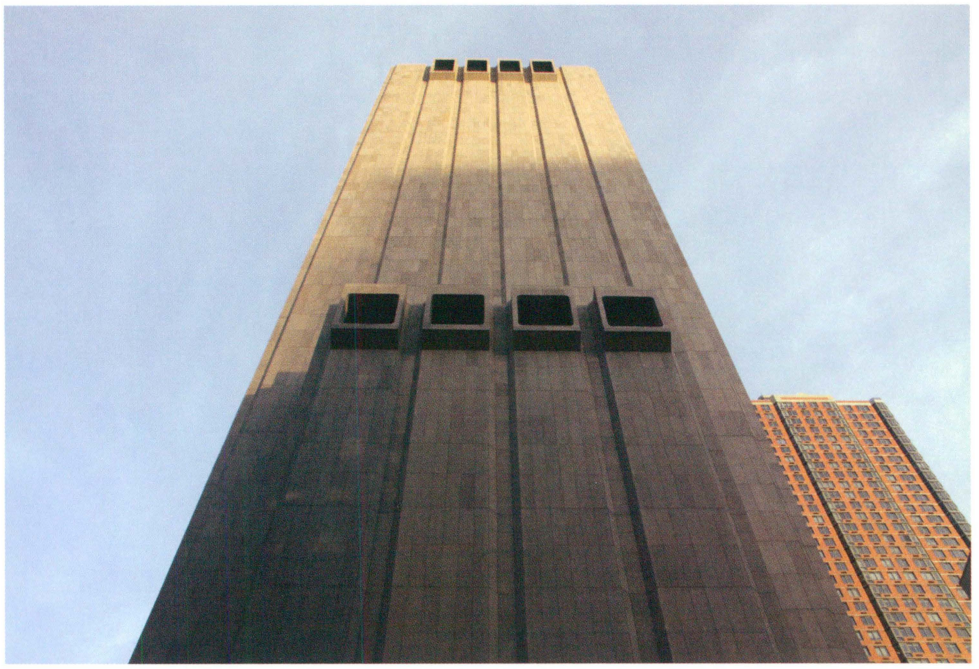
With the title *Philip Johnson: An American Idol,* the magazine Architectural Record published in 2005 three biographical sketches on the occasion of his death in January of that year, at the age of 98. In the presentation, editor Suzanne Stephens wondered if, these days, such a public figure could expect a positive obituary. Anticipating that such a celebrity as Philip Johnson would be subject to a certain revenge on account of the fame and glory he had acquired, the magazine commissioned the reviews from a detractor, an admirer, and a biographer. All three wrote their stories when many obituaries had already been published, devoting many words to criticize them.

From their examination emerges an interesting personality, as much, if not more, by the way of life he professed — frivolous, openly gay, groundbreaking, with a strong public presence — as by his architectural work, regardless of his successes and failures. Undoubtedly, his profile fits the role of key player in the construction of New York, as much as any other of those portrayed in this book.

His task as curator of architecture at the MoMA, and especially since the now historical 1932 exhibition on International Modern Architecture, introduced in America the great European masters Mies van der Rohe, Le Corbusier and Walter Gropius, which marked the course of architecture for many generations [138: 180].

His main detractor acknowledges his worth as a great figure in American culture, but pigeonholes him as a personification of the sense of excess that is central to kitsch, and as a representative of the entertaining and tasteless core of American culture [146: vvpp] .

His biographer, Robert A. Stern, recognizes him as one of the major talents of American architecture. He built good buildings, and was a master planner, linked with the masters of the city of New York. At ATT, he continued the path marked by McKim,



ATT Building, 33 Thomas St. (J.C. Warnecke, 1974)

Worlwide Plaza Building, 50 St. 8 Avenue (SOM, 1959)



Mead and White. The Lipstick Building evokes the ATT Building, 33 Thomas St. (J.C. Warnecke, 1974) Worlwide Plaza Building, 50 St. 8 Avenue (SOM, 1959)

typical staggering of the city, as in the non-realized proposal by Raymond Hood for the Rockefeller Center [...] He also hung around the frivolous and toyed with history. But he denies the accusations of affinity towards Nazism, raised by his many enemies, considering that it was the mere interest of juvenile discussions on that political form. In short, a great loss to the culture of architecture [155: vvpp].

Among the main works by Philip Johnson these are worth mentioning: Johnson House, The Glass House, New Canaan, Connecticut, 1949. Rockefeller Guest House for Abby Aldrich Rockefeller, New York, 1950. The Four Seasons Restaurant, New York, 1959. New York State Theater (later David H. Koch Theater) at Lincoln Center, New York City (with Richard Foster), 1964. New York State Pavilion at the 1964 New York World's Fair, New York, 1964. Neuberger Museum of Art at the State University of New York, Purchase, New York, 1969. Elmer Holmes Bobst Library at New York University, New York, 1967-1973. Gate of Europe, Madrid, Spain (John Burgee Architects, Philip Johnson Consultant; 1989-1996). Paley Center for Media (formerly The Museum of Television & Radio), New York, 1991.

Skidmore, Owings & Merrill (SOM)

Known by the acronym SOM, it was established in Chicago by Louis Skidmore (18971962) and Nathaniel Owingsen (1903-1984) in 1936. In 1939, engineer John Merrill (1896-1975) joined. Two other important engineers in the firm are Fazlur Khan (author of the John Hancock Bd and the Sears Towers in Chicago) and Bill Baker (author of the skyscraper Burj Khalifa).



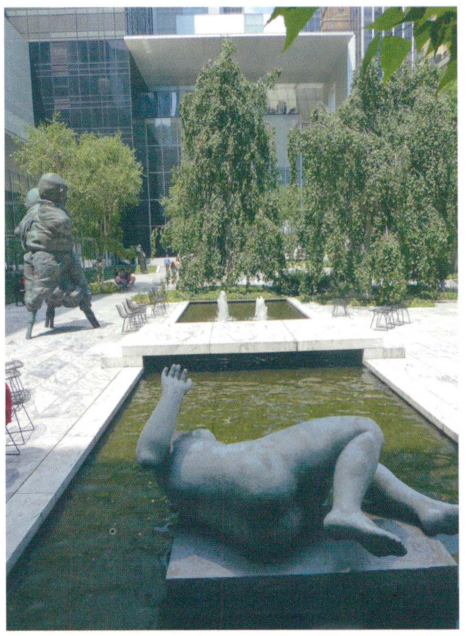
Among the known works of SOM, we can highlight: Manhattan House (1951), Lever House (1952), Manufacturers Hanover Trust at 510 Fifth Avenue (1954) by Gordon Bunshaft and Charles Evans Hughes III, One Chase Manhattan Plaza. (1961), Olympic Tower New York (1972), 3 World Trade Center (1981, destroyed on 11S 2001), Leo J. Pantas Hall at the Pratt Institute in Brooklyn (1987), One Worldwide Plaza (1989) by David Childs, the building of 461 Fifth Ave. (1989), Roosevelt Hospital (1990), Islamic Cultural Center (1991), Terminal 4 at John F. Kennedy International Airport in Queens (2001), Time Warner Center (2003), Random House Tower (2003), 7 World Trade Center (2006), John Jay College of Criminal Justice (2011), rehabilitation of the building at 510 Fifth Ave. (2012), and the final One World Trade Center (virtually completed in 2014).

Sculpture Garden at MOMA

The Sculpture Garden at MOMA (Johnson 1939, Taniguchy & KPF, 2010) is located in the courtyard of the Museum of Modern Art (MoMA, 11 West 53rd St.), founded thanks to a donation from John D. Rockefeller Jr. The first garden, which opened a few weeks later than the museum in 1939, was designed by architect John McAndrew, and by the then director of the museum, Alfred H. Barr Jr. [35:79]. From this first design of organic nature, hardly anything remains in the current garden, designed by director Philip Johnson and landscaper James Fanning in 1953, and which is still preserved after the enlargements of 1964 and 1984 (partially redesigned in 2004 by Yoshio Taniguchi). It was commissioned by David Rockefeller to commemorate the achievements of his mother in founding the museum.

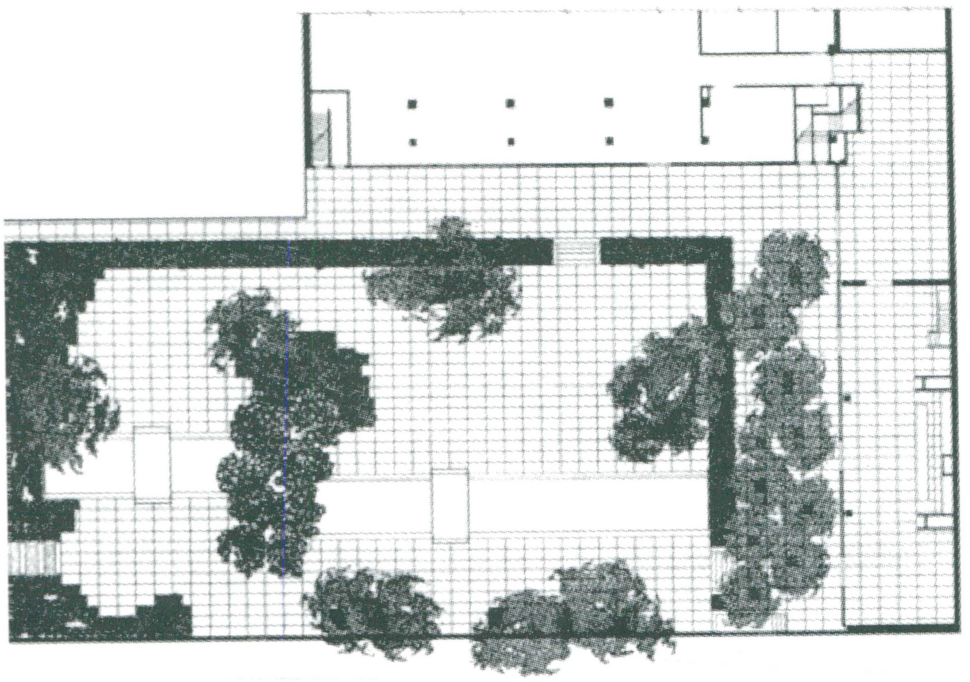
This garden was designed to complement the museum space, creating an enclosed abstract landscape within the building to host the large collection of sculptures that become the authentic inhabitants of the garden. It has a great spatial richness, being carefully designed following the trend of Mies van der Rohe; the variety of materials brings diversity to the horizontal plane and creates a succession of spaces. Johnson seeks the contrast between the geometric character of walls, floors and water bodies, and the organic character of the vegetation and the sculptural elements.

Access to the yard, lightly sunken with regard to the street, is provided by a terrace with a small staircase. It has two rectangular ponds, crossed by flat bridges. The pavement of marble slabs



Abby Aldrich Rockefeller Sculpture Garden (MoMA)

Sculpture garden at MoMA (Philipp Johnson and James Fanning, 1953) [5:315]







Interior of the MoMA





is cut to make way for the vegetation in the form of lower bushes and trees, creating duality of stone and plant [5: 315]. In this space, the sculptures are distributed in apparent disorder, located according to the compositional guidelines and the modulation of the pavement, among which stand out: *The Goat* (Picasso, 1950), *Balzac* (Rodin, 1897), *Nude back* (Matisse, 1909-1914), and works by Moore, Calder, and others.

The garden also has a café with several tables and chairs. The ensemble, of great serenity, becomes an oasis within the city. The garden brings light into the hall and can be seen from various parts of the museum, such as the restaurant on the top floor, which has magnificent views over it.

Text: Patricia Hernández Lamas

Lever House (SOM; 1952)



Lever House (SOM, 1952)

This building of greenish steel and glass (390 Park Ave., between 53rd St. and 54th St.) was built in 1952 as the international headquarters of the Lever Brothers company, manufacturers of commercial soaps and detergents. The original project had a landscaped outdoor courtyard designed by Isamu Noguchi, who did not finally realize it. The tower of 21 floors, designed by Gordon Bunshaft and Natalie de Blois for Skidmore, Owings & Merrill (SOM), was a predecessor of the glass curtain walls. It sits on a three-storey podium, in which the central space has been freed to let the trees planted downstairs grow through the building

In 1998, the building was purchased by RFR Holding LLC, which initiated a program of restoration that included the renovation of the public spaces. The marble benches designed by I. Noguchi in the original project were added. Currently, the open space in the ground floor revolves around a high planter with a homogeneous mass of trimmed low hedge in which a single tree stands out, and a bench that runs around the perimeter. In the covered space among the columns are arranged the geometrical benches by I. Noguchi and some sculptures.

This whole space is closely related to the large glass lobby where the contemporary art collection of the Lever House is exhibited. On the roof of the podium there are masses of vegetation in high perimeter planters facing the street and courtyard. Currently, a popular restaurant in the city is located there. On the whole, there is a clear influence of Le Corbusier and Mies van der Rohe. It was designated New York City Landmark in 1982.

Text: Patricia Hernández Lamas





Seagram Building (1958)

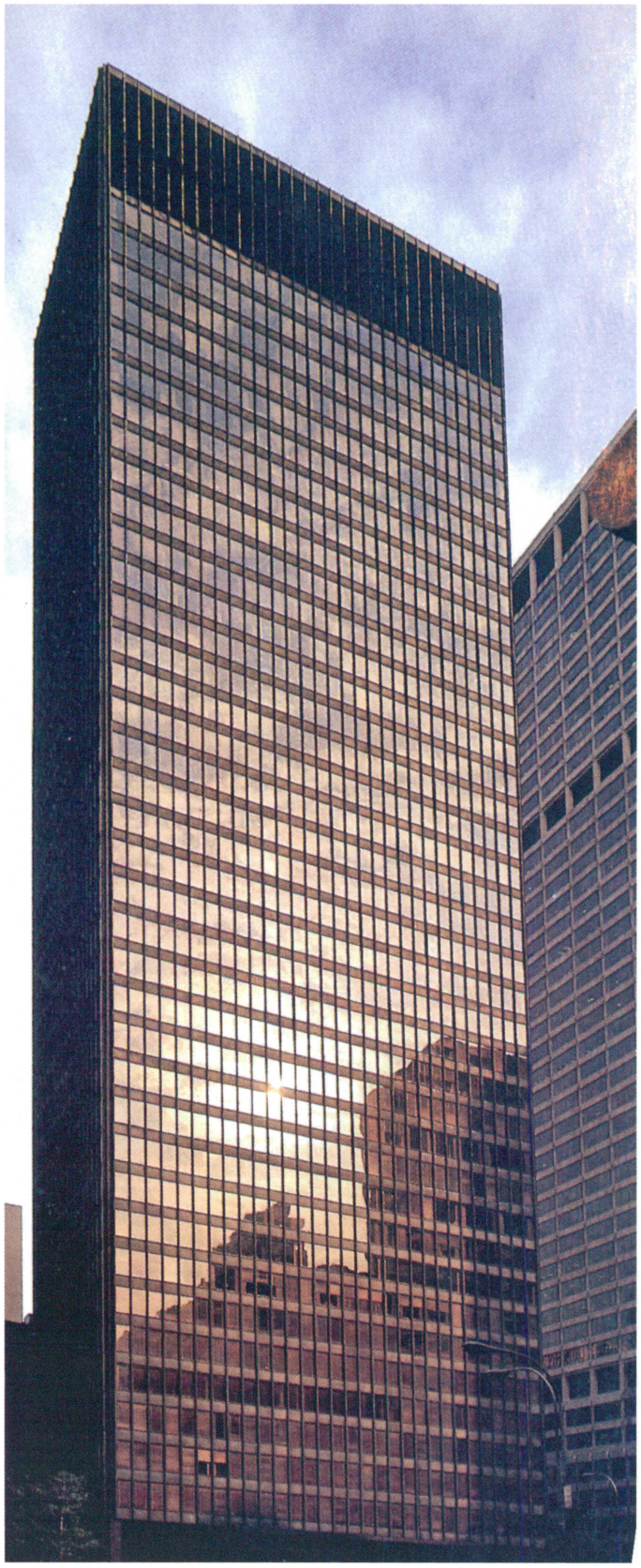
This building by Ludwig Mies van der Rohe and Philip Johnson, built in 1958, is located at 375 Park Avenue between 52nd and 53th Streets. The building is somewhat removed from the alignment of the street, leaving an ample space in front of its dark glass facade. According to height regulations, if a building frees 75% of the plant, or builds it at a very low height, it can raise a parallelepipedic block without setbacks. This allows a clean and regular prism from top to bottom, covered with a curtain wall hiding the structure.

This innovation will be repeated in the construction of later skyscrapers, and the city grows alternating small green spaces with the buildings. The pink granite pavement of the square continues inside the lobby of the building, interrupted only by a wall of glass that allows full exterior-interior continuity. Facing the façade of Park Avenue are two high ponds with fountains, whose perimeter is often used as a bench. They are arranged symmetrically, leaving leaving some access steps in between. The vegetation is limited to three beds on each side appearing as large geometric patches of color, tapestries of ivy among which ginkgo trees protrude. Its perfect and clean presence still dominates Park Ave., thanks to the visibility given by its setback.





Seagram Building (Mies & Johnson, 1958)



Guggenheim Museum (1959)

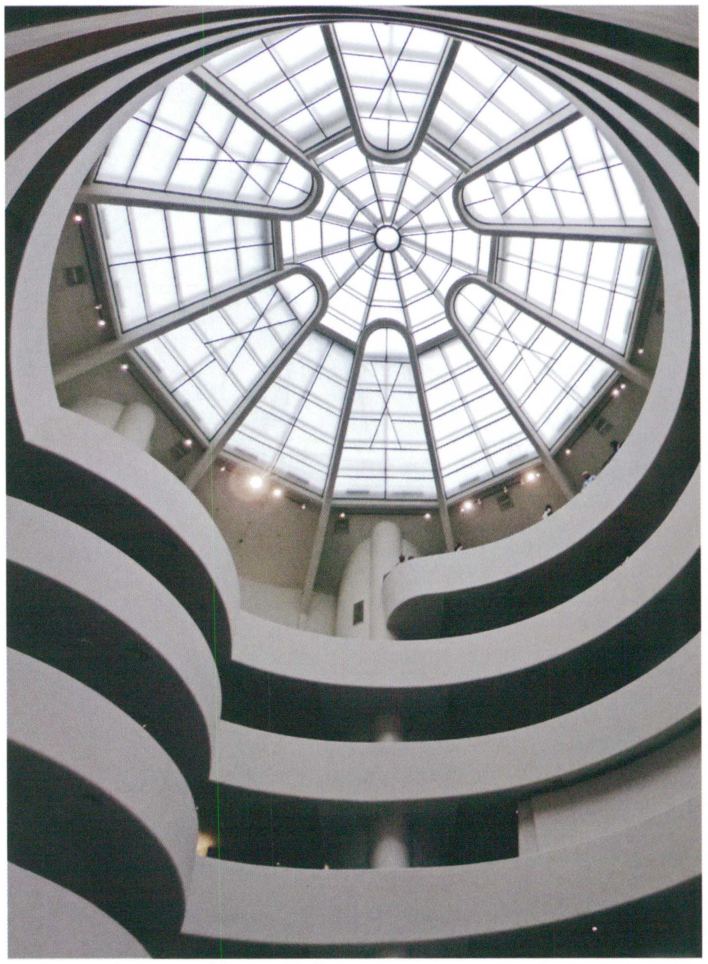
According to Kenneth Frampton, the Seagram Building remains one of the best modern buildings of the postwar period in New York, and it shares with the Guggenheim Museum the honor of having been completed simultaneously [56:67].

The Solomon R. Guggenheim Museum is the last great project of Frank Lloyd Wright (1867-1959). It was built from 1956-1959 in concrete — something rare in New York — with a structural and massive aesthetic, based on the atavistic form of a spiral that expands upward. Considered a masterpiece of the great architect, it is located on Fifth Ave. between 88th St. and 89th St., on the edge of Central Park, with the large lake in front, at a site somewhat overwhelmed by the buildings at the rear of the block, but broad enough in the front to display its unprecedented shape.

Wright was commissioned to construct a building for the collection of paintings in June of 1943, and in mid-July he went all over New York with Robert Moses to find a suitable location. Although Moses and Wright were distant relatives, and dealt with each other as cousins, they were not always on the same page in aesthetic matters. Moses offered a plot of 32,000 m^2 (8 ac) in the park that he was developing along the Henry Hudson Parkway in Riverdale.

Wright liked the idea of building in a large, landscaped area at a distance [then] from the center, and agreed with Moses that it would be desirable to try to break with the old model of museum, offering a commitment to the future. But foreseeing a greater preference on the part of Solomon R. Guggenheim for a central location, he visited two central sites with John D. Rockefeller Jr., one near the MoMA and another one in Park Ave. at 69th St. Guggenheim effectively dismissed the remoteness and after an attempt to create the Museum at Columbia

Interior of the Guggenheim Museum







Solomon R. Guggenheim Museum (Frank Lloyd Wright, 1959)

University, he decided to buy the land on Fifth Avenue and 89th St. in 1944. However, works did not start, after many difficulties and large cost increases, until 1956 [153: 809].

The location benefits from the presence of Central Park across Fifth Ave. and 89th St. The spaciousness of the Park lends great openness to the elaborate volume of the museum from the southwest. Wright did not like the presence of buildings in the back, and raised a thin rectangular block, subsequently transformed into a rear annex, to provide a homogeneous, neutral background to the chosen organic forms.

In principle, the idea of organizing the visit as a forced tour, with paintings on one side and a balcony toward the empty central space to the other, seemed to be dictated by strict functionality. The main exhibition space is a ramp 7.5 m (25 ft) wide with a slope of 6.25% (1.5 in every 20 ft), amounting to 28 m (92 ft), equivalent to six laps. The inclination of the outer walls, however, created problems for hanging the pictures and the perimeter strip light, made it difficult to illuminate them.

Inside, the museum displays a rich and powerful space, highly expressive, that adds up to the attractive exterior façade, ranking the building among the great works of the city. However, plastic artists, and curators consider it inappropriate, if not absurd, for displaying artwork.

Despite the fact that one may acknowledge this difficulty, granting that the building, like many other museums, seems little suited to its purported role, Wright's experience is felt in its formal treatment. The distinct idea of a tour formalized in the spiral path is humanized, and brought closer through various subtleties introduced in the project.

First there is the stillness of the roof in the shape of a central dome presiding and rendering the space calm. Behind the sloping concrete arches is set a structure of steel and glass, like those historic roofs of iron and glass that carry the memory associated with the oldest museums. Second, the distinct verticality of the core of stairs and elevators, made evident by its invasion of the concavity of the spiral with a circular arc, cancels its upward vertigo. Furthermore, the rear wall of the spiral balcony fractures the homogeneity of the posterior envelope of the space, and projects behind screens, doors and partitions.

Finally, the enlargement of the Guggenheim Museum (1988) was made with a project by Jacob Alspector and Pierre Cantacuzene, of Gwathmey Siegel & Architects, of larger scope than the rectangular block proposed by Wright. The material used on the outside is limestone, chosen for its contextual references, as well as its neutrality with the original structure. The enlargement connects to the context of 89th St., both in scale and materials, allowing a smooth transition to the original structure. The Annex manages to present the original building as an object in space, while providing with a contextual background. Inside, the expanded exhibition space included the ramp in the seventh level of the large roundabout, allowing the addition of exhibition space to the original structure.

Interior of the Guggenheim Museum



PanAm Building (1963)

The Pan Am Building (Met Life Building since 1981) was built in 1963 by Emery Roth & Sons, with Pietro Belluschi and Walter Gropius. The tallest tower materializes the air rights of Grand Central Terminal in the largest office building of its time. Located on top of it, at 200 Park Avenue, it is a conspicuous office tower, the one that almost all New Yorkers seem to hate, but whose lobby is perhaps its only saving grace [151: 143]. Perched on the stone façades of the station to the south and the Helmsley Building to the north, the precast concrete modules and greenish glasses of its elevation are visible from any point on Park Avenue. The ground floor is a warm, cozy and elegant place, full of shops and services, perfect threshold for access to Grand Central Station.



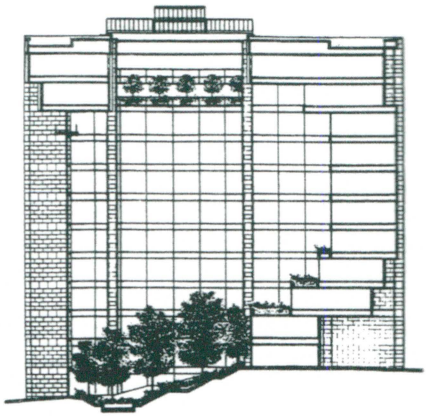


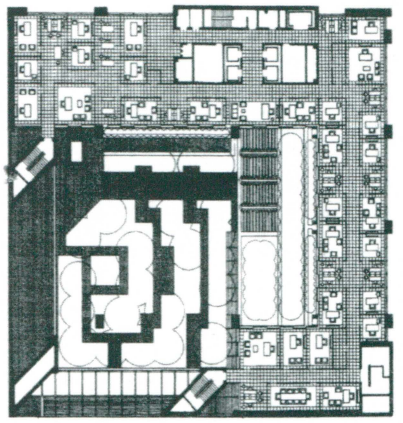


PanAm Building (1963)



Ford Foundation Bd. (Kevin Roche, 1967)





Ford Foundation (1967)

The building of the 15-5 Ford Foundation (Kevin Roche, 1967) is located on the western edge of Tudor City, on East 42nd St. between First and Second Aves. It is a corporate building, of a foundation for art and humanitarian causes, with little resemblance to the prismatic blocks of big business. Built by Kevin Roche / John Dinkeloo Associates in 1967, it houses a garden in full height, representing 30% of its volume.

The headquarters of the Ford Foundation, located at the intersection of 42nd Street and Second Avenue, is a cubic building of twelve floors with an indoor garden by Dan Kiley, Kevin Roche and John Dinkeloo (1968). It was conceived as an experiment, and became the first major inner court of the country. Dan Kiley, Garrett Eckbo fellow at Harvard, adopted a language of orthogonal character, closely linked to the trend of Eero Saarinen and Mies van der Rohe, creating a symbiosis between garden and building. The offices are arranged around an empty space illuminated with natural light filled by the inner garden that spans the gap of almost 4 m between the opposite access streets, 42nd and 43rd, with a lateral communicating stairway.

The garden, of approximately 1.300 m^2 (14.000 sqft), is terraced on three levels aligned with brick paths leading down to the lower rectangular pond. This shallow pond originally was covered with oriental water lilies; now in its center a small square island that houses a bonsai is located. The pond is fed with rainwater collected by water tanks in the roof, which is also used to water the garden. The vegetation is lush and exotic, turning this atrium into a tropical jungle[63] [80: 66-67].

The greenery continues with low-growing species on the balconies of the three recessed floors, as well as in the penultimate floor, which completes the ring in which the skylight of the roof rests. In spite of the natural lighting and the southern exposure, the use of artificial light was necessary to meet the needs of the vegetation. Pendant lights are used from the tenth floor for plantations of balconies and lights up on the floor of the lower level. All this lighting produces a dramatic effect at night that casts a very particular image of the building from the outside.

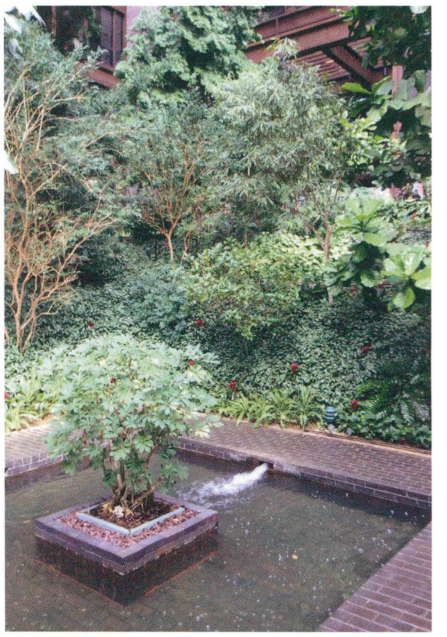
According to Dan Kiley, the project had a very positive outcome64, but the garden was not used much by office workers eager to leave the building at the end of their workday. The the Foundation complex was designated New York City Landmark in 1998.

Text: Patricia Hernández Lamas










EXIT









ATT Building (Philip Johnson & John Burgee, 1984)

ATT (Sony) Building (1984)

Since its first appearance in the New York Times of June 17, 1977, the ATT Building (Philip Johnson and John Burgee, 1984), later called Sony Building, was a real event for New York. A skyscraper of 197 m and 37 floors high located at 550 Madison Ave. between 55th and 56th streets, it is the headquarters of the Sony Corporation of America, and is very close in its scheme to the Humana Building by Michael Graves. Its announcement coincided with another big building located just north for another corporate giant, the IBM Building and it was the first sign of recovery in the area of Madison Ave. as emblem of a resurrected Midtown. The city understood this as renewed corporate support, and the project was presented in March 1978.

A few months later, Philip Johnson himself, holding a model of the ATT Bd., made the cover of Time magazine on January 8, 1979, when construction began. In a reflection on American architecture included in this issue, critic Robert Hughes believed that the influence of the building went far beyond questions of style. Philip Johnson had opened the door of public recognition to a way of thinking about architecture that would end up — as it was the case — affecting other corporate clients [151: 497].

The fuss among architects and critics motivated by the publication of the drawings of the groundbreaking main façade to Madison Ave. was remarkable. The façade resumed the classical tripartite arrangement of base, shaft and capital, advocated in the first period of the skyscrapers and theorized by Louis Sullivan (see Chapter 9), with a completely new metaphorical language that implied a new approach to the modern. The opaque and closed limestone base and, above all, the split pediment located on the top of the building angered many of them, led by Michael Sorkin, and provoked skepticism in others, such as Anne Louis Huxtable, who in 1978 named the newly published design as the 'non building of the year.'

In the words of Philip Johnson, who published an article in the New York Times against the compartmentalized design of the new imposed by the rules established in the CIAM, significantly entitled 'Re-Building':

It seems to me our sensibilities have changed in three basic respects. 'Modern' hated history, we loved it. 'Modern' hated symbols, we loved them. 'Modern' build the same look in any location; we search out the spirit of the place — the 'genius loci' for inspiration and variation... When John Burgee and I were faced with designing the ATT Bd., we had to think in the spirit of historic New York. The architecture of New York has two great periods — the 1890s with McKim, Mead and White, and in 1920's with Raymond Hood. So with those fine examples in front of us, we decided that here in Manhattan the glass box maybe had had it.[65]

The positive reviews of the architects impressed by the stylistic innovation proposed by Johnson, such as Vincent Scully and Reyner Banham, did not fail to warn about the wide influence of the building in subsequent constructions in the city and in the style of design of the next generation of architects. In the words of the latter: Unexpected, enigmatic, slightly unnerving, just like its designer — it settled in Manhattan defying the conventions of his old and new neighbors, annoying the mature and established, and — undoubtedly — fulfilling the worst fears of corrupting the young [155:499].

Lipstick Building (1986)

Located at 855 Third Ave., this building designed by Philip Johnson and John Burgee and built by Turner Intl., of the ACS Group, in 1986, was destined to draw attention due to its striking, elliptical floor plan, which clearly stands out in the variegated landscape of prismatic volumes of Midtown. Its strong identity in the skyline of New York was something intended by Johnson from its conception, 'it will be one of the special monuments of New York.'

It is a large office tower with a surface of 54,000 m^2 (580,000 sqft) spread over 34 floors in three oval shaped prisms and recessed into the façade towards Third Ave., but continuous along the back, located eastward. In the façade, each floor is 'clad' and highlighted by a continuous horizontal band of pink polished and shiny granite, alternating with other stainless steel strips of varying width and the continuous ribbon of glass tinted in gray.

The nickname Lipstick appears to originate in the telescoping effect of the facade, similar to that of a lipstick being extended for use. And also, probably, in the rejection

Lipstick Building (Philip Johnson and John Burgee, 1986)







of its ugly official name: Fifty-third at Third. For Robert A. Stern, the building bears a striking resemblance to an unrealized design by Raymond Hood for a building of the Rockefeller Center, but with 34 floors instead of the original 11, which prompted the need to stagger it back. [151:530].

Times Square (1981, 2010)

The redevelopment of Times Square in 1981 was an attempt to maintain the character of an area of the city while preserving the historic horizontality of the line of facades, in front of the vertical facades of commercial developments. With this, it was recognized that In the history of urban form in New York, horizontal monumentalism has implied civic or public purposes, while the tower has represented the power of corporate capitalism...

Designers Cooper, Ecksut Associates proposed to emphasize the public or civic character of 42nd Street as such, keeping the traditional five-story built wall in the entire





Times Square, Broadway Avenue

stretch. 'Towers were to be kept well back from this street wall. In doing this, them were making a strong statement for public values, and they made an implicit appeal to the authority of history' [17:28].

But the proposal was ignored by the developer, whose architect Philip Johnson proposed massive towers that ignored and intentionally decreased the street and Times Square itself. After much controversy, the towers were abandoned, as well as the initial proposal. Somewhat later, the Disney Corporation was invited to develop the square, which left it as it is now [17:28]. Before, Federico García Lorca had also disliked it:

I, alone and wandering, exhausted by the pace of the huge luminous signs of Times Square, fled in that little poem from the vast army of windows where not a single person has time to look at a cloud or talk to one of those delicate breezes that stubbornly the sea sends without ever having an answer [58:252].

Away from the center, at 3073 Park Ave. in Bronx, the Morrisania Air Rights complex consists of 843 low-income residences. It remains as a vestige of the early 1970s and represents the last high-rise complex built in the area and one of the last built throughout the city. It is located on a platform above a trench with four tracks of the Penn Central Railroad, west of Park Avenue.

The level of the tracks was lowered about 6 m (20 ft) below the street level excavating a trench and using large metal trusses to support them without altering the circulation of the trains. The clearing area was used for elevators, light fixtures, ventilation and services. On the platform covering the tracks the fire exits remained.

The 1971 project did not progress but the recession of 1976 reduced construction costs and it was recovered in 1977. Although at that time there was land in abundance, the location over the railway was maintained because the federal subsidy was linked to its location over the tracks, as a project to demonstrate the use of air rights. The complex was completed in 1980, with 19, 23 and 29-floor buildings of brick held



Morrisania Air Rights Houses



Morrisania Air Rights (1980)

by a series of exposed concrete buttresses, in a cheap version of the never realized Chelsea Walk by Phillipe Johnson in 1967 [153: 1213].

By 1998, Curtis + Ginsberg Architects developed a project to improve the environment, to avoid the wall in the original design. The original design creates a wall, emphasizing the division created by the train cut. This insensitive and outmoded design has had a negative impact on the community.

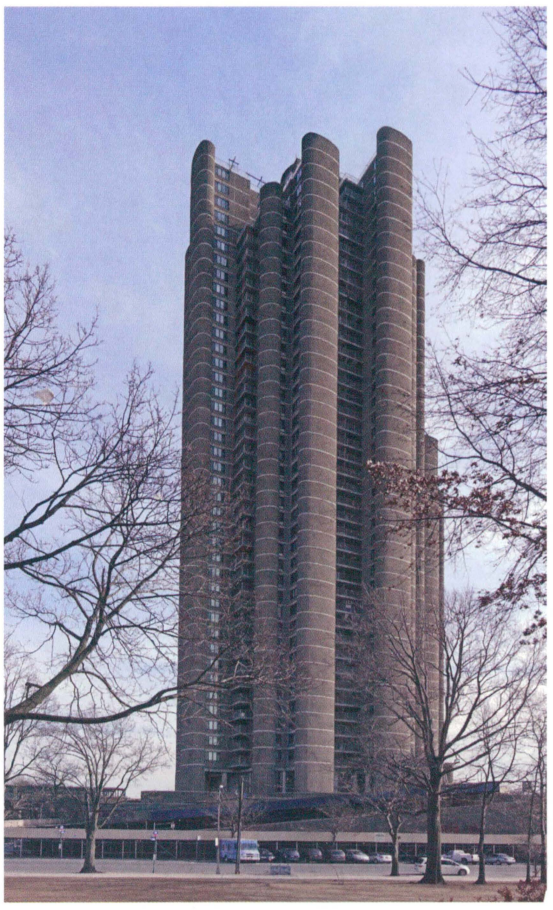
The reform project, prepared with the help of landscape architect Mark K. Morrison, proposed an interior street with direct access to the Metro North subway station at East 162 St., and an open space around a pedestrian plaza on East 161 St.

Tracey Towers (1974)

At 40 West Mosholu Parkway, Bronx, are the Tracey Towers, built by Paul Rudolph & Jerald K. Kaplan in 1974. They partially occupy a platform built over Jerome Subway Yards, a lush departure from the typical red brick cheap housing buildings, funded by the Mitchell-Lama program, many of which formed the Bruckner Blvd., to the southeast of the Bronx. For Robert A. Stern, Tracey Towers was, perhaps The ultimate example of futuristic design [153:945].

Harlem River Park Towers

The Harlem River Park Towers are located between the Harlem River and the Major Degan Expressway near Morris Heights, and are connected with Cedar Avenue by two crossings over the highway. They are two large towers of 44 floors housing 1,650 low-income residences built by Davis, Brody and Associates in 1978. Their massive and conspicuous presence is overwhelming from the river and dominates the park built





Tracey Towers (1974)

Harlem River Park Towers (1975)

beneath them on the riverbank by Paul Friedberg (1973), despite its improbable use on the part of its residents [153: 946].

The Waterside Plaza is composed of four large faceted towers, placed on a platform supported by 2,000 concrete piles, sunken into the bottom of the East River. A total of 1,470 apartments, plus garages, a gym, some shops and a large garden square stand on the edge of the river with an elaborate staircase.

Waterside Plaza

The Trump brand

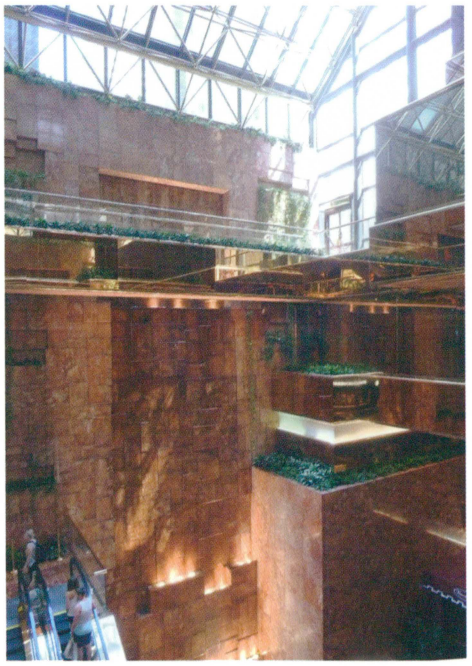
The patented Trump palaver, a gaseous blather of 'fantastic's and 'amazing's and 'terrific's and 'incredible's and various synonyms for 'biggest', is an indispensable ingredient of the name brand. In all its manifestations, in addition to connoting a certain quality of construction, service and security…his eponym subliminally suggests that a building belongs to him, even it's been sold off as condominiums. The Trump International Hotel and Tower, a fifty-two-story hotel-condominium conversion of the former Gulf and Western Building, on Columbus Circle, which opened [in 1997], is a good example. The Trump name on the skyscraper belies the fact that his ownership is limited to his penthouse apartment and a stake in the hotel's restaurant and garage, which he received as part of his development fee [144: 44].

Obviously, this is not something new in town, but a hallmark of the early development of skyscrapers as elements of corporate image, which is a substantial feature of their origin [see Chapter 6]. However, Donald Trump transforms and magnifies it to present it as something personal, not just corporate. Brand and person form an indivisible whole that he cares to magnify in his abundant and planned presence in the media. Who owns more of Fifth Avenue than I do?, he asked rhetorically in a Times feature, declaring the rents in that street as the world's highest.





Waterside Plaza (Davis, Broody & Associates, 1973)



Trump Towers Atrium (725 Fifth Ave. between 56th and 57th St.)



Landscaped rooftop terraces of the Trump Towers



Trump Tower, atrium and terraces

The Trump Tower (725 Fifth Ave.) was built in 1983 by Der Scutt, Swanke Hayden Connell Architects, influenced by the International Style. The interior houses a large theatrical hall of vertical composition and decorated with pink marble, gilt metal and mirrors. The wealth of materials and their dimensions are intended to convey the feeling of luxury, but the interior is bland. The seven-story atrium houses a small shopping center, a large waterfall in the background and gardens that help regulate temperature and indoor humidity. Access to the upper stores is provided by long escalators.

It differs from other towers by its stepped diamond-shaped terraces in the corner of the facade (towering trees); each terrace is planted with its own tree. Although purely decorative, they are well executed and are a forerunner of emerging green roofs. These horizontal steps extend vertically to the top of the tower, thus creating a stepped facade of dark reflective glass that provides offices with views on two sides.

The roof also has two garden terraces accessible from the escalators or elevators. The first of these Roof Terraces is located at the southeast corner of the fourth floor. This small garden has high brick planters with small shrubs and some trees, and long benches of polished granite. It overlooks Fifth Avenue west and highlights the Sony building, by Philip Johnson, to the east.

The other large and newly renovated space (DS Landscape) lies on the north side of the fifth floor. This rectangular terrace overlooks East 57th Street; elevated by some steps five large windows topped with American flags appear, framing the views. There is a pond with staggered fountains flanked on one side by metal benches and on the other by trees in large circular metal planters covered with flowers.[66]

Text: Patricia Hernández Lamas

The future of New York in 1982

Looking five years ahead, Mr. Cohen is optimistic about New York, and particularly about Manhattan, which he perceives as the nerve center of the city. Most specialists in New York City affairs, planners and urbanologists, professors and freelance savants are less sanguine, not because Manhattan itself cannot or will not thrive, but precisely because it and the rest of the city are crucially interdependent. Manhattan, they say, is a powerful locomotive, but the rest of the train may prove too much for it to pull.

City planners and urban experts can, of course, be wrong. Manhattan is, in the words of the Regional Plan Association, ''far advanced into the postindustrial economy,'' which means it is well on its way to changing from manufacturing to service industries, principally banking and finance. Citywide, employment climbed by about 76,000 jobs during 1980 and 1981, with most of the jobs both in service industries and in Manhattan. The current building boom has created an enormous increase in commercial space, almost all of it devoted to service industries. Most of this space is already committed, which means the space glut that followed previous Manhattan construction booms may be avoided.

Manhattan has never been more in demand as a place to live, crime and crumbling subways notwithstanding. Apartments are scarce, and with few exceptions prices for cooperatives and condominiums are holding at record highs. Loft conversions and the ''gentrification'' of rundown neighborhoods and buildings the return to them of the moneyed middle class continue unabated.

Despite the recession, new restaurants open every week and the city's cultural life, centered in Manhattan, flourishes. Inevitably, the front-line economic activity re-quires support troops. This is where Manhattan's relationship with the other boroughs, its traditional source of low-level clerical and blue collar workers, is the shakiest.

Especially, due to the new qualification in information technology management, which begins to be necessary for any business. And the possible solution of relocating these workers in the neighborhoods does not make much sense, because they could well work from thousands of miles away. Perhaps executives will choose to stay in New York, but there aren't many reasons for that to happen with the support people.

Manufacturing here has been on the decline since the 1920s, and attempts to bring it back are mostly politically motivated gestures to the waterfront and garment workers' unions who are locked into the past.

The Regional Plan Association, a private research organization that has been projecting the future of the region for 50 years, is more optimistic. The association sees the region's population climbing back to its 1972 high of 20 million. The population had fallen sharply in the mid-1970s. Two factors are involved in the new increase: a rise in births and a falling off in out-migration, particularly of young, skilled workers.

The association's optimism extends to Manhattan and, again, is based on larger demographic trends. As the number of people in the country between the ages of 15



Park Avenue and 57th St. (under construction)

and 30 shrinks almost 20 percent, the association predicts, youth unemployment and the crime that it engenders will both decrease, there will be more jobs for women, more jobs for disadvantaged youths and more jobs for two-worker households and immigrants.

The city, particularly Manhattan, will become a more desirable place to live and work, the association predicts. The gentrification process will continue, the association predicts, and its influence will be considerable. ''It doesn't have to be widespread to have a large impact," the association said. Gentrification is the name given to the return of the upper middle class to the central city, the rehabilitation of old town houses and railroad flats with the tangential upgrading of consumer supply services in what had been a deteriorated urban environment. Command Posts of Economy

Boris Pushkarev, a senior staff member of the association, takes the rest of the world into account in his predictions. 'With three-quarters of the world's population living outside the sophisticated economies, he said, the potential for world economic growth is immense, even if economic expansion in the advanced nations decelerates. The world's economy will be getting more complex, Mr. Pushkarev said, and the command posts of this economy the world's cities will gain in importance as a result.

Thus, Mr. Pushkarev concluded, the primacy of Manhattan as a world city fundamentally will not be challenged in the foreseeable future. The reasons, he said, have to do with its size, its favorable global location, its polyglot population and its lack of language barriers compared to cities such as Tokyo.

At its worst, said Henry Cohen of the New School, New York City is the pits. At its best, it's the highest achievement of the human race to date.

The end of skyscrapers

Jean Paul Sartre was wrong when he said that the skyscraper was finished: Today [1955] for a Frenchman arriving from Europe, they are already mere historical monuments, relics of a bygone age. They still rear up against the sky, but my mind is no longer with them, and the New Yorkers pass by at their feet without even looking [...] they are already a bit run-down; tomorrow, perhaps, they will be torn down. In any event, building them required a faith that we no longer possess [135: 124].

And this was not an error of assessment or a mere wrong prediction. Sartre failed to see that the skyscraper is an essential element of New York, a part of the way in which the city itself renews itself and grows. He could not see that, although true monuments, they are not relics, but are still alive, not only as a species but as a genre. Demolishing them does not produce any qualms, because others will be built to replace them, newer, higher, more splendid. They are famous in the city and the entire country understands them as symbols and considers an affront to threaten them.

Only a narrow look, prisoner of localism, could make that gross mistake. Sartre seems to express the feelings of his own city towards tall buildings. In Paris, towers — let alone skyscrapers — were always frowned down upon, as Eiffel had well to endure. And that intolerance of height has continued in force for a century, expelling the towers to very specific areas of the periphery, such as La Defense, and steadily repudiating the Montparnasse tower, the only one finally built in the central districts of the city.

Cycles of splendor and inaction

A rigorous statistical analysis indicates the appearance of skyscrapers as a recurring phenomenon in Manhattan, with its cycles of splendor and stagnation as any other activity. Jason Barr identifies five main periods: the first one, of 26 years, occurs between 1894 and 1919, and has its peak in 1915, corresponding to the birth of the type. The second, more unlikely, lasts another 26 years, between 1920 and 1945, with its peak in 1931, just at the beginning of the Depression, when, as we have seen, numerous Art Deco buildings appeared. The third occurs just after the Second World War, lasting 33 years, between 1946 and 1978, and culminating in 1971. The fourth is much shorter, only 19 years, and occurs precisely between 1979 and 1997, the final years of the cycle of design dealt with in this chapter, culminating in 1987. The fifth, finally, started in 1998, and does not show any signs of weakness, and many, on the contrary, of enthusiastic recovery of the skyscraper [13: 3].

Rem Koolhaas' joke

In a recent interview with Rem Koolhaas, held in February 2014 [89], the Dutch architect is asked about his stance on skyscrapers. Speaking of his projects CCTV and De Rotterdam, he recognizes the American influence: *New York alerted me to some of the potential of vertical organization and to some extent this has informed this building. The massification of Rotterdam would be unthinkable without the buildings by architects such as Wallace Harrison. The Rockefeller Center, to name one example, also shares the sense of uniformity, which is a key element in De Rotterdam.*

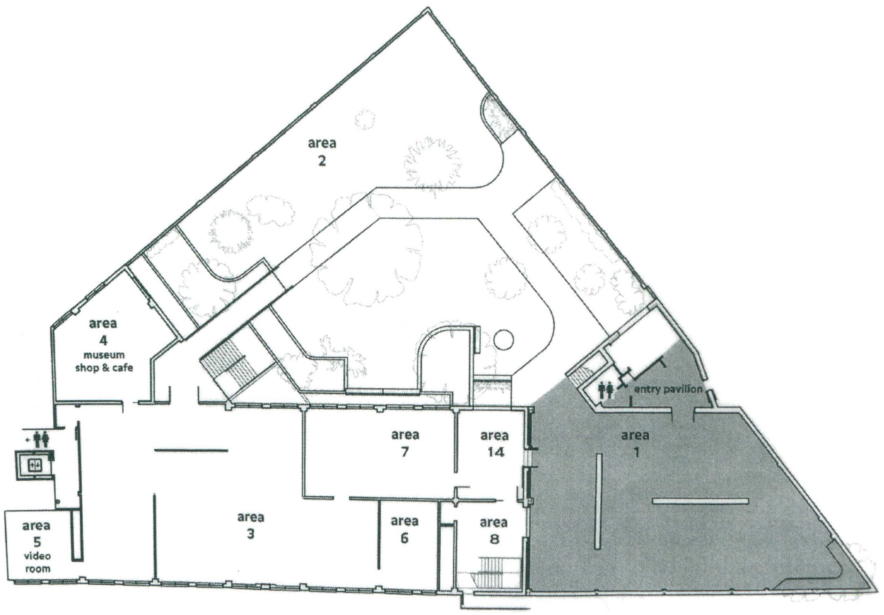
At which point, Andrew Mackenzie specifically challenges him regarding his use of four towers over a podium in his project.

AM.—For a man who has declared his dislike of towers, you're doing a lot of them.

RK.—In the description, I declared death to skyscrapers, which was obviously a joke. At that time the skyscraper became a simple race for the tallest building, with the same boring mixture of Armani hotel, corporate offices, etc. Basically, I thought that such an approach was already really done. Somehow CCTV is emphatically not about height, but about doing more than just trying to consume a site. What it tries to establish is an urban territory.

De Rotterdam also tries to do the same. It is an effort to establish a bridgehead between the main city and an area that was once part of the port, and from which industry has disappeared. It became a ghost town until a vision for its development came about, first building the Erasmus Bridge, by UNStudio. A few historical buildings remain, and over the years some towers have increased. But there was never enough mass or critical activity.

So I see it less as an isolated city in itself, a vertical city, if you will, than a contribution to a genuinely urban condition on that island.[67]



Noguchi Museum (1985)

It was designed in its entirety, both in its outdoor and indoor spaces, by the sculptor who gives it its name. It aims to create a meditative oasis in the industrial area of Queens (9-01 33rd Road, Long Island City), district to which the artist moved in 1960 attracted by the proximity of the marble workshops located there. It opened in 1985, it is the first and only museum in the country founded by a living artist and dedicated to his work. Is occupies a former photogravure plant that was in front of his studio, to which he came every day from Manhattan using the cable car to Roosevelt Island with panoramic views [35: 173].

The gardens and exhibition halls are dotted with his extensive production of sculptures, models and architectural models, furniture and set designs. The whole complex is designed as a

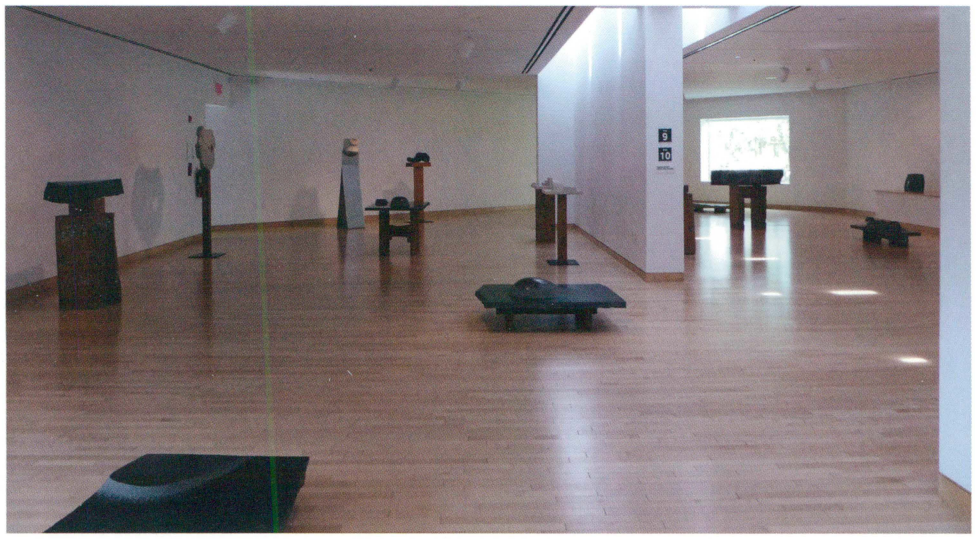


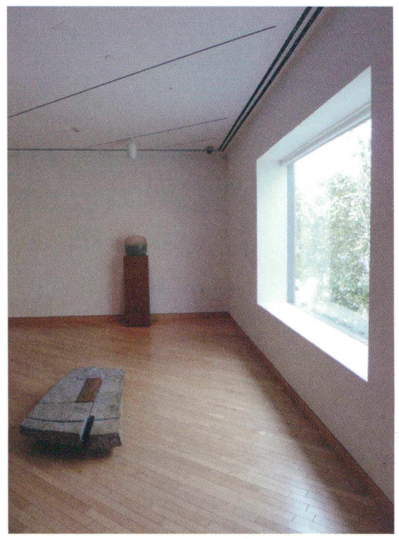
Noguchi Museum











Noguchi Museum





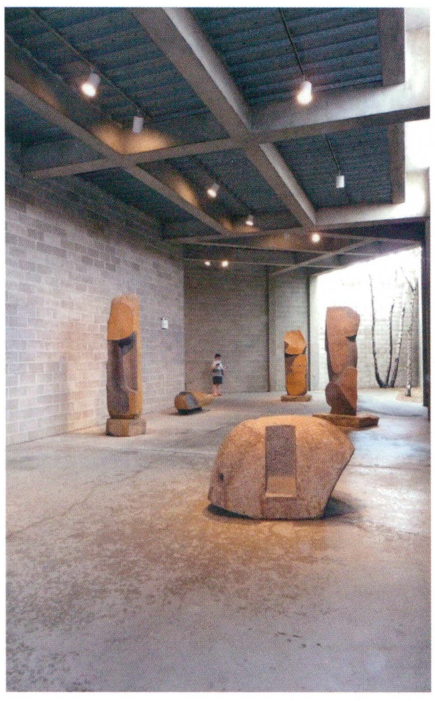
Rainey Park

large outdoor sculpture garden, with the sculptures arranged in an exhibition route. In the ground floor, and close to the access, is located an outside area that is partially covered, leaving openings, in the manner of skylights, and a triangular courtyard at the end where there are two trees and a rock on a carpet of bark, which contrasts with the rest of the concrete surfaces. Walls made up of concrete blocks create different environments to expose the large basalt sculptures.

Through the openings one can glimpse the sky and the garden, developed in the ground floor and adapted to the triangular shape of the plot. A trail leads to the exhibition in the industrial plant and creates three areas in the garden. The first and smallest, of rectangular shape, develops parallel to the enclosing wall, and has bark on the ground. In the middle stands a large tree in a lounge area with a round stone table and two wooden benches. Across the trail is the third zone with a sculpture fountain, and the enclosing wall covered with ivy as background. These two zones have a texture of gray stones in the horizontal plane. In the areas adjacent to the building, small sunken courtyards are created, to get natural light. The whole tour of the garden is dotted with various sculptures of the artist. This museum had a great impact throughout the area, prompting a metamorphosis of the area of Long Island City, and turning it into the arts district is it now, with many cultural institutions, such as the Socrates Sculpture Park, the SculptureCenter, MoMA PS1, and the Museum of the Moving Image).

Very close to the Noguchi Foundation and facing the East River is the Rainey Park, where an original playground retrieves the ideas proposed by the sculptor.

Text: Patricia Hernández Lamas





Noguchi Museum


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16 | Burden

Crisis, renewal and modernity
Amanda Burden (1944-)
Tragedies, disasters and crises
A great tragedy: September 11th
One World Trade Center (2015)
Renovation of Battery Park
Hurricane Sandy, October 29, 2012
Storms and hurricanes in New York
Devastating effect of flood
Power Supply
Impact on the City
Investments: systems of greenery
Financial Crisis in 2008
Quick recovery of tourism
Economy of diversified base
Design and build the new
Emphasis on the design of buildings
Site-based value
Architect-based value
Taller, more expensive, more famous
Slimmer, one dwelling per floor
Slim skyscrapers
The 52nd Street Project
Recovering the old
High Line (2012)
The power of public spaces
Recovering Gowanus Canal
Fulton Center

Amanda M. Burden (1944)
Crises and Challenges



View of Hudson Yards and 520 West 28th Street Looking Nort from the High Line.
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Crisis, renewal and modernity

Starting with the oil war, there is a substantial change in the way of building the city in force until the end of the 1970s. The episodically inspired nature of the art of building, typical of the times of Phillip Johnson, begins to be rare, until it stops being characteristic, even if some bright isolated examples remain.

Until then, good architects could work in large firms and develop their architecture with personal contributions of critical interest. Starting in the 1980s, large firms enter into a real estate drift mostly led by speculative interests of poor quality both in architectural and in constructive terms. New York continues to destroy old buildings to build new ones, but these are no longer better — in any possible sense — than the previous ones.

In parallel, or perhaps consequently, a profound renewal of the theoretical and critical discourse on the construction of the city emerges, first in academic settings, later to extend, shyly but firmly into practice. This is accompanied or perhaps facilitated by the incorporation of good foreign professionals with experience and different ideas, whose work takes shape as a possible alternative.

From the 1980s, architects like Bernard Tschumi, Steven Hall, Herzog & De Meuron, Kenneth Frampton, Richard Meier, and the Spanish Rafael Moneo, Juan Herreros and Iñaki Abalos arrive or return to universities in New York, and others more or less close and influential. They bring a theoretical and practical background that is powerful enough to influence the criticism and to infiltrate new values into the practice. Building benefits from it, and the market begins to recognize the potential novelty value included in this.

As a first result, the city began to be dotted with large signature buildings. The 8 Spruce Street tower by Frank Gehry, or the AIC building on 18th St ... are possible examples. The classic New York pragmatism takes care of transferring all this into the market, including the figure of the architect among the attractions of the building. Secondarily, the routine work of the large firms is questioned, and their products are more difficult to position among a customer base wiser to seek out new values.

A similar spirit pervades some urban initiatives, giving them that quality of the new, so beloved in New York and with proven ability to attract citizen interest and action.

Projects like the High Line or the Brooklyn Riverwalk act as galvanizers of large areas of the city and their success is imposed as a role model on those who really build the city — state and local politicians, commissioners, large corporations, real estate companies and builders.

Amanda Burden (1944)

Much of the impetus taken by the city in recent years is due to Amanda Burden, director of the New York City Department of City Planning and chairman of the City Planning Commission under Mayor Michael Bloomberg from 2002 to 2013. She graduated in Environmental Sciences from Sarah Lawrence College in 1976 and later did a Masters in Urban Planning at Columbia University.

Prior to her tenure at City Hall, she had worked for the New York State Urban Development Corporation, and later at the Battery Park City Authority from 1983-1990, being responsible for the development and implementation of the design guidelines in this park of 37 ha (92 ac), and the design of the waterfront esplanade and open spaces and green areas.

Her careful policy puts a strong emphasis on open spaces, continuous shop windows, and the inclusion of trees and other elements to promote the animation of the street, and she was widely criticized by developers, accused of being bossy and arbitrary. In her defense of the street, Amanda Burden dictated the composition of buildings and required greater architectural innovation. She left her mark on each of the skyscrapers, walkways, plazas or large projects made during her tenure.

She had a special concern for the waterfront, for which she prepared a plan called 'Vision 2020' with over 500 projects worth tens of millions of dollars. The scope of the projects ranged from promoting access to water canoes and small boats to protecting the coast against the rising levels predicted by climate change. In her presentation, Burden said that water should be part of the daily life of the city, that it should be the 'sixth district' of New York City.

The announcement was greeted with jubilation by real estate developers, and it appeared in the real estate pages of the New York Times under the title 'The next frontier of New York: the waterfront'. But immediately she recognized that, although this time everything seemed clearer than usual, it seemed difficult to make public and private interests converge. However, these great plans often take many years to start up.

The plan contained a number of large projects scattered throughout the city. In Manhattan, two major actions were planned, one on the shore of Hudson starting at 50th St. towards the north, and another one in the East River, from South Sea Port to Harlem. In Brooklyn, developers raised four proposals on the waterfront in Williamsburg and Greenpoint. In Queens, the city planned 5,000 social housing units to be built in 30 years in Hunters Point. In the South Bronx the Bronx Greenway was planned, as a prop for the development of Hunts Point peninsula. And in Staten Island, the rehabilitation of 14 ha (35 ac) at the former military port of Homeport, with an inversion in roads of 33 M $.

Overall, the plan aimed to maintain the delicate balance between public and private investment — already classic in the city — in an environment such as the waterfront. Susceptible areas for improvement on the waterfront are extensive and allow for the development of ambitious projects attractive to developers. In turn, these projects generate public income, directly, or in the form of public facilities such as schools, parks or plazas.[68]

Amanda Burden's approach to her entire planning activity was always from the bottom up, from the smallest details to the conception of the whole performance. In a lecture titled *How public spaces make cities work,* issued on April 8, 2014 in Vancouver, she explains her way of doing urbanism.[69] She begins with a careful examination of how people use public spaces: why they prefer chairs that can be moved, how they sit on a bench, which feelings they seek in the greenery:

People came in, found their own their seat, moved it a bit, and then stayed a while. Interestingly, people attracted more people and, ironically, I felt more peaceful if there were other people around. And it was green. This little park provided what New Yorkers were craving: comfort and greenery. And it contrasted with the traditional city plazas, Spartan, which charm architects, because they are plinths for their creations, and which are ideal for developers, nothing to water, nothing to maintain, no undesirable people to worry about.

Mayor Bloomberg's policy was to encourage the growth of New York City: the city needed a million new citizens, should move from 8 to 9 million. The question was where the city could grow, in a city that was already built out to its edges, and surrounded by water. If it couldn't spread out, it would have to go up, and it would have to go up in places where it wouldn't be necessary to use a car. It was necessary to find appropriate spaces for new projects, but close to public transit, within ten minutes from a Subway station.

From there, she began a comprehensive review of the city, looking for the smallest opportunities to get upgrades for the city, both in parks and public spaces, as in large development opportunities. It was necessary to define in great detail the zones in which increases in height could be done to accommodate the growth, and to finance the facilities and public spaces that would be needed, which required the approval of the surrounding communities of neighbors. Amanda Burden *spent thousands of hours listening only to generate trust* [...] *walked* [hundreds of blocks] *in sweltering summers, cold winters in order to understand the DNA of each neighborhood and know how people lived in every street.*

Over the course of 12 years, her team redesigned 124 districts, 40% of the city; 12,500 blocks, so that today, *90% of the new buildings in New York are within 10 minutes walk from the Subway. In other words, no one in these new buildings needs to have a car.*

Her mandate complete, Amanda Burden is recognized for having left an indelible legacy on how the five boroughs will look and feel in the coming decades[70].

Tragedies, disasters and crises

The mandate of Mayor Bloomberg was marked by a series of crises of various origin that left a decisive imprint in the city. In addition to the works and actions necessary to address the immediate consequences, they also entailed medium and long term effects, and changes of unpredictable duration in the behavior of New Yorkers and their rulers. The city managed to hastily recover from them all, and to enter the twenty-first century in a great form.

The election won by Bloomberg was delayed about a month by the attacks of September 11, 2001. Precisely on that day, the 11, primary elections were scheduled, and the whole process was delayed. The primaries were held on September 25 and the final round was postponed until October 11.

Among the skyscrapers that will rise at Ground Zero, the new name for the area formerly occupied by the Twin Towers, 7 World Trade Center was the first to be completed. It belongs to the real estate company Silverstein Properties, to whom a few weeks before September 11, 2001 the Port Authority of New York granted the concession rental of the World Trade Center complex for the following 99 years.

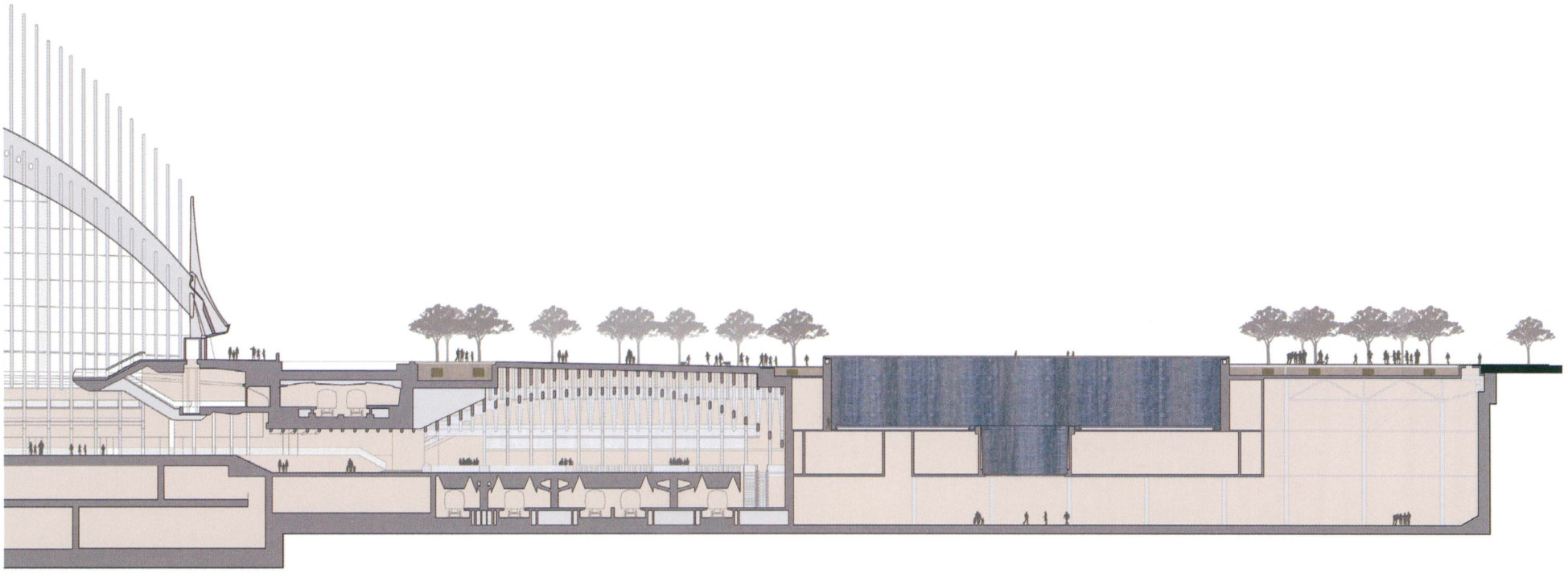
Tower 7 of the World Trade Center has 52 floors, is oriented north of Ground Zero and today stands on Vesey Street. It is surpassed in height by the adjacent Tower 1, also designed by David Childs of SOM (Skidmore, Owings & Merrill), with 300 meters. In Greenwich Street, Towers 2, 3 and 4, by Foster & Partners, Richard Rogers Partnership and Maki & Associates will rise. Between towers 2 and 3 the PATH Terminal is being built, designed by Santiago Calatrava.

Awarded by Silverstein Properties to SOM in 2002, 7 World Trade Center replaces the eponymous tower, which played a vital role for the border areas before 9/11. In the basements and first floors of the old 7 World Trade Center a transformer was located on which the distribution of electricity to much of Lower Manhattan depended. The need to put this system back to work explains the speed at which the tower, with the transformer in its basement, has been rebuilt. The fuel tank to run the emergency generators has been placed under the square in front of the main entrance, a safety requirement that has made the floor plan of the tower smaller than that of the previous building. The reduction in the support surface has been compensated by an increase in height, which reaches about 225 meters.[71]

The structure of the building has two parts: the base is of reinforced concrete, and a steel frame supports the upper 42 floors. The whole structure is excessive, because 7 World Trade Center was designed to withstand a catastrophe like 9/11. The fire-proof steel beams provide a protection five times higher than that required by municipal regulations; the evacuation routes are 20% longer; the escape routes lead directly to the street; the lobby protects the core of the building, and accesses are mainly pedestrian (95% of those who reach the tower will walk). This way of addressing security issues can become a role model for buildings in extremely conflictive areas, and the same could be said about the sustainability technologies employed in it.

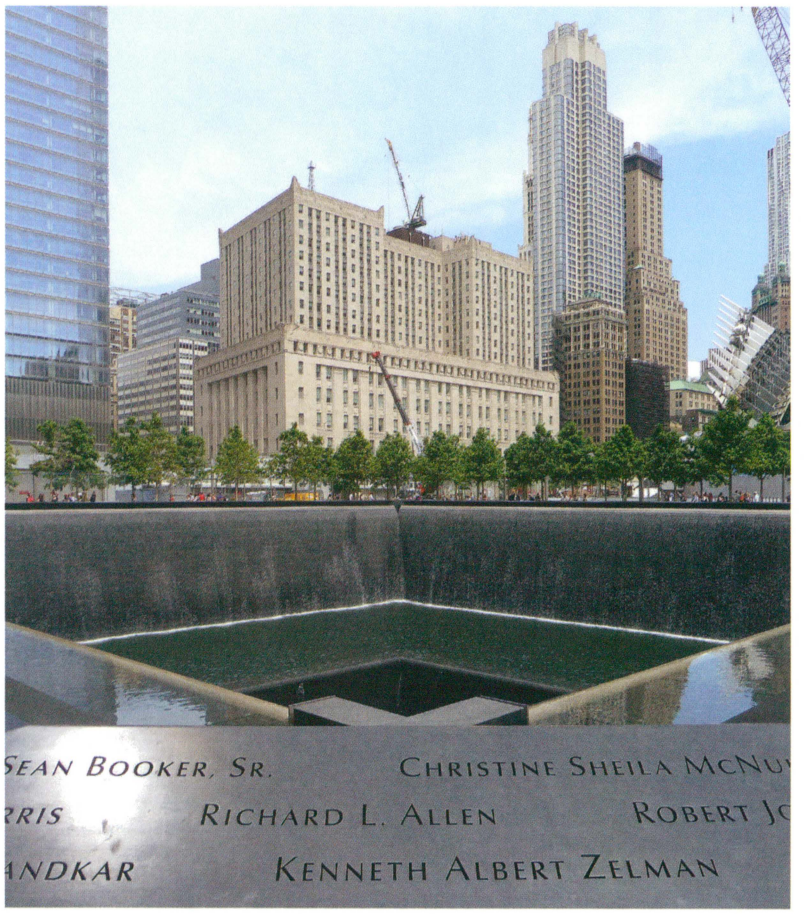


September 11 Memorial Park

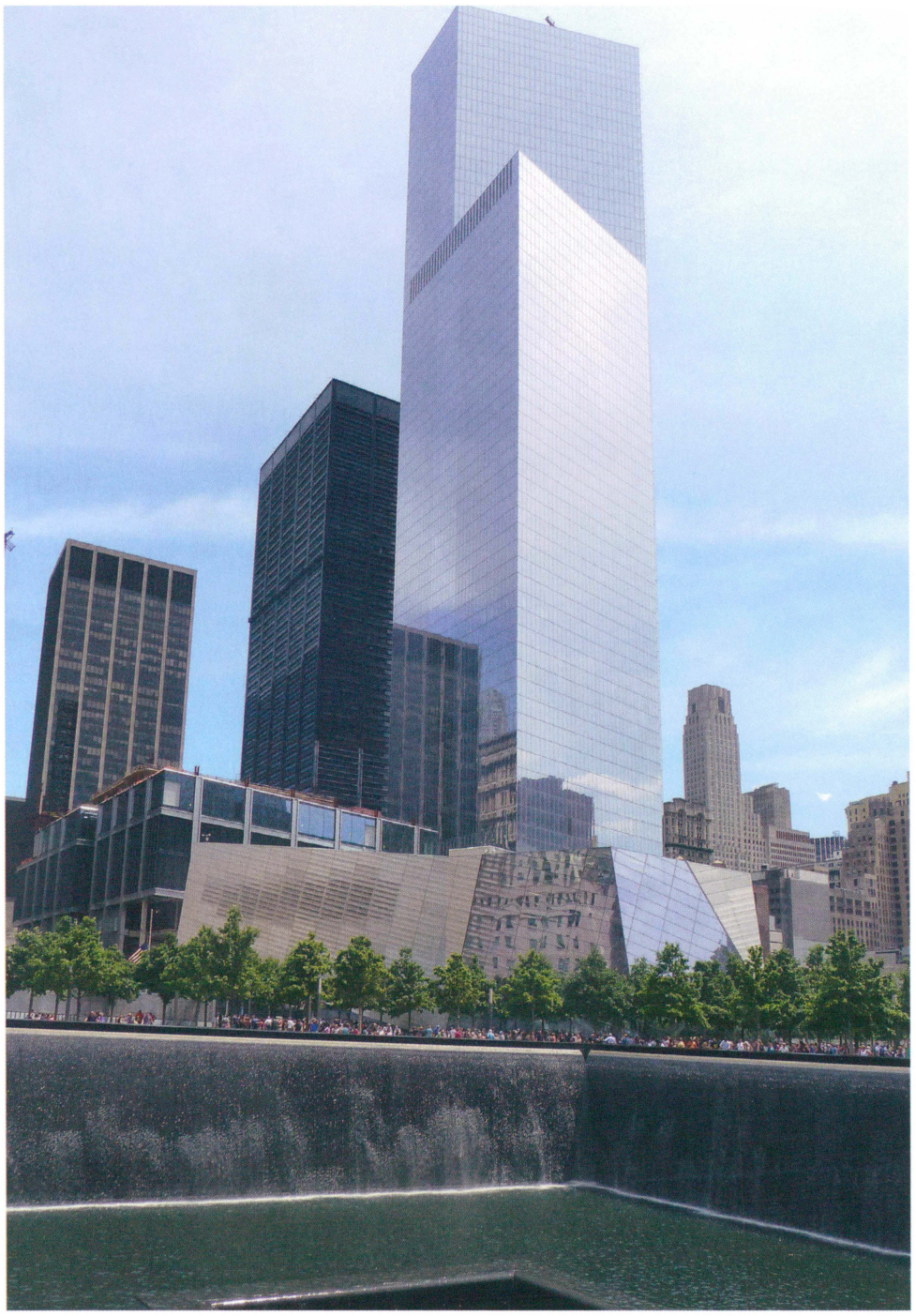


National September 11 Memorial











September 11 Memorial Park

Located in the World Trade Center in Lower Manhattan, the September 11 Memorial Park, named Reflecting Absence, and with a surface of 32,000 m^2 (345,000 sqft), commemorates the events of February 26, 1993 in the parking lot of the North Tower, and the Twin Towers fallen on September 11, 2001. The footprints of the towers have been occupied by two ponds with waterfalls 10 m deep that slide on all four sides and descend into a central void; they are surrounded by bronze panels bearing the names of the 2,983 victims registered by groups according to their relationship and proximity at the time of the attacks. For its realization, an international competition was called for, in which 5,201 projects involving 63 different countries convened. The winners were the architect Michael Arad and the landscape architect Peter Walker. The garden consists of oaks that acquire a striking reddish

September 11 Memorial Park

color in autumn, with the exception of a Callery pear, known as the 'Survivor Tree'. This tree, planted in the 1970s in the plaza of the World Trade Center, was the only tree in the area that survived and, after recovering in a New York park, it was again transplanted to Ground Zero.

Although the park opened on the tenth anniversary of the attack, the rest of the new World Trade Center, whose general plan is by architect Daniel Libeskind, is still under construction and it includes: the memorial museum located between the two ponds, the transport hub by Santiago Calatrava and the Freedom Tower, 541 m high (1,776 feet, corresponding to the year of US independence), part of the spiral of new office towers around the memorial (Norman Foster - 411 m (1,348 ft) - Richard Rogers - 383 m (1257 ft)- and Fumihiko Maki - 297 m (974 ft)). Libeskind proposed an "edge of light" for the organization of the various buildings, a free space through which sunlight would penetrate and touch the ground every September 11th between 8:46 (time of the impact on the first tower) and 10:30 (time of the collapse of the second tower).

Text: Patricia Hernández Lamas

One World Trade Center (2015)

One World Trade Center is the new building constructed by the New York & New Jersey Port Authority at the site of the collapsed Twin Towers destroyed on September 11, 2001. Previously, it was called New World Trade Center, and subsequently, Freedom Tower. It was designed by architect David Child, with a height of 541 m (1,775









One World Trade Center (2014)

ft), the identical height of the previous towers. Over the roof, located at 417 m (1,368 ft), a mast, designed by Kenneth Snelson and the Jörg Schlaich office in New York, covers the difference in height.

Renovation of Battery Park

Amanda Burden had previously worked in the fill area generated by the construction of the Twin Towers, providing the general plan and the particular design of the park located on the shore of the Hudson. But after the attack it became necessary to reshape both the old Battery Park, and the two stretches of riverfront land located north on both sides. With that, Burden sought to change the entire southern end of the island of Manhattan, and she saw action on the waterfront as an opportunity. In this conference, April 2014, she stated:

The water edge of lower Manhattan was a complete mess before September 11. Wall Street was essentially landlocked, because you couldn't get anywhere near this edge, and after September 11, the city had little control. But I figured if we went to the Lower Manhattan Development Corporation and got money to reclaim these 2 miles of degraded waterfront, it could have an enormous effect on the rebuilding of lower Manhattan. And so it was. Lower Manhattan finally has a public waterfront on three fronts. I really love this park. Now the railings had to be higher, so we put some sort bar stools around the edge and you can get so close to the water that you're almost on it. And see how the railing widens and flattens out so you can lay down your lunch or laptop.

Hurricane Sandy, Oct 29, 2012

Sandy was the latest catastrophic storm to hit the city of New York, but there have been many others. Throughout history, the city has suffered hurricanes and other coastal storms, such as the Nor'easters. Hurricanes and tropical storms are rare in New York, in relation to other types of coastal storms (usually arrived during hurricane season, from June 1 to October 31), and can produce pronounced concentrations of heavy rain and strong winds.

The Nor'easters, however, are storms of cold air with strong winds blowing from the ocean in front of them. Compared with hurricanes, Nor'easters tend to be less focused and have weaker winds. But they can cause significant damage, because they tend to last longer, leading to prolonged periods of strong winds and high tides that can last for several high tides.

Storms and hurricanes in New York

In 1821, a hurricane hit directly the city of New York, with winds of 120 km / h (75 mph) and a rise of the sea with waves of almost 4 m (13 ft) which flooded Lower Manhattan up to Canal St. In 1938, a storm, known as the Long Island Express because its dizzying vortex passed over it, hitting it without warning, causing over 600 deaths, including ten in New York City, while wind gusts of 160 km / h (100 mph) left all the north of Manhattan above 59th St without power supply. In 1960, Hurricane Donna, with wind gusts up to 145 km / h (90 mph) and a rising sea of 3 m (10 ft) above the average level, caused serious damage to the piers.

In the last decade, major storms have been appearing in the North Atlantic more frequently. Examples of recent storms of significant impact on the city of New York are

numerous: Agnes in 1972, Belle in 1976, Gloria in 1985, a Nor'easter in 1992, Bertha in 1996, Floyd in 1999, Elizabeth in 2003, Ernesto in 2006, a Nor'easter in 2007, and Irene and Lee in 2011 — with successive occurrences just 14 months before Sandy [106: 21].

Devastating effect of flood

A report on the measures to take to avoid the devastating effects of a possible repeat of hurricane similar to Sandy began with these figures: *43 deaths... 6,500 patients evacuated from hospitals and nursing homes... Nearly 90,000 buildings in the inundation zone... 1.1 million New York City children unable to attend school for a week... close to 2 million people without power... 11 million travelers affected daily... $19 billion in damage...* [106:11].

Hurricane Sandy was a devastating coastal flood event that left many New Yorkers without homes, electricity, and their livelihoods. The damage to DEP's wastewater treatment plants and pumping stations alone has been estimated to exceed $95 million. The inundation experienced at these facilities during the storm was unprecedented, forcing many of DEP's staff to work around the clock in difficult conditions through the surge and in the days that followed to maintain or restore service.

The surge also provided DEP with a unique and unprecedented example of risks at its wastewater facilities. To improve protection and response in the future, staff rigorously documented flood depths, providing valuable information regarding the impacts of flooding on site.

Power supply

Of particular note, most of the damage experienced during Sandy was to electrical equipment that supplies power throughout the plants. Failure of this electrical equipment endangered many treatment processes. Fortunately, DEP implemented its Storm Preparedness Plan in advance so most facilities were able to retain some degree of power and operation using emergency generators. Only three facilities were non-operational as a result of the storm: Coney Island (two hours), North River (seven hours), and Rockaway (three days, although basic disinfection processes continued during this time). Many of the other plants experienced varying levels of flood damage to equipment and were forced to operate on their emergency generators for up to two weeks due to utility power outages.

Damage caused to wastewater infrastructure led to environmental impacts on surrounding waters. Partly due to power outages and plant inundation, and partly due to a large influx of floodwater into the sewer system, DEP reported that approximately 562 million gallons of untreated and diluted sewage that was mixed with stormwater and seawater was released into local waterways. The majority of this combined sewage overflow originated from the areas served by the Tallman Island, North River, Newtown Creek, Coney Island, and Rockaway plants. Advanced (secondary) treatment was also reduced at the Port Richmond, Oakwood Beach, Rockaway, Coney Island, and 26th Ward Wastewater Treatment Plants; however these plants were able to continue basic (primary) treatment to meet their permit requirements for pollutant removal [106:5].

Repercussions in the city

All of the city's 14 wastewater treatment plants are located along the waterfront at relatively low elevations. Waterfront locations significantly reduce the cost and environmental impact of treating wastewater in New York City, making it easier for flow to arrive by gravity and providing nearby waterways to discharge treated effluent. Secondarily, but also importantly, the waterfront location further allows sludge to be transported efficiently by boat to DEP facilities for additional treatment.

Under normal conditions, system capacity is adequate to perform full treatment for the combined volume of sewage. During periods of rainfall when flow exceeds two times dry weather capacity, the combined volume of sewage and stormwater quickly can exceed the capacity of the wastewater treatment plants. The system is designed to discharge a mix of stormwater and wastewater—called combined sewer overflow or CSO—into nearby waterways to drain the city quickly and prevent the biological processes at the wastewater treatment plants from becoming compromised, which could lead to extended service outages.

Investments: systems of greenery

In response to these CSO events, the City has invested billions of dollars. Recently, however, the City restructured its approach to implement innovative strategies to absorb rain before it can enter sewers, and, in the process, create systems of greenery that shade and beautify the city.

In September 2010, Mayor Bloomberg launched the NYC Green Infrastructure Plan, a comprehensive 20-year effort to meet water quality standards, and in March 2012, the plan was incorporated into a consent order with the State that will eliminate or



1325 Avenue of the Americas at 1325 Sixth Avenue between 53rd and 54th streets, gallery reminiscent of London's covered shopping arcades



Water St. & Pine St. Plaza at the intersection of Water St and Pine St.



Zuccotti Park (Dan Nott, 2011). This square, formerly known as Liberty Plaza, is located in Lower Manhattan



The Elevated Acre at 55 Water Street, off Old Slip Road in the Financial District (M. Paul Friedberg & Associates)





31 W. 52nd St. Plaza. This space between buildings has been turned into a lounge area

defer $3.4 billion in traditional investments and result in approximately 1.5 billion gallons of CSO reductions annually by 2030 [106:209].

Financial crisis in 2008

In the key days of the last financial crisis in the winter of 2009, the occupancy rate of hotels fell in 30%. Hoteliers reacted with big markdowns, sometimes to half price, and innovative incentives to prolong the stays. About six months later, occupancy reached 85% and the number of visitors to the city remained at about 45 million, only 4% less than the previous year.

The city has developed an economic structure little exposed to cyclical crises. At the end of World War II nearly one million inhabitants — one fourth of the total population of the city — worked in cosmetic factories, machine tools and clothing. By the late 1960s, the factories employed 850,000 workers. But in 2009 there were only 95,000 industrial jobs, while health and education occupy more than 700,000 people in an area historically little affected by crises.

The whole country lost 6% of the jobs and took 27 months to recover, while New York fell by 3.5% and recovered within 17 months. Although it seems clear that New York was less affected than the rest of the country and recovered earlier, it is not clear whether it will remain the economic and business capital not of the country, but of the world, or whether it is entering the final chapter of an era [44: 6].

Quick recovery of tourism

The main counterweight to the financial sector on Wall Street is the tourist industry, which has assumed the role previously played by manufacturing. It employs many immigrants and keeps alive the creation of opportunities for newcomers. At a somewhat higher level, the technology industry is creating thousands of good paying jobs, and alongside higher education and the entertainment industry, it provides the main impetus for the middle classes [44: 7].

Another economic pillar of the city, opposing the myth of its manufacturing vocation is its real estate industry, whose enormous impact has been highlighted throughout this book. The city that is constantly destroyed to keep building itself occupies an important sector of the population and it was always an important economic lever on its finances.

A very diversified economy

The growth of tourism and emerging sectors such as the internet and higher education have diversified the economic base of the city, but its wealth, alongside the taxes that nourish its budget, depends largely on Wall Street and its highly paid commercial and investment bankers [44: 8].

The three great mayors of the last epoch of New York, Ed Koch, Rudy Giuliani and Michael Bloomberg, have helped boost the extraordinary income of New York by placing the economy among their top priorities. This meant a sharp break with the previous approach, exemplified by John Lindsay, who understood the economy as a source of income for those in need.

While it is true that manufacturing made New York, offering a million jobs by the end of the 1940s, and keeping them until the 1960s, this is no longer the economic reality of the city. But the nostalgia of an economy based on making things has been so powerful as to influence local politics for decades, spending hundreds of millions in the vain attempt to hold its fall [44:44].

Design and build the new

Far behind is Robert Moses, and his 'thinking big' in Public Works, able to impose his own radical vision on roads and parks throughout the city from the 1930s through the 1960s. Ms. Burden might be considered an aesthetic watchdog. *She is the design conscience of New York,* said Robert Yaro, president of the Regional Plan Association, *an influential private research agency that opposes the stadium. We just haven't had this design sensibility in City Hall maybe ever.* You're seeing that in the quality of public and private design, whether it's an office building in Midtown or the Brooklyn waterfront.[72]

Emphasis on the design of buildings

For a long time, potential buyers of apartments sought reasons of prestige related to the area or the quality of a building to decide to live in it. Along with the advantages of living there, they could incorporate these reasons of prestige into their own person (see Chapter 9). It was prestigious to live in expensive buildings, or on top of a skyscraper or a building with anything that distinguished it from others.

Site-related value

Conversely, successful building gave prestige to their builders and architects. High buildings are a form of 'conspicuous production' for developers, giving them a huge visibility. In the first part of the twentieth century some examples are the Woolworth Bldg. (1913), the Candler Bldg. (1912), the Chrysler Building (1930) or the Empire State Bldg. (1931). In the second part of the twentieth century, the Twin Towers (1973), the Trump Tower (1983) or the Trump World Tower (2001) monopolize the stories surrounding skyscrapers and prestige shines on their architects [13: 4].

During the first years of this century, however, the mayor's office aims to reverse the current. As always, the essential aim is to revitalize the housing market, always a crucial element of the economy, employment and finances of the city.

Architect-related value

But now the idea implemented and developed by Amanda Burden is to find good projects by famous architects, whose signature could make the building enticing. The ideal client would be a wealthy foreigner in any remote corner of the world, who would be interested in the idea of buying an apartment in a building in New York built by one of the great architects of the world. In 1980, the customer valued an apartment on Park Avenue but, as this cannot go on any longer, the idea is now to lure him with an apartment in a tower by Gehry, de Portzamparc, Rogers, etc.

From the head of the City Planning Commission, the regulatory body of the department through which design standards are established, Burden said: *Good architecture*

is good economic development. Historically, developers do not want to work with prominent architects, because they slow down the building process with design problems. With Burden, options narrow, the quality of the projects improves, and developers seek out better architects.[73]

Higher, more expensive, more famous

It is still early to see the fruits of this policy in search of good architecture, but other effects begin to be noticeable. The Midtown area around 57th St. is a good example of the constructive thrust of the city in the recent period. Ever higher towers for ever richer clients, signed by more and more famous architects compete in what is, for now, an unlimited race.[74] The One57 project, for example, aims to be the tallest tower in New York, 306 m (1,004 ft) high, and is marketed under the label 'paradise of the super-rich'. It stars in the, well for now, most expensive sale in the city: 1000 m^2 (10,764 sqft) duplex for $ 90 million (M $).

The catch to promote this type of building is its unique character of property reserved for large fortunes. All buyers of the top nine floors of One57 have assets of more than 1,000 M $. And they sell fast enough to promote other similar promotions. The building at 432 Park Ave. will rise to 426 m (1,398 ft), as it aspires to be the largest residential tower in New York and the whole western world. It occupies the former site of a demolished hotel, and it has all kinds of 'exclusive' services, aiming to sell its top floors of six rooms ... for 95 M $ to customers around the world. The promotional brochure is in Chinese, French, Italian, Spanish, Portuguese and Russian, as well as English.

Hearst Building (Norman Foster, 2006)



Slimmer, one dwelling per floor

But the race continues: in 2018, the 225 West 57th St building., promoted by Exteil Developments, will become the highest with 472 m (1,549 ft) and 88 floors. The famous Park Lane Hotel at 36 Central Park South is threatened with demolition, to be replaced by a high tower. Near One57, there is another new project, at 107 West 57th St., the new tower by SHOP architects, which will be 411.5 m (1350 ft) high, and probably will be the thinnest.

It is part of a new family of 'slim skyscrapers' with a small floor plan surface and exaggeratedly slender. Each floor contains a single dwelling, whose interior partition walls double as strong stiff walls, able to resist the bending produced by the wind on the tower, which is conceived as a thin cantilever anchored in the ground.

Slim skyscrapers

This new trend of 'slim skyscrapers' has, of course, critics and detractors. One of the most influential is the Times critic Michael Kimmelman, in favor of greater control of the city on the accumulation of air rights without any public checks and balances. Kimmelman thinks that developers should 'earn' the height and not simply buy it. The opinion of the associations, neighborhood groups, agencies and urban bodies should be considered and taken into account. And in order to get permissions for such heights, the buildings themselves should contribute something to the community in terms of aesthetics, and in concessions.

These striking skyscrapers are a small but very showy part of what is built, but there are many other examples of different ways of understanding what has been built in



One57 (Christian de Portzamparc, 2013)

Tower at Spruce St., Manhattan (Frank Gehry, 2011)

InterActiveCorporation Headquarters (Frank Gehry, 2008)

Tower at Park Avenue with E 57th St.

Time Warner Center, Columbus Circle (D. Childs and M. Kemal, 2003)

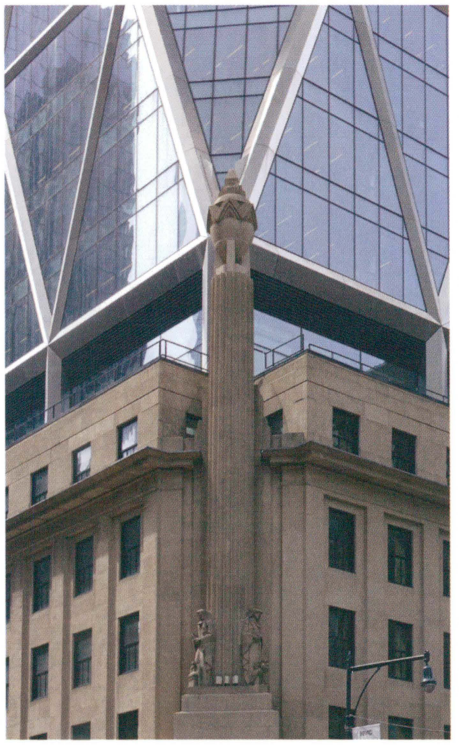














One Madison Park, 23 St. with Fifth Ave. (Cetra/Ruddy, Rem Koolhaas, 2013)

Hearst Building (Norman Foster, 2006)

Tower at Park Avenue with E 57th St.

recent years. In general, the works are the result of a prior negotiation, and they try to arrange different interests in order to succeed. They do offer compensation in the form of space, facilities, gardens, or concessions to secure the support of those who at first oppose the projects. The most attractive part of a street or an old building can be preserved, while the surface rights, or the building volume rights are transferred to other parts of the plot.

The 52nd Street Project

The project at 920 Tenth Ave. between 52nd and 53rd St. is a good example of how to restructure old buildings preserving certain pre-existing features, while augmenting the volume to make the operation profitable. The resulting whole is a building with a low facade facing Tenth Avenue, next to two old historic buildings, extended behind by a tower of apartments, and another one further south past 52nd St. with similar volume and materials.

The commercial premises on the avenue have also been modified, one of them hosting the Housing Conservation Coordination, and another one a somewhat pres-





The 52nd Street Project-Community garden and Facade at Tenth Ave



The 52nd Street Project-Apartments

tigious restaurant. The whole ensemble has been treated with the same partitions, materials and similar green colors with teal nuances, in order to give cohesion to the project. The building next to the old building is a small module of similar height, and beside it a covered passageway to the new tower covered with a glass and steel canopy of modern design with classic undertones is located. At the back of the old buildings an almost square community garden has been created, opening up to the passageway are a club with display windows showcasing children's works on the project, and a theater, the Five Angels Theater, providing channels for public participation.

Recovering the Old

Many of the refurbishing actions start from the opportunity offered by the recovery of degraded areas. One of the most successful examples, certainly according to the critics, but mostly to the public, is the recovery of a stretch of elevated railway. Again, Burden:

The High Line was an elevated railway that ran through three neighborhoods on Manhattan's West Side. When the train stopped running, it became a self-seeded landscape, a kind of garden in the sky. And when I saw it the first time, when I went up that old viaduct, I fell in love the way you fall in love with a person, honestly. Then, when I was appointed, saving the first two sections of the High Line from demolition became my priority and my most important project. I knew that if there was a day in which I didn't worry about the High Line, it would come down[75].

The refurbishment works took a long time to get started but, as the neighborhood was changing outlook thanks to the new interest brought by the project, pressures from developers to demolish the railroad increased, and made the recovery of the third section, the shorter one, located in one of the most degraded areas much more difficult. Once again, it is interesting to go back to Amanda Burden's reflections from April 2014.

Some of the city's leading developers are building more than 1,5 millions m² (17 million ft2) in Hudson Yards. And they came to me and they proposed that they 'temporarily disassemble' that third and last section. Perhaps the High Line did not fit in with their idea of a gleaning city of skyscrapers on a hill. Perhaps it was just in their way. In any case, it took nine months of non-stop daily negotiations to finally get the signed agreement to prohibit its demolition, and that was only two years ago. So, you see, no matter how popular and successful a public space may be: it can never be taken for granted.

Public spaces always need vigilant champions, not only to claim them at the outset for public use, but to design them for the people that use them, then to maintain them, to ensure that they are for everyone, that they are not violated, invaded, abandoned or ignored. If there is any one lesson that I have learned in my life as a city planner, it is that public spaces have power [...] they are one of the most important reasons why you stay in a city. I believe that a successful city is like a fabulous party. People stay because they are having a great time.[76]

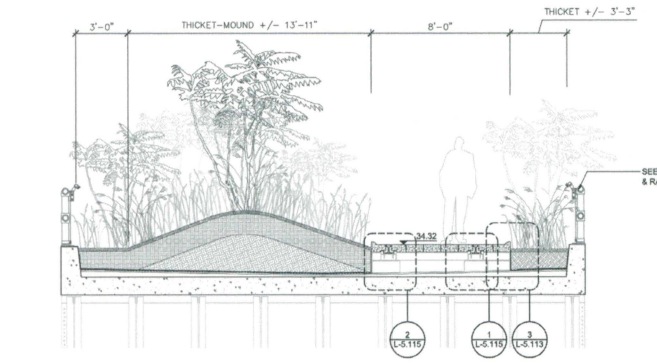


High Line

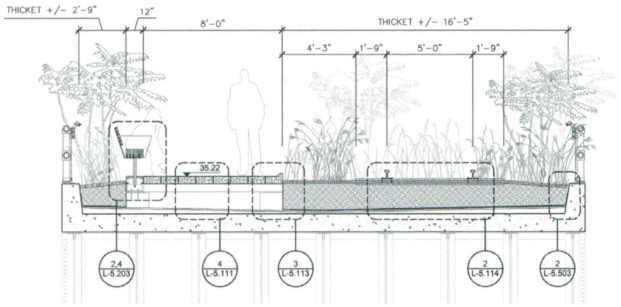
Section 1
1. Gansevoort Plaza
2. 14 th. street passage
3. Diller - Von Furstenberg sundeck
4. Chelsea market passage
5. 10 th. Avenue Square

Section 2
6. Chelsea thicket
7. 23 rd. street lawn and seating steps
8. Philip A. and Lisa Maria Falcone flyover
9. 26 th. street viewing spur
10. Wildflower field
11. 30 th. street Cut-out

By José de la Paz



2 W.21st - W.22nd ST. - THICKET
SCALE: 3/8" = 1'-0"



1 W.20th - W.21st ST. - THICKET
SCALE: 3/8" = 1'-0"

High Line Park

The High Line Park is built on the structure of an old freight railway built between 1929 and 1934 by the New York Central Railroad in the southwestern part of Manhattan, from Gansevoort Street through Chelsea's Gallery up until 30th street. This thin green strip is the work of landscape designers James Corner Field Operations and the architects Diller, Scofidio & Renfro, who achieve an elevated greenway over 20 blocks embedded in the urban landscape with magnificent and surprising views over the Hudson, the shore of New Jersey and Manhattan: a true belvedere garden on the West Side waterfront.

Originally trains on this line, built to remove dangerous freight trains from the busy streets of Manhattan that caused many accidents both to cars and pedestrians, carried fresh produce (meat, milk, fruit) and manufactured goods to the upper floors of the freight loading docks of factories and warehouses. This railway was partially abandoned and demolished in 1960, the last train circulating in 1980 [137: 135].

In 1999, the Association Friends of the High Line saved this old railroad fallen into disuse from destruction. With the subsequent support of the new mayor, Michael Bloomberg, they managed to stop the proposed demolition in the court, alleging that no public consultation had been made about it. Works for rehabilitation began in 2006 and opened three years later. There is a significant social and cultural movement behind this project. It was never thought that this action was to have much as much impact as it did, or to trigger all the development it has brought about, becoming a role model for many subsequent urban interventions.













High Line, 2009

It is the second railway in the world converted into a green walk, following the line of Vincennes in Paris. There are several precedents or references for this elevated greenway, like the old promenades over city walls, the covered deck promenades in transatlantic cruises, the Mediterranean seafront promenades with their ritual walks, the elevated pedestrian walkway of the



The Croton Water Reservoir / A. Fay. (1850)



On the Promenade, Brooklyn Bridge (c. 1895).

Brooklyn Bridge, the upper walk through the walls of the Croton Reservoir, formerly located in the site of the New York Public Library, or the elevated subway tracks on steel structures.

These recovered elevated walks not only offer the experience of circulating away from the habitual surrounding big city traffic and chaos, but they also allow to see the city from a new point of view, filled with suggestive nuances: life on the roofs and terraces of the city, the circulation in the lower level of the street with its theatrical activity, and the proximity of the sky; which turn the walk into a journey full of imagination and fantasy that recovers childhood feelings. The 9 m (30 ft) gap is high enough to gain a panoramic view, but the path itself has a cinematic quality, as if the line were a filmstrip [47: 34- 37]. A surreal walk among skyscrapers and some of the emblematic buildings, such as Frank Gehry's IAC Tower, or the Eleventh Ave. Residences by Jean Nouvel. The High Line becomes a prominent lookout terrace, a communitarian version of the iron balconies of the city apartments. It acquires the character of a large pier, much like the Hudson piers, turned into urban entertainment platforms.

It comprises three sections that have been completed at different stages. The first section, opened in 2009, runs from Gansevoort Street to 20th Street. This first phase has a more natural character, attempting to retrieve the image of a rusty railroad overrun by weeds. At the head of the line, work on the offices of the High Line is currently being finalized. Taking advantage of the views over the Hudson river, a terrace opens between 14th and 15th St., with wooden deck chairs for sunbathing that slide along the old railroad, and water features with small sprinklers. Between 15th and 16th St. is the Chelsea Market Passage with a busy cafe. At 17th St., you descend some steps to a wooden amphitheater that looks at the avenue through a glass. Throughout the tour you can enjoy the skyline of the city, in which the Empire State building stands out to the east.

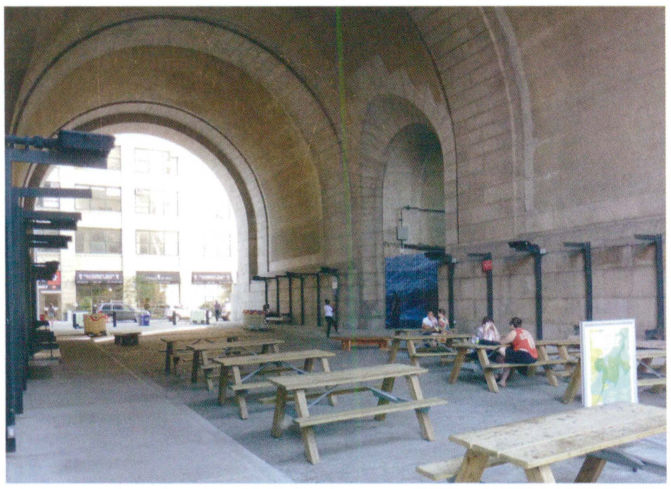
The second section, opened in 2011, runs between 20th and 30th St. It has a more modern character, with new materials and a more sober design. At 23th St. are located the Street Lawn and the Seating Steps, a small meadow next to a stage where performances take place. At 25th St. is the Philip A. and Lisa Maria Falcone Flyover, an elevated walkway, and at 26th St. is the Viewing Spur, a lookout that protrudes like a balcony to overlook the city. Between 27th and 28th St. spans the Wildflower Field.

The third section, still at the planning stage, develops between 30th and 34th St. Negotiations are currently taking place regarding the access to this final section, along the edge of the West Side Rail Yards, which is being converted into a residential and commercial complex, still under the ownership of the railway company.

At many points along the path remains of the track layout are preserved, recalling the history of this place as part of the industrial past of the city. Approximately every two blocks a box of stairs allows access, and some of them are provided with elevators. The route along the park-gangway is not monotonous, as different spaces follow each other, some of them lounges, where the pavement rises forming benches, and always dotted with low vegetation (wild plants, native species, exotic plants, aromatic plants, flowering shrubs, grasses, etc.) and some trees (birch, maple, oak, apple tree, etc.). These green spots that make up a veritable vegetable edge recall the wild gardens of Gertrude Jekyll. All this vegetation allows the generation of an ecosystem and the appearance of small mammals (squirrels, rodents, bats) and a variety of birds (gulls, pigeons, starlings, sparrows, etc.) and insects (butterflies, bees, dragonflies, cockroaches, beetles, etc.) [47: 12-29]. Parallel to the path, an artistic circuit, High Line Art, in which different sculptures and artistic works are exhibited, is also created. This space has served as the backdrop for many films and books. The project has successfully revived this whole post-industrial area of Chelsea. New homes, hotels, art galleries, shops and parks are being built, so that the landscape of cranes is common along its entire length.



Manhattan Bridge Archway Plaza





DUMBO, Brooklyn 2012

The area of Brooklyn located between the Manhattan and Brooklyn bridges, called Down Under Manhattan Bridge Overpass (DUMBO) was formerly full of port warehouses and factories. In the late twentieth century, these historic buildings were colonized by artists looking for a cheaper place to live and work, in what has come to be called the 'new Soho' or the 'Tribeca of Brooklyn.' Gradually, the area overlooking the East River has been revalued and regenerated with renovations and new housing and commercial space, with a significant increase in rental prices. This is the case of the future River Hotel by Jean Nouvel that will transform the old warehouses in a complex of residences, hotel and cinemas.

Elements and perspectives succeed one another, fragments of Manhattan Bridge, Brooklyn Bridge, the Brooklyn and Queens Expressway and their access ramps appear in sight above, with the incessant roar and rumble of the subway crossing over the structure metal bridge. Conflicts of scale arise with the invasion of buildings and crossings under the Manhattan Bridge, which is located very close to, and at an angle from the Brooklyn Bridge. New lounge spaces are created, such as the Manhattan Bridge Archway Plaza, a large vault converted into an urban hall under the bridge, with wooden benches and sweeping light.

Texts: Patricia Hernández Lamas





Gowanus Canal Whole Food Market restoration

Gowanus Canal Union St. Bridge

Recovering Gowanus Canal

The Gowanus Canal was built in the nineteenth century to connect the industry in the area with the port of New York. Its environmental situation is totally deteriorated because for many years the industry poured into it all kinds of hazardous waste without any control. Its oxygen level does not allow life, the smell is foul and its margins are degraded. In recent years, environmentalists have fought for its recovery, and have managed to place it in the nation's ranking of the most polluted spaces. Since the industrial companies responsible for the environmental disaster are known, the government intends to make them pay for its restoration, and this has brought about a long legal battle.

Mayor Bloomberg wanted to speed up the process with city funds, to which were added real estate companies expecting to achieve quick money and escape the stigma of an official designation as contaminated site, but he failed. The decontamination work began with the collection of sludge and the installation of provisional oxygenation piping, as the first steps of a process valued at 140 M $. Given its pouch design, the channel already had a tunnel that brought clean water from Buttermilk Channel, between Brooklyn and Governor's Island, installed in the early twentieth century, which will be restored.

Despite the designation, the canal begins to show signs of recovery with new residences, shops, art galleries, bars and restaurants. Young people have begun to populate the neighborhood, with cutting edge design initiatives and of environmentalist trend, joining other areas of Brooklyn in process of regeneration.[77]

Fulton Center

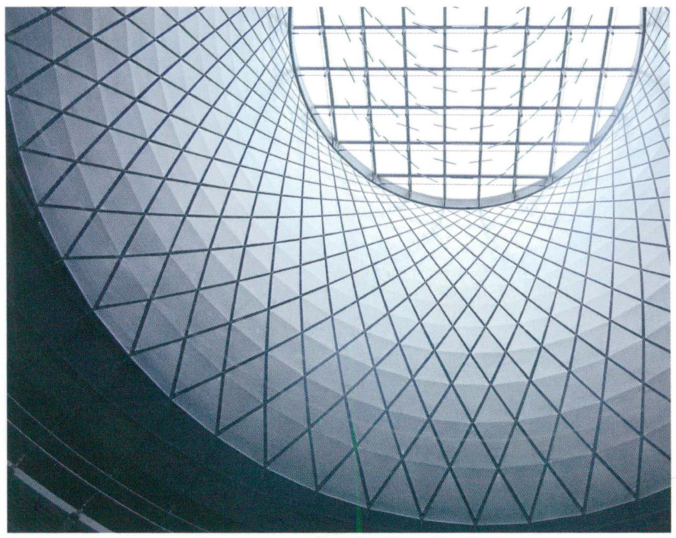
The new transit hub of the Metropolitan Transport Authority (MTA), called Fulton Center, was recently inaugurated after twelve years of work. It aims to connect access to the subway lines 2, 3, 4, 5, R and A, C, J and Z in the most convenient and transparent manner. It tries to improve the earlier transfers, obscure and confused, unifying the connections around a large hall.



Fulton Center

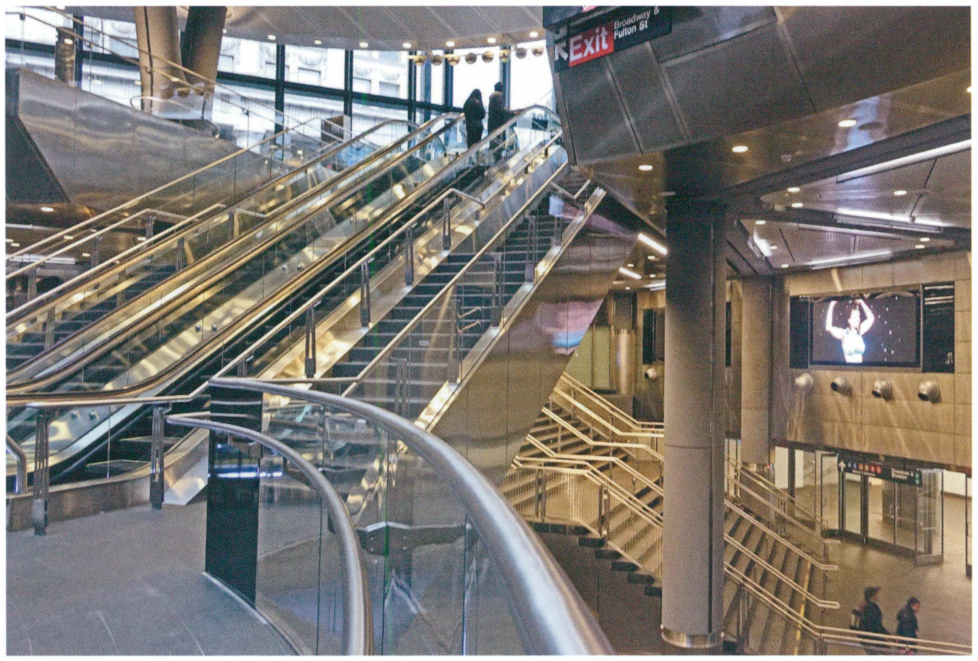
Its cover is a dome of 16 m (53 ft) in diameter, placed at a height twice the diameter and configured with a fine triangulation, with some resemblance to the ribbed vaults in the sport stadiums of Rome built by Pier Luigi Nervi in the late 1950s.

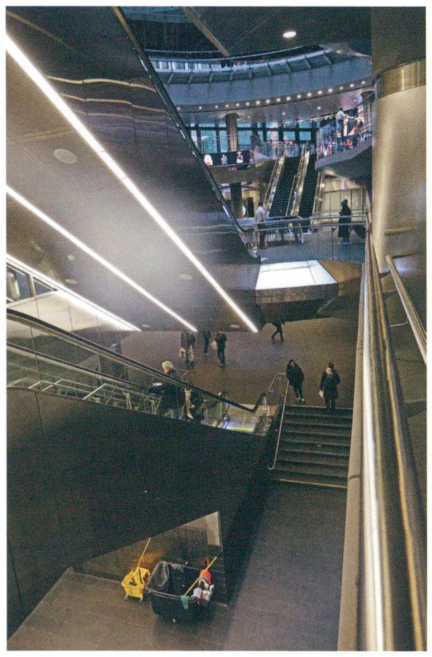
The inner void is obliquely crossed by different sections of escalators and endowed with panoramic balconies where one can see the movement of the crowd. In a way, this is a recreation of the hall at Grand Central Terminal, but without the spatial richness that characterizes it. That large public plaza covered by a starry sky had a monumental intention, also present here. But the space appears here 'invaded' by the stairs and communication ramps, both because of the smaller dimensions of the open spaces, and the greater use of the available area.[78]





Fulton Center







17 | Readers

Walks
Mid Manhattan, Chelsea and Meatpacking, SoHo
The North. Westchester and Putnam, Connecticut
Gardens
The landscaped squares
Bowling Green
City Hall Park
Trinity Church Cemetery
Washington Square Park
Tompkins Square Park
Union Square Park
Stuyvesant Square Park
Gramercy Park
Madison Square Park
Patios and courtyards
Chase Manhattan Bank Court and Plaza
New York Times Building Garden Court and Rooftop Garden
IBM Building Atrium
Citigroup Center Atrium
JP Morgan Atrium
Settings, engineering and film in New York
New York and cinema
The cinema was born in New York
The cathedral of communication of the 'free America'
Triumphant gate of a continent
The skyline is New York

Discovering the city (2014-?)

Walks

Mid Manhattan, Chelsea and Meatpacking, SoHo

Recognizing the major engineering works that dot the city of New York is a complex and risky task. The scope of the city multiplies the objects of research to infinity and forces us to have a well-founded knowledge before we choose, a task that is probably also impossible. Direct examination is undoubtedly the most effective and pleasant method.

The first approach must be through books. Much of the life of New York, such as that of Paris or London, takes place in them. Documentation about New York is overwhelming, despite it being the youngest of these three cities. Fortunately, its memory goes back just over four centuries: in 1609 the English navigator Henry Hudson, at the command of the *Half Moon*, armed by the Company of the West Indies, discovers the island of Manhattan and goes 200 km upstream the river that will bear his name.

But then, why New York? M. Berman gives the answer: "For more than a century, New York has served as a center for international communications. [...]. A great deal of New York's construction and development over the past century needs to be seen as symbolic action and communication: it has been conceived and executed not merely to serve immediate economical and political needs, but, at least equally important, to demonstrate to the whole world what modern men can build and how modern life can be imagined and lived '[18: 302].

At the outset, two texts almost randomly chosen prove to be most useful: *Delirious New York* [81] by R. Koolhaas, appeared in 1978, and K. Frampton's article featured in the magazine *Silenus* in 1966: "The capital of the twentieth century" [56]. With them in hand, you can start selecting destinations.

42nd Street, right in Midtown, is a good place to start the tour. The UN building on the East River, and the Hudson River piers, from which the cruisers that make the tour of Manhattan depart, mark its ends. In the middle, Grand Central Terminal, Pershing Viaduct and the New York Public Library are important milestones that coexist with skyscrapers of several generations. In it, sidewalks overflow with animation from Third Avenue to Times Square, the heart of New York, at the intersection with Broadway.

The Grand Central Terminal opened in 1913. It occupies the former site of the Grand Terminal Depot, the railway station built in 1871 at the southern limit allowed to steam locomotives entering Manhattan. The project, conceived and developed by engineer W.J. Wilgus, included the laying of underground routes after crossing the Harlem River, the introduction of electric traction, and the construction of the underground station that housed, on two separate levels, the long distance lines and the metropolitan commuter lines. The terminal building was designed by architects Red & Stem associated with W. Warren & Wetmore, as a monumental gateway to the city, around a large central courtyard that still, in its centenary, awakens the admiration of visitors and travelers. Funding for the project was provided, in accordance with W.J. Wilgus' suggestion, from the profits of selling the rights to build above the underground facilities, which was a key constraint in the design of its structures.

Just two years before, the Pennsylvania Railroads Co. had opened its new terminal: The Penn Station in Midtown, at a walking distance southwest of Grand Central Terminal. The project, announced in 1901, involved the construction of two tunnels under the Hudson and East rivers to connect the lines of Long Island and New Jersey with Manhattan. The building project was developed by McKim, Mead and White, later joined by W.S. Richardson, in a strong monumental style, with a classical facade composed of 84 Doric columns. In front of it, over the underground rail yard, and in perfect accord of styles, the General Post Office was built. In 1961, the building of the station was demolished, while the underground station remained in place, with the current Madison Square Garden on top. This initiative led way to







Chelsea Market and Piers

well-known protests that laid the foundations for the birth and development of the conservationist movement in New York. Currently the Post Office building can be seen intact.

The conservationist movement gave reasons for the enactment in 1965 of the New York City Landmarks Law and the constitution of the Landmark Preservation Commission, in charge of designating prominent sites to which the law applies. In New York, 23,000 sites, among whuch buildings, interiors, districts and landscapes, have been awarded this designation.

A little more than three blocks from Madison Sq. Garden on W 31st St. is the High Line, another result of the worship of monuments in the city, this time in the form of a linear park, on the viaduct of the old freight railway line that ran in the West Side through the districts of Chelsea and Meatpacking when they were industrial areas linked to the docks of the Hudson River. The metal structure lost its railway use in 1980, and in 2003 the project to transform it into an urban park, owned by the New York City and maintained by the residents' association Friends of The High Line, was awarded. The authors of the proposal, James Corner Field Operations with Diller Scofidio + Renfro, have developed a concept of park inspired by vegetation taking over the old abandoned railroad tracks, combined with elements of architectural and urban furnishing elements over a length of 2 km. The park opened in 2009 and enlargement is under consideration at its north end over the track yard of Penn Station, and on the other end to connect with the new headquarters of the Whitney Museum.

The transformation of streets, buildings and the environment in the immediate proximity of the High Line is the immediate manifestation of a much larger process of urban renewal unfolding at the edge of the West Side. It sprouted in the 1970s, when the decline of the commercial port of the Hudson began. The Chelsea Piers today house entertainment and leisure businesses, and to a lesser extent support maritime activities. Other basins have been filled to expand parks and promenades. The factory of the National Biscuit Co. has been converted into the massive Chelsea Market, other industrial buildings have been converted into artists' studios, fashion shops, or cafés and charming restaurants. New buildings have been raised, such the abovementioned Whitney Museum by R. Piano, the IAC building by F. Gehry, the Gansevoort Hotel by Stephen B. Jacobs, and the hotel by Enead Architects, designers of the square of access to the Brooklyn Museum of Arts.



Buildings in SoHo





From the West Village through Greenwich Ave. one reaches Washington Square, gate to the East Side, the district where emigrants from Europe in search of the New World disembarked, portrayed by Jacob Riis in his novel *How the Other Half Lives,* published in 1890. Slightly south, the neighborhood of SoHo, also known as the Cast-Iron Historic District, preserves the old buildings that used cast iron in their structure and that now make a very interesting set of streets, characterized by the cast iron columns in the facades. A cityscape in which stores of global brands rub shoulders with a population of refined modernity. Among them stands out the building located at the corner of Broadway and Broome Street, a classic example of the work of Daniel Badger, pioneer, alongside James Bogardus of the use of iron in the construction of buildings with metal structure. The building was designed by John P. Graynor and built by Badger in 1867 for the commercial firm Haughwout & Co. In it, Elisha Graves Otis installed the first elevator with automatic brake. C.W. Condit [38:84] accurately describes the innovative structural typology of these buildings: the structure of these commercial buildings, whose height ranged between two and six floors, was clearly defined by the rows of columns and the iron beams that appear on the street facade. The columns were pretty close, their separation rarely exceeded 6 feet, and the spaces in between were left entirely open and glazed. The porches of the inner structure had little to do with the rhythm of the facade. In it, the hollow cast iron columns were combined with wooden beams, and rarely, with wrought iron beams, and their separation was double or triple the separation of columns on the facade.

The North. Westchester and Putnam, Connecticut

The history of Westchester County is closely linked, since the old times, to that of the Bronx and Manhattan. In the mid-nineteenth century the Old Croton Dam and the Croton Aqueduct were built. Today, we can still recognize the trace of the piping, preserved as a park, with aerial sections and ventilation shafts, following the course of the Croton River to its mouth, and thence along the left bank the Hudson to Yonkers. The population served was then estimated at 300,000. The entrance of the piping into Manhattan crosses the Harlem River through the Highbridge. At the end of the century, a new tunnel piping was built, 33 miles in length, which was to enter service in 1890, and a new dam, the





White Plains Station

Hartsdale Station

New Croton Dam, whose construction was completed on New Year's Day of 1907. The water resource use of the Croton River continues later with new dams upstream until Putnam County. The new expansions of the supply during the twentieth century will first seek surface resources west of the Hudson, in the Catskills region, and later in the Delaware River Basin.

In Beacon, on the Hudson, slightly north of the boundary between the counties of Putnam and Dutchess, the Dia Art Foundation is located, a museum housed in the buildings of a former factory of the National Biscuit Co.

Alongside the water, Westchester provides an idyllic landscape of gentle topography and a wide cover of continental temperate forest: the ideal setting to live in harmony with nature, in line with the traditional pastoral inclination of American culture. The opening of the railway lines of NY and Harlem Railroad in 1844, the Hudson River Railroad in 1849 and NY and New Haven Railroad attracted new residents to the county, and a major manufacturing industry. In the twentieth century, the original rural landscape will give way to the suburban county we know today, with a low urbanization density respectful of the environment, supported by a dense network of roads as befits the massive use of the car. In it stand out the three parkways that run through it, namely: the Bronx River Parkway, the Saw Mill River Parkway, and the Hutchinson River Parkway which extends through the territory of Connecticut into the Merritt Parkway. Through them, we achieve an interesting experience of the evolution of road design trends between 1920 and the mid-1960s, when the construction of roads came to be inspired and financed by the almighty Federal Highway Administration.

Olmsted and Vaux were the first to use the term parkway to designate tree lined, wide roads designed according to the French model of the Avenue de l'Emperatrice, currently Ave. Foch, in Paris. The main road was reserved for riding and the passage of carriages, while the side roads were landscaped. Its aim was to provide citizens with the opportunity to move among green areas in pleasant conditions and enjoy the pleasure of the trip. According to their project, the Ocean Parkway was built in Brooklyn between Prospect Park and the Coney Island beaches between 1874 and 1976. Eventually, it was used as the first bike lane in the country. In the fifties, the northern section of this road was replaced with the Brooklyn Expressway, whose functionality was suited to the demands of the car. At present, the rest of the route is protected as scenic landmark and is carefully preserved.

The arrival of immigrants to Westchester and the increasingly dense and uncontrolled settlement in the banks of the Bronx River provoked the following statements in the Bronx River Parkway Commission report of 1909: *During the past year the Bronx River valley has, despite all the efforts of the Commission, suffered considerable injury in its natural features. [...]Irreparable loss will result to the communities in Westchester County, through which the river runs, and to the citizens of New York who visit Bronx Park, the Botanical Gardens and the Zoological Gardens, unless steps are taken to preserve the river from further deterioration*. The project of the River Bronx Pkwy was drafted with precise requirements that were later also applied to the parkways in Long Island, specifically in the treatment of bridges, overpasses and walls, with local stone in viaducts that exceeded the length in which exposed concrete was allowed, but especially in the insistence that the layout should enhance the attractiveness of the landscape seen from the car. The landscape treatment of the land affected by the road becomes very important in this parkway. The preservation of the natural character and the care of pre-existing trees, reforestation and landscaping as natural tendencies. Exotic elements were avoided, whereas a sufficiently diversified,







Bronx River Parkway
Merritt Parkway

humanized naturalism was sought after, with wooded groups and unobstructed views to be contemplated by the traveler, and attractive and well-cared spaces for those looking for a place to stop. And always adjusted to the traffic demand and the funding requirements.

In its construction the new Bucyrus crawler excavators were used, as well as other equipment from World War I military surplus. It was completed in 1925. The preserved area around Bronx River Pkwy occupies 1,155 acres, and the road runs through it for 15.5 miles. As J. Downer, chief engineer and secretary of the BRP Commission said: *one moves swiftly over the smoothly paved 40-foot drive following an alignment of ever-varying graceful curves with gentle undulations of grade. The Bronx River is nearly always in sight with small lakes at frequent intervals, and there is the continual diversity of open spaces, woodland and rocky ledges characteristic of the river valley.*

Traffic conditions caused by the unstoppable growth of the number of cars made obsolete the design parameters based on a speed of 25 mph, key to give the trip a strong pastoral and bucolic character.

Today, one can tour the Bronx River Parkway, which has been enlarged, with separate carriageways and three lanes in each side, from the Soundview Park, east of the Bronx over the Long Island Sound, to White Plains. After several expansions to widen the roads and other repairs, the Bronx section remains as a road with controlled access, while the Westchester stretch retains some of the same-level intersections. In the Bronx River Parkway circulate between 100,000 vehicles a day in the South Bronx and 60,000 in Westchester County.

Parallel to the Bronx River Pkwy to the west, the Saw River Parkway heads north closely following the left bank of the Hudson River until Tarrytown, where the river is crossed by the imposing Tappan Zee Bridge. Thence it changes course northeast, to end up in Katonah by the Cross River Reservoir on the southern edge of the Croton River basin. To the south it connects with the Henry Hudson Pkwy that runs along the Hudson to penetrate into Manhattan.

The Hutchinson River Pkwy runs through Westchester on the east, between the Bronx River Pkwy and the coastline of the Long Island Sound, reaching the border of Connecticut, where it continues as Merritt Pkwy to Hartford.

The history of the three parkways that run through the Bronx and Westchester faithfully summarizes the genesis and evolution of the landscape design of roads, Campanella's *American curves*, but Merritt is the one that has achieved greatest fame on account of the striking of its layout, as well as the high formal quality of the abundant bridges and overpasses that mark its route.

On the southern edge of the Bronx the traveler may, however, engage in the observation of the paradigm of the major roads designed and built in the 1960s and Early 1970s in the New York area, using the Cross Bronx

Expressway. Its construction meant a cataclysm for the population affected by its layout, and it is not uncommon to credit it with the decay and decadence of the Bronx over the next two decades. However, it was a landmark in the history of the city: with its opening the only high capacity cross-connection running through Manhattan to communicate New Jersey with the Bronx and Queens was achieved, between the George Washington Bridge to the west and the Bronx-Whitestone and Throgs Neck to the east over the Long Island Sound.

Texts: Antonio Sarabia

Gardens

Despite being known as the city of the skyscrapers, New York also has a great system of over 1,700 parks and green spaces of different character (regional parks, urban parks, garden squares, neighborhood gardens, pocket gardens, playgrounds, courtyards, green roofs, etc.). Some parks preserve historic sites, others commemorate events; some have a more natural character, others are more built. They all become essential parts of the urban morphology and the public space. Their size is very diverse, from the largest with 1,119 ha of surface, Pelham Bay Park, to the few square meters of newly created spaces that take advantage of any free crevice to put some trees with tables and chairs to enjoy the tranquility and escape from the noise of the big city.

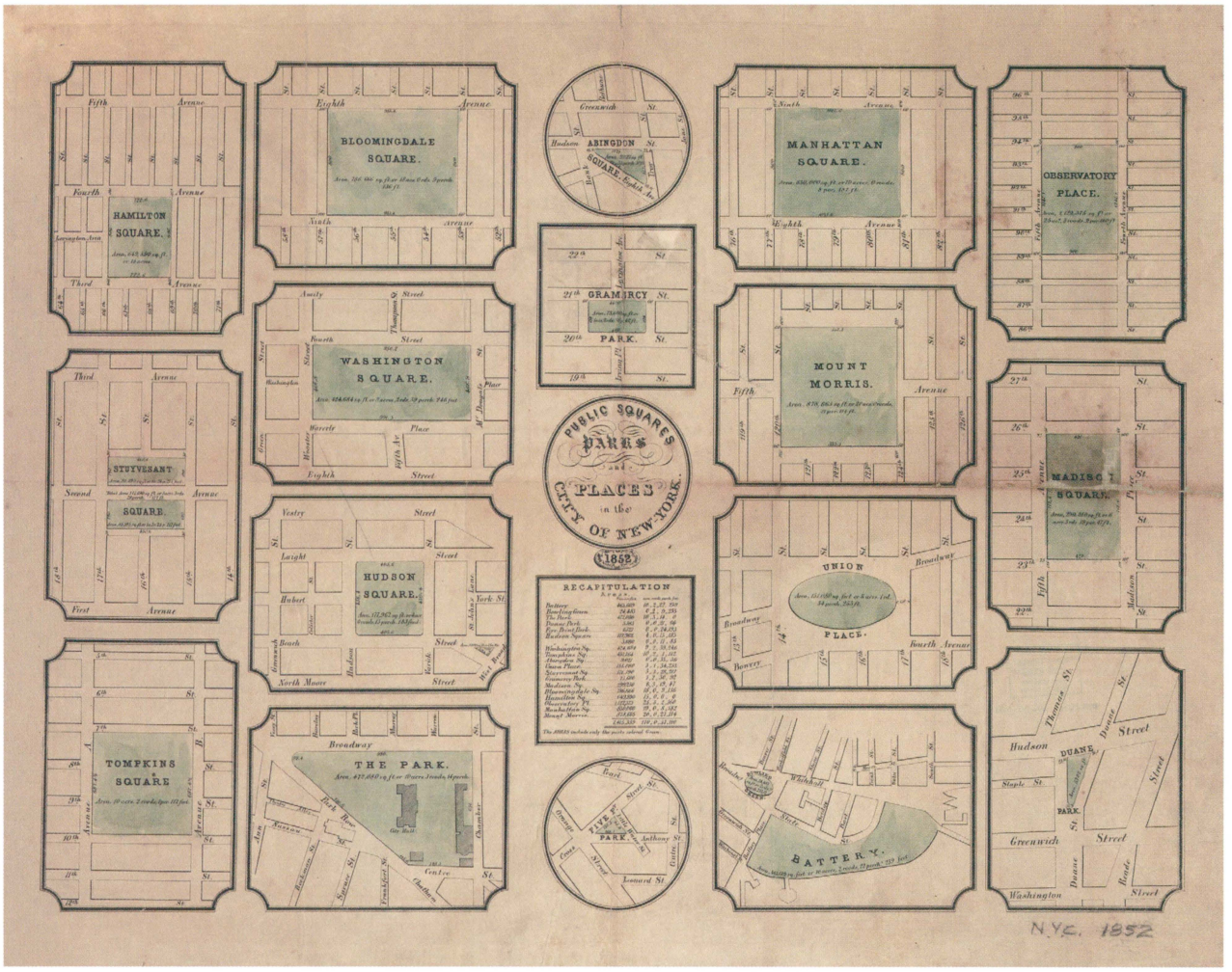
These spaces are constituted as 'laboratories' of ideas, where styles, scales, flows, etc., are juxtaposed, in addition to becoming real social venues for meeting and collective life, to accommodate a myriad of cultural, educational and sporting activities (concerts, open air cinemas, dances, sports, etc.).

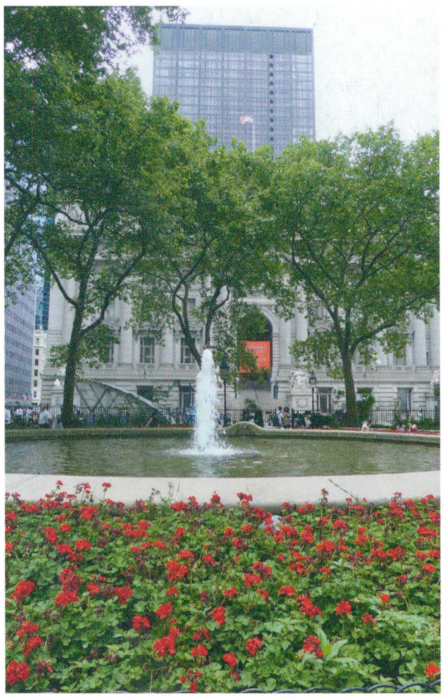
The *Department of Parks and Recreation* administers the parks in the city of New York. Many of these spaces are maintained not only by public funds, but also by many private donations, which often exceed 75% of their funding. Several groups of friends of each park or plaza help to preserve them, not only economically, but they also engage personally and actively in organized groups as genuine 'urban gardeners' for their maintenance, they collaborate in the preparation and development of educational and cultural programs (guided tours, family programs, reading workshops, lectures, performances, etc.) of the various parks, creating authentic communities around these spaces.

Landscaped squares

In 1807, a commission is established to map streets and roads in the city of New York. Four years later, the head engineer of the Commissioner, John Randel Jr., designed the current grid from Houston Street to 155th Street, regardless of the topography of the island. Initially the Randel Plan included numerous open spaces for public squares, artillery, reservoirs and a market. However, pressure from real estate developers largely reduced the open areas. Some of the parks that are now preserved, originate on many of these nineteenth-century squares, triangular squares created by Broadway — back then called Bloomingdale Road, whose style tried to emulate the London squares. Around these empty spaces were real estate developments emerged, residential neighborhoods where the wealthy of New York dwelled.

Public squares, parks and places in the city of New York







Parks-Bowling Green [Broadway Whitehall].

These spaces become authentic neighborhood parks and oases for New Yorkers seeking a glimmer of nature, they provide some shade and coolness, and help to escape the noise and traffic. They are quite crowded during mealtimes, and they accommodate a variety of events including concerts, literary readings, children's theater, outdoor cinema and 'green' markets, especially in the summer months. They also become veritable outdoor galleries in which renowned artists exhibit their works.

The structure of many of them has been modified structure by the introduction of new equipment, such as infant swings, dog runs, sports fields, etc. Currently in some of them are held *Greenmarkets* or *Farmer's Markets*, markets founded in 1976, where farmers sell organic products, which aim to combat the famous American junk food.

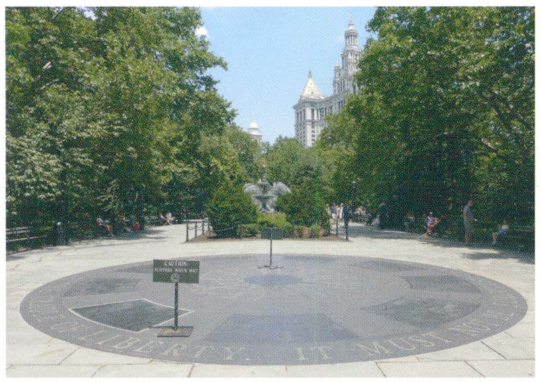
Bowling Green

In southern Manhattan, north of Battery Park and the start of Broadway, and opposite the Museum of the American Indian, the small Bowling Green is located. Originally used to graze cattle, it went on to become the first public park the city in 1733. John Chambers, Peter Bayard and Peter Jay were responsible for incorporating grass, trees and a wooden fence *"for the Beauty and Ornament of the Said Street as well as for the Recreation & delight of the Inhabitants."* Its name comes from its use to play lawn bowls. In the late eighteenth century, it marked the center of the noblest residential area of the city. In 1819, the Common Council adopted its exclusive use by the neighbors in exchange for the care and maintenance of the park. In the mid-nineteenth century, the private residences became offices, and the square recovered its public use. In the early twentieth century, it was dismantled with the construction of the IRT subway. It was rebuilt in 1939 under the supervision of R. Moses on the occasion of the Universal Exhibition of 1939. It was restored and redesigned in 1978 by M. Paul Friedberg landscape architects & Assocs., recovering its eighteenth century image (redistribution of subway entrances, lampposts, benches and fountain). Currently, this simple space, of oval shape, with an area of 0.20 ha, which hosts a circular stone fountain with a central jet, surrounded by a flower bed and banks, still retains the original iron fence from 1771. Since 1989 the bronze *Charging Bull* (Arturo DiModica, 1987-1989) occupies the northern end of the park.

City Hall Park

The City Hall Park, originally known as The Common, was also used as grazing field, prison, square, site for public executions, etc. Finally, in 1736, it became a public park. This landscaped area around the town hall, in French Renaissance style, was built with the current city hall of 1812. A small domed building, The Rotunda or Vanderlyn's Rotunda, was built in 1818 in the northeast corner of the park to accommodate first Art Museum of the city. This small Pantheon with panoramic views was modeled after that of Versailles. In 1852, the American Society of Civil Engineers was founded in this building, at the offices of the Croton Aqueduct Commission. Finally, The Rotunda was demolished in 1879. In 1939, the park regains its original triangular shape and the views of St. Paul's Chapel, following the demolition of the Post Office Building. In 1999, the park recovered the historic Mould fountain (Jacob







City Hall Park

Trinity Church Cemetery

Wrey Mould, 1871 — codesigner of the Bethesda Fountain at Central Park) that had been transferred in 1920 [7: 122] to Crotona Park; a central walkway was added; the pavement was replaced with grass and trees; a circular plaque with the history of the site was installed at its southern end; and a new iron fence from Bloomingburg cemetery was installed. Avenues with large trees and lower planting beds appear. In the park, there are several monuments, among which stands out the bronze statue by Frederick MacMonnies representing the patriot Nathan Hale (1893) and commemorates the protests against the British government held here. A bike path connects directly to the Brooklyn Bridge.

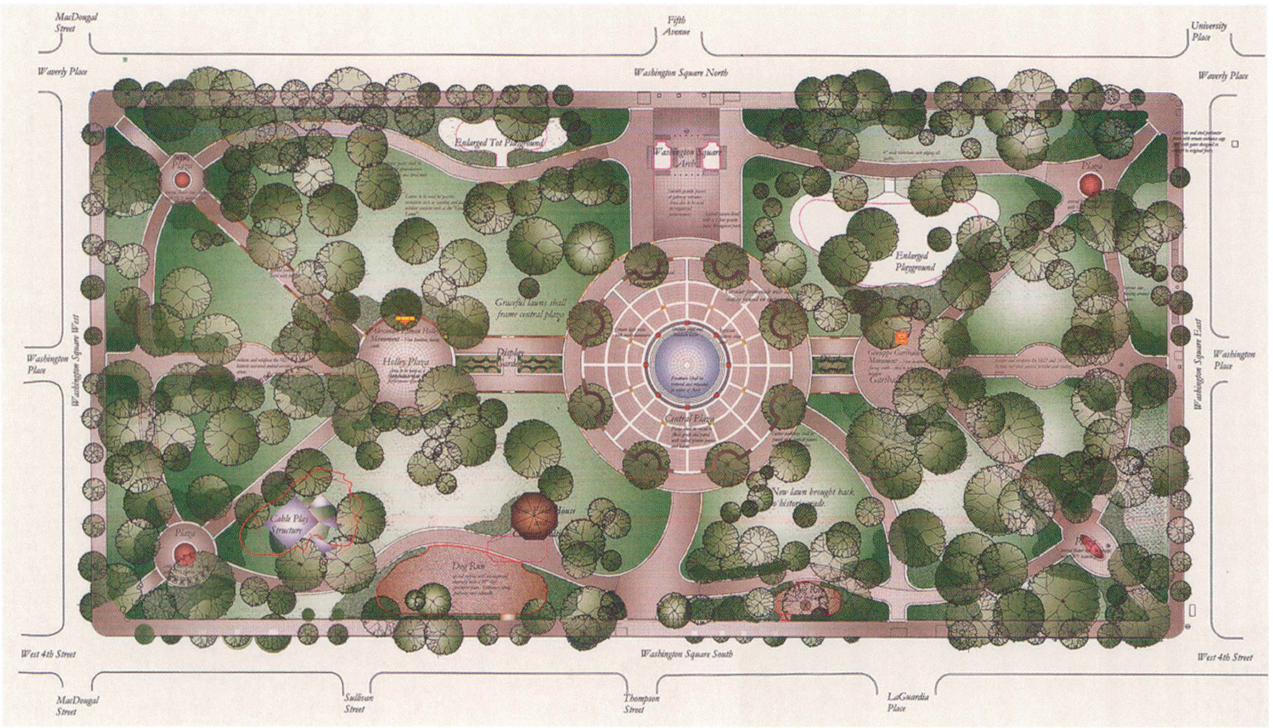
Trinity Church Cemetery

A little further south (75 Broadway, Wall St.) the cemetery of Trinity Church is located, the first Anglican church in the city, founded in 1697. This space, with a natural topography, is covered by a meadow dotted with graves with a central sculpture, accompanied by low vegetation and some trees, especially in the perimeter area near the fence. Inside are buried famous characters in the history of the city and it is kept frozen in time, but totally dwarfed by the surrounding buildings. Formerly, its neo-Gothic tower bell steeple, with 89 m, was the highest point in the city until 1860, reference for sailors and symbol for its inhabitants. This cemetery soon became too small, and nother one was founded uptown, Trinity Cemetery (Amsterdam Ave. and Riverside Dr., W 153rd to W. 155th Sts.) on the land of the former farm of John James Audubon. Its exterior walls and gates are from 1876 (landscapers Vaux & Co.), and the suspension bridge over Broadway (architects: Vaux, Withers & Co. and engineer: George K. Radford) connecting the two halves of the cemetery was demolished in 1911 to build the Church of the Intercession (Bertram Goodhue Cram, Goodhue & Ferguson, 1910-1914).

Other small indoor block cemeteries preserved in the city on 2nd Street are: New York Marble Cemetery and New York City Marble Cemetery. Both built in 1831, the first non-sectarian in the city, they have a central meadow with the graves accompanied by small plantings, usually on the sides, and some large trees.

Washington Square Park

Washington Square Park is located on a plot of just over 3 hectares in the heart of the Village at the start of



Washington Square Park. Schematic Plan. Parks Department

Fifth Avenue. Originally used as common grave, public scaffold, and parade site, until it was remodeled as landscaped public square in 1827. At this time the houses that delimit it were built, such as the 12 neoclassical brick houses arranged in a row (The Row, 1831-1833) preserved in its northern part. The square, a favorite of writers and artists, separates two very different neighborhoods, the north side with tree-lined streets and aristocratic character and the poorer and multiethnic south side, where immigrants settled.

In 1848, it was protected by an iron gate, and four years later its first central fountain was installed. In 1870, the first major reform of the park was carried out by chief engineer M.A. Kellogg and chief landscape gardener I.A. Pilat. They changed its formal design into a more naturalistic one, in the style of Olmsted, introduced curvilinear paths in its periphery, retaining some diagonal paths inside, defined areas of grass with shade trees, and withdrew the perimeter fence. The biggest change was the introduction of a carriage road for cruising the park and connecting Fifth Avenue with Lower Manhattan. Subsequently the Washington Arch (1889-1895) was raised, which dominates the space and constitutes its entrance. It was built at the outset of Fifth Avenue to celebrate the centenary of the election of Washington as president. The first version of 1889 was made of wood instead of marble, and was designed by the architect Stanford White (McKim, Mead & White). The square and the arch decoration have undergone changes over time.

This square, a historic site of protests and celebrations, was threatened in 1935 by a proposal of Robert Moses, who planned to turn it into a large roundabout to ease city traffic. This project, known as the "bath mat plan" due to the similarity in shape, was not carried out due to popular opposition and the outbreak of the Second World War. His subsequent plans to alleviate traffic creating the Washington Square Roadway were abandoned and eventually, after removing access to buses, the square was completely closed to traffic in 1965, becoming one of the most popular meeting places. Its university environment is due to the agreement with New York University, one of the largest private universities in the US, to allow the setting of its new library and offices west of Broadway.

The current design of the square is the result mainly of the controversial reform of 1971 (engineers: John J. Kassner & Co., landscaper: Robert Nichols), in which an ornamental fountain occupies the large central circular space. Some, such as Jane Jacobs, sought to maintain the central area free, so as to hold meetings and demonstrations. After a period with safety issues and drug dealing, a new enclosure was projected; currently the site is surrounded by a low fence and protected with security cameras [147: 111-128]. Landscape architect George Vellonakis has been commissioned to perform the last reform in three phases. In the first phase (2009), the fountain was repositioned to align with the axis of the arch, creating an accessible plaza around it, seats were added, and the lawns and planting areas were expanded. In the second phase (2012), an area for chess players, and a dog run were created, lawn bowling fields were renewed,





Washington Square Park





and paths and lighting were improved. In the last phase, completed in 2014, a children's playground was created in the southwest of the park, with a hilly topography of artificial turf, and BKSK Architects has built a new house for the park and station. This new, single-floor building has a slightly curved floor plan, and it uses recovered materials, such as wood and stone, which meld perfectly with the setting, and has LEED certification. This series of juxtapositions of scales and styles, along with its evolution over time, and its population, imprints character to this square, which has always maintained its spirit of assembly and congregation.

Tompkins Square Park

East of Avenue A, there is a change in the scale of the city, giving place to a more familiar urban environment with narrow streets. In this environment is located Tompkins Square, in the East Village, at the heart of the so-called *Alphabet City*, known for its long record of demonstrations and uprisings on behalf of various causes (poverty, in the Tompkins Square riots of 1874, the Vietnam War, the eviction of the homeless in 1988, etc.). The municipality acquired the site in 1834. Between 1835 and 1850 this marshland was slowly dredged and landscaped. In 1866, the Legislature of the State of New York cut several original trees to create an open courtyard for the Seventh Regiment of New York. Currently, of the original trees, only three sycamores (*Platanus occidentalis*) remain, two at 10th St. and another on Ave. A at 9th St. Thanks to pressure from residents, the Square regained its status as a public

Tompkins Square Park





park in 1878. About 450 trees were planted, many of them still preserved (*Robinia pseudoacacia, Ulmus americana, Platanus orientalis* ...). In the 1930s, Robert Moses added playgrounds and sports fields. In 1966, a bandstand was built.

During the 1970s and 1980s, it was the epicenter of drug dealing and violence, but after the renovation of 1990 it has recovered its spirit by hosting music festivals and summer activities. A dog run, new playgrounds and chess tables were installed, the 1966 bandstand was removed, and the lawns and sidewalks were renewed. Currently in the northern part, bordering on 10th St., are located two sports fields, with a small public swimming pool between them. The main building is in this strip, with the more formal and structured gardens. The rest of the park has a winding layout, with a large lawn in the middle.

Union Square Park

On the northern boundary of the Village, between 17th and 14th, is Union Square Park, the former Union Place where the homeless were buried. It was designed in 1830 and it opened as a public park in 1839 following the aesthetics of the London squares. The design emphasized its oval shape, surrounded by an iron fence, and presided by a central fountain installed for the inauguration of the Croton Aqueduct in 1842. With the expansion of the city to the north, the square became a major residential and commercial center. In 1871, chief engineer M.A. Kellogg and head landscape gardener E.A. Pollard collaborated on a new plan, redesigned one year later by Frederick Law Olmsted and Calvert Vaux, to accommodate large crowds. To this effect, they withdrew the perimeter fence and hedge, planted several resistant trees, and widened the sidewalks. This garden area, known as New York's Speakers' Corner, has been used as a forum for political speakers, and it is the historic place par excellence in the city for public protest meetings. The head of parks, Robert Moses, even banned demonstrations in it during World War II [147: 117].

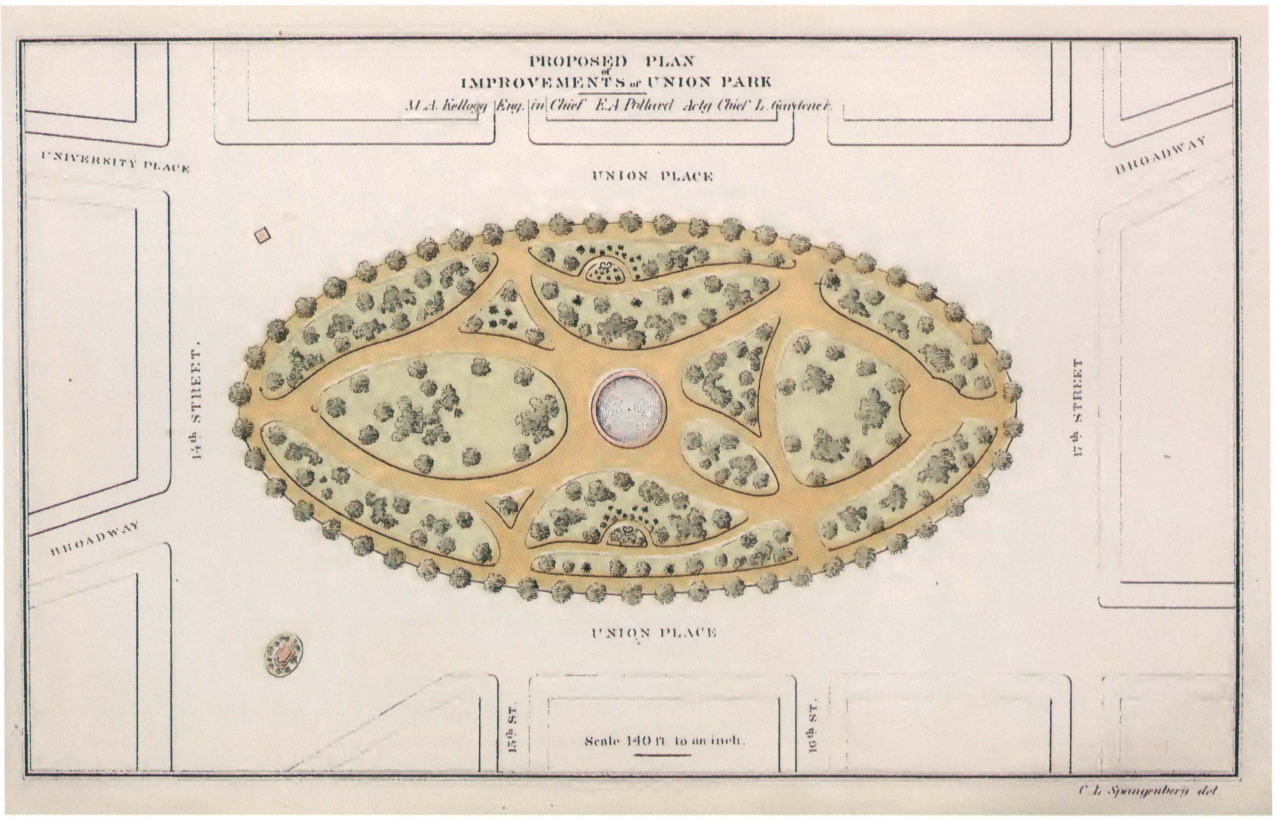
In 1928-29 the square was completely demolished to accommodate the subway underpass. To do this, the square was raised, the paths were straightened, and a pavilion with columns was built. After a period between 1960 and 1970 in which it was frequented by drug dealers, it was renewed in 1986 (architect: Bronson Binger, landscaper: Hui Mei Grove). The entrance areas, such as the new plaza at the south end, were redesigned, paths were relocated to make it more accessible, a central lawn was planted, a railing with the appropriate scale for a public place, two steel and glass kiosks for access to the subway, and new lighting with multi-globe street lamps. It has abundant sculptures inside; most notably, that of George Washington (Henry Kirke Brown and J. Q. A. Ward, pedestal by Richard Upjohn, 1856). In 1993-94, two new playgrounds were built, and a restaurant opened in the sunken courtyard outside the pavilion. Union Square Park was designated National Historic Landmark in 1997. Today, it has become a very popular park in a busy area with restaurants and shops, famous for its ecological farmer's market that meets on the north side since 1976. There are plans to expand the park line south of 14th St., and to incorporate into the park the roundabout that hosts the statue of Gandhi (Kantilal B. Patel, 1986), southwest of the square.

Stuyvesant Square Park

Stuyvesant Park, located on Second Avenue (between E.15th and E.17th St., Rutherford and







Union Square Park

Proposed Plan Improvements Of Union Park.
Spangenberg, Charles

Nathan D. Perlman Places) and quadrangular in shape, is surrounded by an iron fence of 1847 (the oldest in the city). This park is bisected on Second Avenue, following the English model of residential neighborhoods in which green areas face each other, as opposed to the paved plazas of continental Europe [166: 209]. The plot of just over 16,000 m^2 was sold in 1836 by G. Peter Stuyvesant and his wife Helen Rutherford as part of their family farm to the city for five dollars. There is a statue dedicated to him in the park (Gertrude Vanderbilt Whitney, 1936).

The square, which initially was going to be called Holland Square, remained vacant for several years until Stuyvesant encouraged the development of the project. In 1847 the works of improvement of the park began by raising the perimeter fence. In 1850, landscaping was completed, and two fountains, flower beds, great elms and lime trees, and



Stuyvesant Square Park

the statue of musician Antonín Dvořák, resident of the neighborhood, were included. The park opened as a public space on that year. With the opening of St. George's Church in 1856 to the northwest and Friends Meeting House in 1861 to the southwest, more residents were attracted to the area around the park, and it become an elegant and attractive neighborhood.

It was rebuilt in 1936, landscape architect Gilmore D. Clarke modified the design of the previous century and introduced recreational centers and other facilities, reopening a year later. In 1982, there was a restoration in which the two fountains were rebuilt, the iron gate was preserved, and the original bluestone sidewalks were recreated. Much of the original vegetation (grass, shrubs, flower beds and trees, including some remaining *Ulmus procera* and *Tilia cordata*) was restored. The creation of this landcaped square was the catalyst for the development of this unique district, later declared Stuyvesant Square Historic District. It includes detached row houses, residential buildings and hospitals outside the district, and a commercial area on its extension until Third Avenue.

Gramercy Park

Gramercy Park, originally named *Krom Moerajse* ('little crooked swamp' in Dutch), received its present name from the British. In 1822, Samuel Ruggles, developer, bought and drained the swamp, selling the plots around the park that he projected. It is located on the axis of Lexington Ave. to the north and Irving Place to the south. This set of several blocks of buildings and the park, which brings serenity to the whole, is classified as historic district (Gramercy Park Historic District).

Considered the last private park in New York, it is one of the most desirable areas of the city. It was built in 1831 under the same principles employed by the Dukes of Bedford in London. It shares with Union Square the speculative urban approach, making residential areas more attractive and profitable residential (like the areas of Bloomsbury and Covent Garden in London) [166: 206]. Its residents have been famous people: politicians, financiers, lawyers, writers, actors, etc. An example is the sculpture of Edwin Booth (Edmond T. Quinn, 1916), a resident of 16 Gramercy Park South. Only the residents, and the guests of the Gramercy Park Hotel, can enjoy it, since access is restricted and it is completely surrounded by a locked metal fence. This condition turns it into a precious treasure that has been the setting of numerous books and films. Inside stands the bronze statue of actor Edwin Booth (1833-1893), who founded a club for actors next to the park.

Madison Square Park

Madison Square Park is located in the Villages, at Fifth Avenue and 23rd Street. Originally a cemetery for the homeless, it was later an arsenal and part of the military ward The Parade. From 1825-1839 it was a shelter for juvenile offenders. It opened for the first time in 1847 as a public park (between Fifth and Madison Avenue and 23rd and 26th St.), and it was used as a baseball field by the first organized team in town: the *Knickerbockers*.

The original Madison Square Garden, owned by William Vanderbilt, opened in 1879 (next to the park on Madison Avenue and 26th St.). The building was demolished in 1899 and replaced by a Moorish-style building designed by Stanford White. The second Madison Square Garden

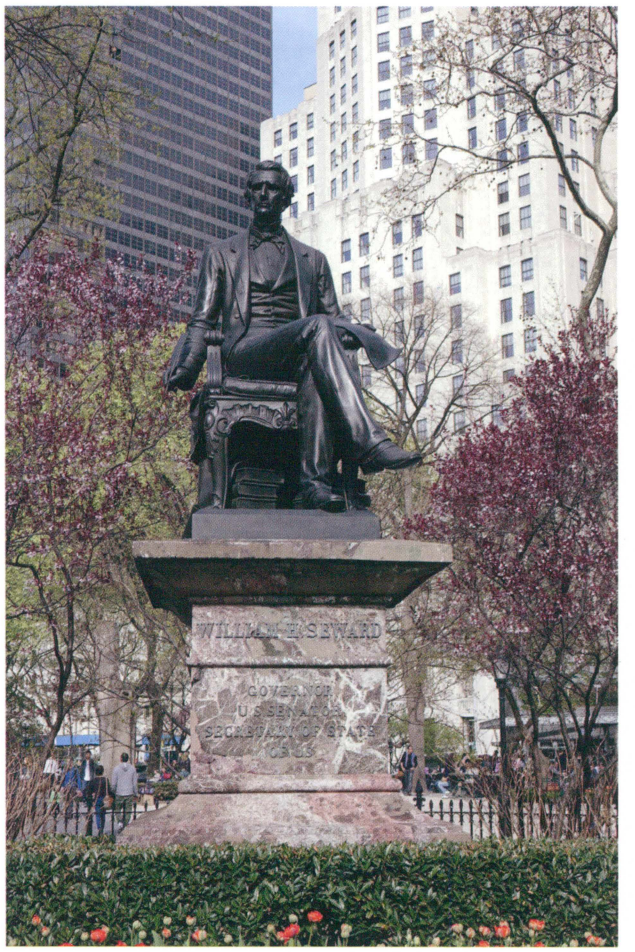
Gramercy Park









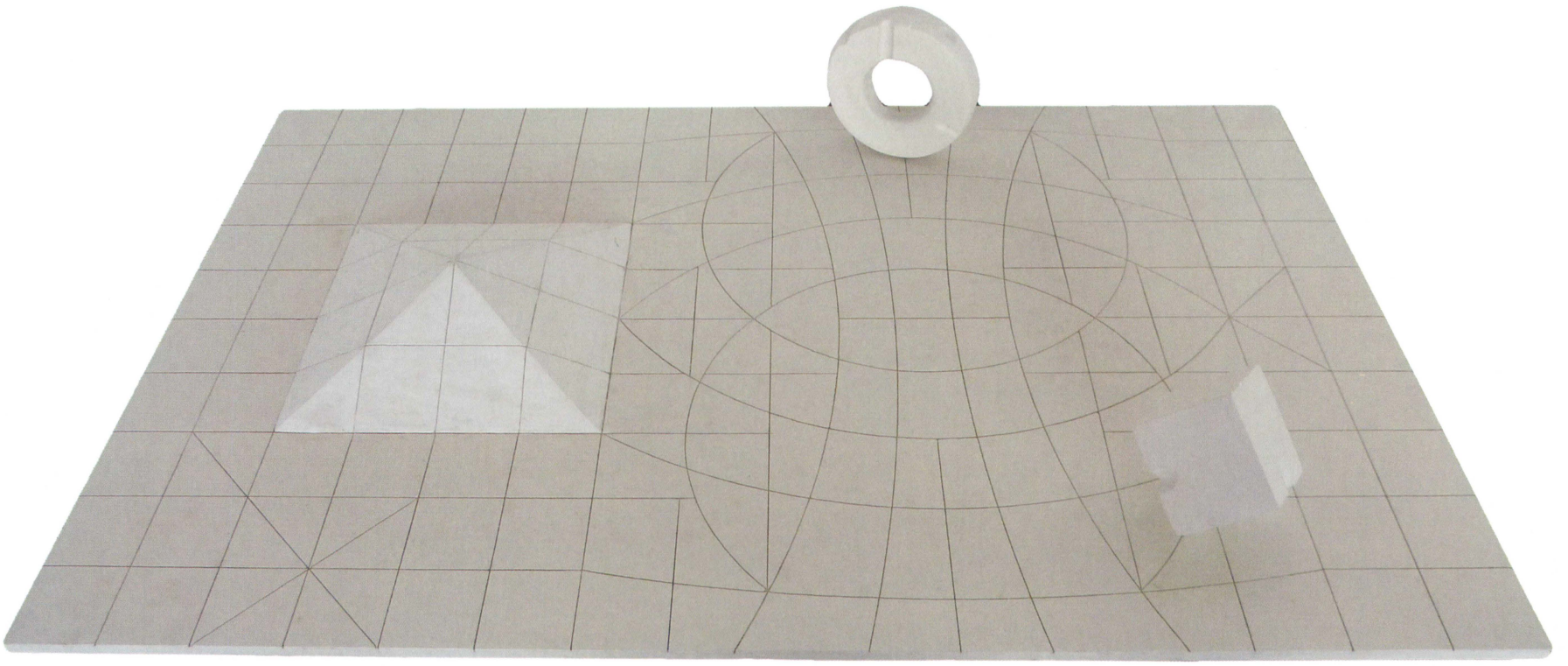


Madison Square Park

remained until 1925, when it was demolished and replaced by the headquarters of the Life Insurance Company of New York. The developer Tex Rickard built the third Garden that same year on Eighth Avenue and 50th Street.

This area of 2 ha was redesigned in 1870 by Ignatz Pilat, assistant of F. L. Olmsted. This public recreation space was subsequently replaced, at a different scale, by Central Park. It is surrounded by heavy traffic and iconic buildings, such as the Flatiron in one of its corners. It combines notable nineteenth century statues of Lincoln, Lafayette, and George Washington, *Admiral Farragut monument* (Augustus Saint-Gaudens, 1881, with pedestal by Stanford White); with works by modern artists. It was renovated in 1999-2000.[79]

Texts: Patricia Hernández Lamas



Isamu Noguchi, model of the sunken marble garden of the Beinecke Library, Yale University, New Haven, Connecticut, 1963, work by SOM. Noguchi Foundation, New York

Chase Manhattan Bank Court and Plaza

Atriums and inner courtyards

The conception of the garden of Isamu Noguchi (1904-1988), Japanese American sculptor, of American mother and Japanese father, is quite different from that of architects; he understands the garden as an abstract landscape that shapes the space in sculptural form, in a reinterpretation of the Japanese Zen garden. He proposes a sculptural treatment of the horizontal plane creating a relief by contrasting elevations and depressions in the undulation of the pavement, in which he arranges rocks and water features. Following these lines, he designed the courtyards of some corporate buildings constructed by SOM (Skidmore, Owings & Merrill). The first was the unrealized plan for the Lever House in 1951, in which he cut a circular pond on a marble surface with columnar sculptures and vegetation areas, ideas later rescued in subsequent projects that were built, such as the headquarters of Chase Manhattan Bank (1961-1964), located in the block between Broad, William, Liberty and Pine St. This circular courtyard-garden, excavated in a large platform, takes as a reference the 15th century temple, Ryoan-ji, karesansui, in Kyoto, but with the introduction of water. He brought seven basalt rocks from the Japanese river Uji, and projected a topography based on their arrangement. He built gentle waves that intersect on the floor of granite paving stones, over which are situated the four larger rocks and the water from a large circular fountain with jets, with the water covering the courtyard in which the four stone "hills" stick out. According to Fariello, it could evoke a landscape of sea and islands among the waves. This 'sculptural micro-waterscape' is visible from the elevated plaza outside and through the inner glass curtain wall of the ground floor, which is not accessible to the public [24: 317-320].





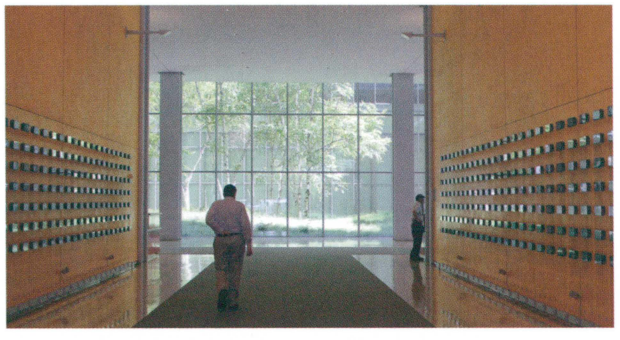


Chase Manhattan Bank Plaza

The upper plaza, opened in 1964, is a large, hard granite surface protected by a glass balustrade. Vegetation is concentrated at the sides: a continuous planter along the perimeter with shrubs, and a linear bench under the shade of a row of trees, a lounge area with a few benches and trees, some high planters with flowers, etc. It houses the sculpture Group of Four Trees (Jean Dubuffet, 1972), located on the axis of Cedar St. Almost 13 meters high, it is one of the tallest sculptures in the city. This work wanted to be a link between the tower and the plaza. Its structure, of aluminum and concrete, is hidden under a layer of fiberglass and resin. It was made at the artist's studio in France and transported by sea to Manhattan. The square extends to the back of the tower, where there are several high round planters with built-in perimeter benches. These plant islands each have a tree and vegetation covering. A few sculptures are distributed over the surface. The bank owns the space and is responsible for its maintenance.

Some office buildings, rather than being surrounded by a landscaped area on the outside, have included the green space within the building itself, creating vegetation courts. These interior gardens try to establish an intermediate experience between the exterior and interior, also attempting to avoid a strict separation between public and private.





New York Times Building

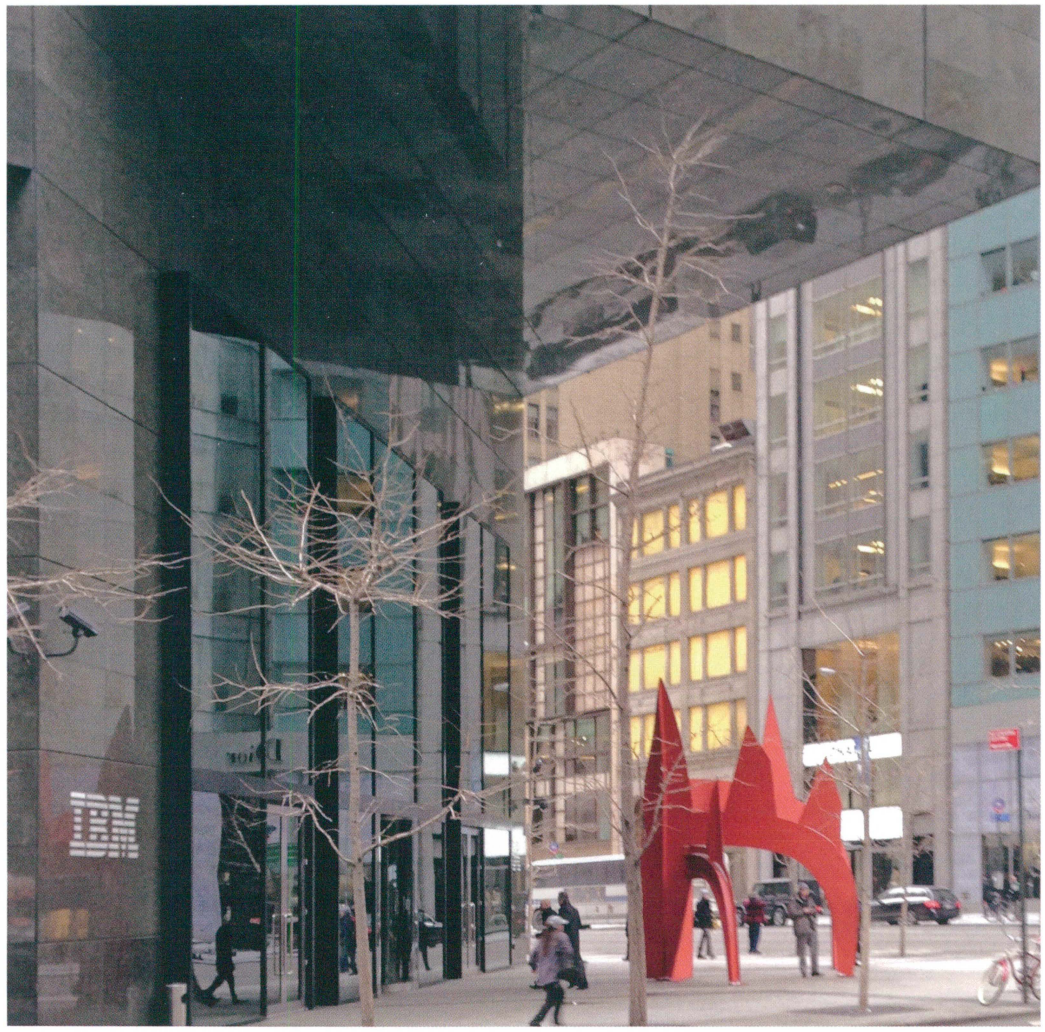


New York Times Building Garden Court and Rooftop Garden

The new headquarters of the newspaper New York Times since 2007 (it was originally located in Times Square, to which it owes its name) is located at 620 Eighth Avenue at 41st St. It is the work of architect Renzo Piano, who seeks the maximum energy efficiency of the 52-floor building with modernist roots, while incorporating High Tech elements. Called 'the greenest skyscraper,' it has received the American LEED environmental accreditation. Its facade has a second skin, made up of 186,000 thin ceramic tubes, that acts as a sunshade reflecting the sun and heat away from the interior of the building, prevents glare, and provides a pleasant working environment. Instead of cooling and heating with the top-down method commonly employed in offices, it uses a more efficient propelling system through pumps and air ducts under the floor [25]. The landscaping was undertaken by HM White Site Architects, in coordination with Cornelia Oberlander Architects. It has a large courtyard garden, Garden Court, with a group of 7 birch trees (Betula papyrifera) concentrated in the northwest corner, among a sea of perennial ground cover plants (mainly grasses and ferns: Carex divulsa and Dryopteris erythrosora) that convey a slight undulation to the plane of the ground and provide it with movement: the silvery undersides of the birch tree leaves of birch trees that glow when they move, and the flexibility and lightness of the grasses. This is the only part of the building that preserves the natural terrain with the Manhattan rocks, over which an artificial topography has been designed, and a drainage layer has been located. A rectilinear path of tropical timber goes across the courtyard and allows controlled access to it. This natural oasis is in contrast with the geometric rigidity of the stone and glass building. The building,







Garden Plaza in IBM Building (Edward Larrabee Barnes Assoc, 1983) (590 Madison Ave. with access from 56th St. to Trump Tower)



IBM Building Atrium

fully of glass and transparent, allows a smooth connection of interior and exterior, an example of which is the view of the inner courtyard through the cafe that overlooks the street. The play of light and transparencies is continuous, the courtyard is conceived as a glass cube that brings light into the main lobby, in which wood textures predominate. On the roof the 52nd floor is another garden, the Rooftop Garden, which contains a glass pavilion surrounded by deciduous trees and evergreen shrubs. The views are filtered by this vegetation veil. The trees chosen are red maples, recovering the image of the Hudson Valley with its colorful autumn. This idea of seasonality is reinforced by the presence of climbing vines that also acquire a reddish shade in autumn. All of this is visible from the street, setting a new urban landmark in the skyline of Manhattan. High glass panels around the perimeter protect from the wind and enclose the space. Circulation is achieved through a wooden path.

Inside the IBM Building (590 Madison Avenue, corner of 57th St.) is the landscaped plaza opened in 1982. The building's architect is Edward Larrabee Barnes, and the responsible for the design of the public space, remodeled in 1995, is Robert AM Stern. The entry is through a gate, and the inside is paved with large slabs of stone. Some of them have been replaced by planters from which tall bamboo poles protrude, accompanied by ground cover plants in the interior. This space is also used as indoor sculpture garden, hosting large works of twentieth century artists. A café with several movable chairs and tables completes the set. On the outside is a square with a pond and fixed seating.



Citigroup Center (153 East 53 St en Lexington Av.)

Citygroup Center Atrium

A well-designed kiosk with tables and chairs makes consumption present, but not required. The Toledo chair, by Jorge Pensi, also found in the Sony Square, located across the street, is proof of the will to dignify a truly public space, above mere commercial interests. Nobody is forced to purchase anything. The space is guarded by a friendly character, in jacket and tie, who affably greets those who come and go. It is a counterpoint to the uniforms and guns of policemen and security guards. Homeless people with their bundle of bags rest next to groups of young tourists and clerks who are out for lunch.

The atrium of the Citigroup building has an entrance to the ground floor through an outer courtyard to which one descends from the corner of Lexington through stairs and from which one can access the subway. It occupies the ground floor of a large tower that rests over the four square facade pillars, located not at the vertices, but rather in the center of each of the sides of a square. It is organized as one central space, full of large and small square, rectangular and round shaped tables, looking somewhat like a large dining room. It is surrounded by a mezzanine with balcony, and five upper transparent glass floors. And it is presided over by a large canvas, three-stories high, with geometric designs in bright colors, hanging from one of the giant square pillars. A pianist sitting at the foot of the large canvas provides the office workers with entertainment during lunch. The notes appear over a noise of conversations that warm the atmosphere at lunchtime. On the first floor there is a large bookstore, Barnes & Noble, a newspaper stand, an art and photo store and another coffee shop.



JP Morgan 60 Wall St. between William and Pearl St. (Kevin Roche, John Dinkeloo and Associates, 1989)



JP Morgan Atrium

The flat roof and symmetry of the lobby in the J. P. Morgan Atrium produce a space of a very different character from other public spaces in the city. There are tables, chairs, restaurants, and benches, but everything seems different. To begin with, the speakers of *The Country Cafe* play Beethoven's Sixth. On the opposite side, chess professionals wait, or compete with those who dare to play. The proportions of the spans and columns contain a kind of call to serenity. It is a passing space that befits haste.

The columns are covered with horizontal bands of white marble alternated with narrower strips of granite with a Renaissance air, typical of Pisa or Siena, and have been carefully distributed in the rectangular floor plan. In the direction of circulation, two rows are arranged with a central span larger than the side spans, where chairs and benches are placed. Perpendicularly, there are five columns that define six spans. The two closer to each entrance are smaller than the two central spans, conveying a centrality of hypostyle hall in the style of a basilica.

The functionality is, however, perfect, with the passage areas and the areas of rest clearly defined. A subway entrance is not lacking, neither the corresponding access to other areas of the building, all located at the four corners of the room.

Texts: Patricia Hernández Lamas



View of New York, From Brooklyn Heights.
Palmer, F., 1849.

Settings, engineering, and film in New York

New York and cinema

New York is the quintessential cinematographic city. Anyone who enjoys cinema, child or adult, 'knows' New York, though they may not be aware of it. Even without knowing that it is New York, the setting is recognizable, these are the 'shots of the movies' ...

The Big Apple is part of the imaginary of moviegoers. Thousands of movies have been shot, and are being shot there, since the birth of the cinematographer and later, the film industry. Its streets, its brown brick buildings topped by the perennial water deposits, its hurrying people with long, almost synchronized strides are almost necessary for us to feel that what we see is truly a 'movie.' 'The streets of New York have a richness you can´t duplicate anywhere. There´s a sense of commotion. It´s not the buildings, but the people you see walking by [...]' (in: Sanders, James; 2006).

Buildings, interiors, cars,... ladies and leading men! 'Like from a movie,' as we said when we were kids, and also older, when we recounted the films we had seen at the theater, and that occupy our memories and belong, with an overwhelming majority, to that New York imprinted on celluloid.

So many times its skyline has served as introductory backdrop to films, and so often are its powerful, elegant and imposing artifacts, bridges, skyscrapers, elevated subway tracks, stacked parking lots with car lifts... featured in films, that when we really see them for the first time, they do not appear unknown to us, for this environment, this landscape, it is not new, but rather 'recognized'.

It is an impression with quite a lot of magic. It turns out that all that does exist, and can be really known. The city of the 'movies', Batman's Gotham... has a real counterpart in everyday New York, and thus it mixes with our reality, as the world of cartoons and its inhabitants were mixed with 'human' characters in the film *Who Framed Roger Rabbit?*, Robert Zemeckis, 1988, and *The Purple Rose of Cairo*, Woody Allen, 1985, the characters in the movie featured in the movie come out of it and mingle with the characters of the movie. Who has not felt something similar standing at the window of Tiffany's, feeling really next to Audrey Hepburn in *Breakfast at Tiffany's*, Blake Edwards, 1961, almost visualizing her at your side? Once seen Woody Allen's *Manhattan*, 1979, does not the misty and imposing Queensboro Bridge over the grey waters of the East River become forever a cinematic backdrop, and don't we interpret it as such when we see it live?

There are, thus, two cities: the real one, in which New Yorkers live, and its mirror, the New York of cinema, with its many lives, offering us the same settings, even more recognizable: '[...] cinema hosts a new form of sensory experience, which is based on an effect of shock in which individuals are subjected to a constant and rapid clash of images' (Walter Benjamin, in: Laguarda Mallo, Maria Fernanda, 2011).

Film images, over more than a century, have greatly influenced our perception of reality, they have in an evolutionary way shaped our perception of the character and interrelations of the city and its citizens. '[...] When on September 11, 2001 the first World Trade Center tower sank [...] cinema, which has set many of our twentieth-century visions, was the frame through which many tried to conceive what seemed implausible: 'It's like a fucking movie,' blurted a young rapper at my side, as he walked into northern Manhattan '(Alfonso Armada, 2010).

It is a multifaceted image that of New York, where today about 250 different languages are spoken (Sander, Karin, 2003). It is our cinematic Babel, with dangers and thrilling action, with

hard corners, but also with its intellectual sophistication, with its aura of romance and glamour. Cinema (and, most recently, the TV series 'Mad Men') has made us love the flattened domes of intertwined tiles by Guastavino in the centennial Oyster Bar in Grand Central Terminal ("Lunch at the Oyster Bar is a sure-fire recipe for human happiness." (Grimes, William; 2003) and its oysters, more than five million served there every year, and dry martinis are the essence of New York, like the one that runs through the veins of the iconic dandy in the logo of 'The New Yorker', whose reading converts New Yorkers since the 1920s. "…it´s like the first time I tried to read The New Yorker, I didn´t understand it…" (Martin Scorsese, in: Sanders, James; 2006).

New York remains today the most filmed city in the world. In its streets, around 200 films are shot each year and encountering cameras and their paraphernalia, especially in its most prominent landmarks, is one of the main tourist attractions of the city. In 2004, an average of 10 shooting sites per day was recorded, and in 2005 the number of 31,570 days of filming in the Big City was reached (Sanders, James, 2006).

As Nick Carraway, the character in the novel *The Great Gatsby* by Scott Fitzgerald, said as he crossed the Queensborough Bridge, watching the skyline of Midtown: "Anything can happen now that we've slid over this bridge…Anything at all....". Pure cinema.



Power (Edward Bruce, 1933)

Cinema was born in New York

The film industry was born in the late nineteenth and early twentieth centuries, with the footage of engineering works in New York City by documentarians of the Edison, Biograph and Vitagraph companies which were limited to recording scenes on film for public knowledge. Examples: *East River Waterfront and Brooklyn Bridge*, 1903; *Skyscrapers of New York City, from the North River*, 1903; *Excavation for subway station* ..., 1906 [...]. They filmed everything, excavation, construction, demolition, [...] the first crossing of the Williamsburg Bridge in 1903 ... or, in 1904, the new City Hall Station of the first subway in the city. In *The Tunnel Workers*, 1906, the construction of a tunnel under the Hudson River was recorded, attesting the dramatic conditions in which these works were developed (Sanders, James, 2002).

A milestone was 'Manhatta' (original name of the island of Manhattan), by photographers Paul Strand and Charles Sheeler, 1921. The film, ten minutes long, shows images of city life filmed in lower Manhattan.

When films began to tell 'stories,' in the early 1920s, shooting had to be done in studios, so studios were built in the Bronx, Brooklyn and, somewhat later, in Queens, the Kaufman Astoria Studios, newly remodeled in the 1990s. Astoria became the capital of the film industry.

With the advent of sound cinema, the search for more profit through an increase in the hours of shooting with a better climate and, a little later, the crack of 1929, led to the transfer of cinema to sunny Hollywood and the decline of New York studios. But, even there, the 'urban' movies were still set in New York, now recreated in the Hollywood studios.

In the 50s, the influence of Italian neorealism and the 'nouvelle vague' with more luminous cameras returned to shooting in the streets on New York movies filmed in New York. "[...] No settings, no theaters, just the street" (Stanley Donen, co-director of *On the Town*, 1949, in: Sanders, James, 2006). And so, up to now...

This relationship between cinema and New York has produced an endless series of unforgettable films, shot in every corner. 'In NY you are able to find a location that not only gives you what you need, but with a little luck, gives you more of what you need, an extra dimension you never thought possible' (Sydney Lumet, in: Sanders, James, 2006).

The cathedral of communication of 'free America'

Brooklyn Bridge was the first suspension bridge, hanging from steel cables, built in the world. It was completed and opened in 1883, and since its opening, it became a first-rate symbolic icon of New York.

Emblematic films shot in New York

Little Old New York, Sidney Olcott, 1923.
The Shock Punch, Paul Sloane, 1925.
The Lost Weekend, Billy Wilder, 1945.
The Naked City, Jules Dassin, 1948.
The Moon Is Blue, Otto Preminger, 1953.
The Glass Wall, Maxwell Shane, 1953.
Little Fugitive, Moris Engel, 1953.
On the Waterfront, Elia Kazan, 1954.
Shadows, John Cassavetes, 1959.
The Best Of Everything, Jean Negulesco, 1959.
The Apartment, Billy Wilder, 1960.
Luv, Clive Donner, 1967.
Barefoot in the Park, Gene Saks, 1967.
Coogan's bluff, Clint Eastwood, 1968.
The April fools, Stuart Rosenberg, 1969.
The Out-of-towners, Arthur Hiller ,1970.
Serpico, Sidney Lumet, 1973.
Godspell, David Greene, 1973.
The Godfather: Part II, Francis Ford Coppola, 1974.
The taking of Pelham one two three, Joseph Sargent, 1974.
Annie Hall, Woody Allen,1977.
Saturday Night Fever, John Badham, 1977.
Hair, Milos Forman, 1979.
Cruising, William Friedkin, 1980.
Gloria, John Cassavetes, 1980.
Downtown 81, Edo Bertoglio, 1981.
Author! Author!, Arthur Hiller, 1982.
The Soldier, James Glickenhaus, 1982.
Working Girl, Mike Nichols, 1988.
Broadway Danny Rose, Woody Allen, 1984.
When Harry meet Sally, Rob Reiner, 1989.
Searching for Bobby Fisher, Steven Zaillian, 1993.
Six degrees of separation, Fred Schepisi, 1993.
Last Action Hero, John McTiernan, 1993.
The Cowboy way, Gregg Champion, 1994.
Little Odessa, James Gray, 1994.
The Hudsucker Proxy, Joel Coen, 1994.
Rumble in the Bronx, Stanley Tong, 1995.
One fine Day, Michael Hoffman, 1996.
City Hall, Harold Becker, 1996.
You've Got Mail, Nora Ephron, 1998.
Requiem for a Dream, Darren Aronofsky, 2000.
Vanilla Sky, Cameron Crowe, 2001.
Ferry Tales, Katja Esson, 2003.
The Day After Tomorrow, Roland Emmerich, 2004.
The Interpreter, Sydney Pollack, 2004.
American Ganster, Riddley Scott, 2007.
Iron Man 2, Jon Favreau, 2010.
Inside Llewyn Davis, Joel y Ethan Coen, 2013.
The Dark Knight Rises (Batman 3), Christopher Nolan, 2012.
The Drop, Michael R. Roskam, 2014.

If in the eyes of a European, the scope and vision of the design of engineering works in America seems oversized in magnitude, this is particularly the case regarding the Brooklyn Bridge. Its engineering seems even more disproportionate, visionary and ambitious, especially if we take into account the human, material and technological resources of the time.

John Perry Barlow attributed to its engineers and builders 'a literal and genuine blind trust [...] authentic faith in their ability to control technology' (*Barlow*, John Perry, 1995). A messianism inspired by communication as the basis of progress, held by its designers and builders, John A. Roebling and his son, Washington Roebling, despite the fate of misfortunes that hit them, and some of the courageous workers who conducted and completed the powerful artifact with superhuman efforts, from the foundation to the finishing touches.

The Brooklyn Bridge was the highest civilian work in the world until electricity and elevators allowed the construction of skyscrapers. It revolutionized the order of magnitude of this kind of works and, immediately, it became an icon, a gateway that, through the Gothic pointed arches of its towers, allowed the contemplation of a 'free America' in which the utopia of trade, progress and modernity was possible. It is unique and unmistakable. 'It is the cathedral of New York, its pointed arches and masonry refer to the Gothic cathedrals' (Aguiló Alonso, Miguel, 2008).

It is also symbol of the 'American dream,' of communication as a means to escape poverty, and engaging the possibility of improvement. Communication as improvement of human connection.

Therefore, it has been interpreted that the Brooklyn Bridge separates two different worlds, Brooklyn, proletarian and humble, and Manhattan, affluent and sophisticated, and its role as communicator is loaded with the symbolism of allowing one to make yourself, to change class, to harness your own potential, to access the promised land. The same transit, from Brooklyn to Manhattan, by subway, no longer by the bridge, recounted by Paul Mazursky in his classic film *Next Stop, Greenwich Village*, 1976.

The Brooklyn Bridge is connection, but also a symbol of power. The title of the stunning painting by Edward Bruce that immortalizes it, *Power* (1933, The Phillips Collection, Washington, DC) indicates very expressively what the bridge suggests. From Manhattan, only the rich people in Wall Street, the powerful, enjoy the views of the East River [...] as is evident in some masterpieces of cinema: *The Thomas Crown Affair*, Norman Jewison, 1968; *Prizzi's Honor*, John Huston, 1981; *Taxi driver*, Martin Scorsese, 1976.

The Brooklyn Bridge, from its imposing appearance, 130 years ago, has continued to inspire artists, poets, painters, photographers, writers, philosophers, and so, 'the film framings of the bridge can be inspired, not only by the bridge itself, but by pre-existing artistic representations of the bridge '(Plasencia Lozano, Pedro; 2011).

Walker Evans photographed it in a famous series in 1929, today at The Metropolitan Museum of Art, and Georgia O'Keeffe in 1949. So did masterfully, among many others, Ansel Adams and Henri Silberman. It is quite likely the most photographed structure in the world. In the collections of the Library of Congress USA there are more images of the Brooklyn Bridge than of any other work built by man.

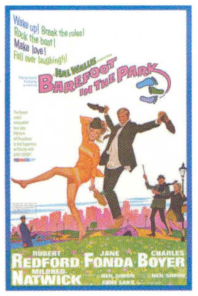
Vladimir Mayakovsky, in 1925, devotes to it his famous poem 'Brooklyn Bridge': "...As a crazed believer / enters/ a church, /retreats / into a monastery cell, / austere and plain; /so I, / in graying evening/ haze, /humbly set foot / on Brooklyn Bridge. ..."

Our own Federico García Lorca, reminisces about it in 1929: 'No one sleeps in the sky. No one. / No one sleeps. / The creatures of the moon sniff and circle their cabins [...]' ('City without sleep-Nocturne of the Brooklyn Bridge,' in the book *Poet in New York*).

And the American poet Hart Crane published the poem 'To Brooklyn Bridge' in 1930, with a view of the bridge as a unifying symbol of America:

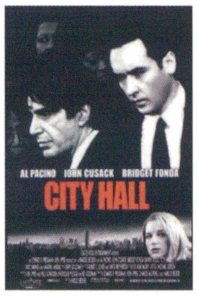
"...Again the traffic lights that skim thy swift/ Unfractioned idiom, immaculate sigh of stars,/ Beading thy path--condense eternity:/And we have seen night lifted in thine arms.. . ."

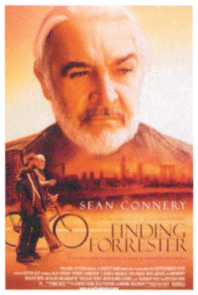




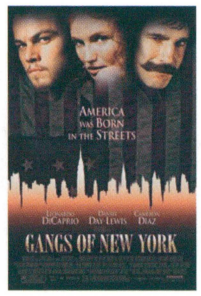


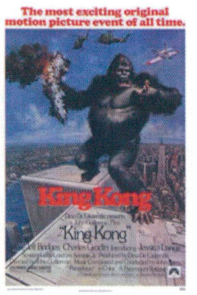


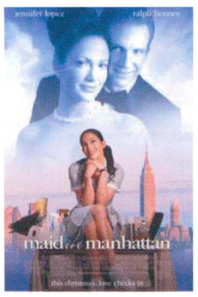




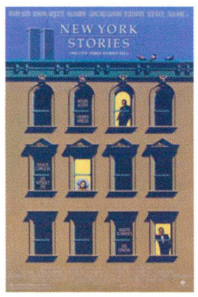


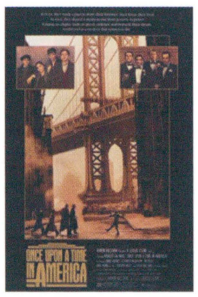


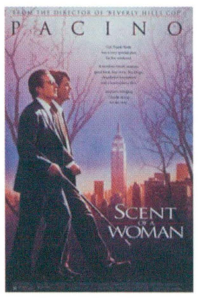


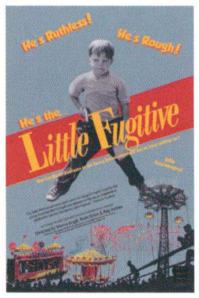




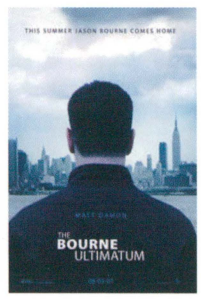


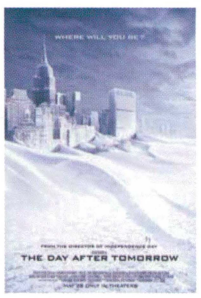






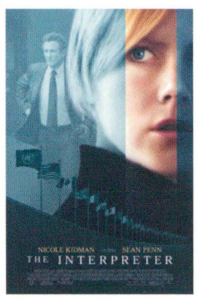


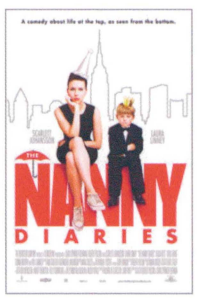


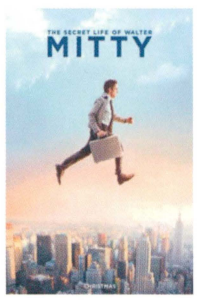


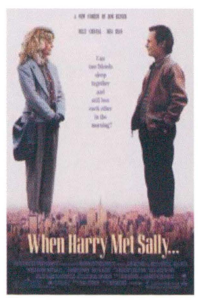


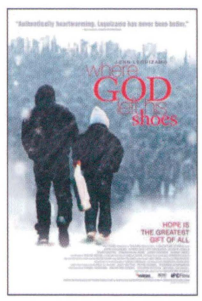


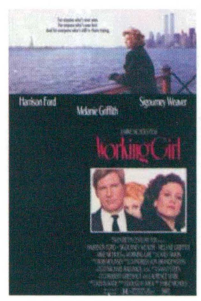














Also songs have recognized the myth and communicational symbol that the Brooklyn Bridge is from the very year of its opening ('The Highway in the Air. A Ballad of the Brooklyn Bridge' by Elf St. Moritz and John Vorstz, 1883) until today ('Brooklyn Bridge' by Lee DeWyze, 2010). 'Danny by my Side' by Edward Harrigan (lyrics) and Dave Braham (music), 1891, delicious composition that was all the rage at the time, shows how soon New Yorkers felt proud of their bridge and enjoyed it:

> "The Brooklyn Bridge on Sunday is known as lover's lane,/I stroll there with my sweetheart, oh, time and time again;/Oh, how I love to ramble, oh, yes, it is my pride,/ Dressed in my best, each day of rest, with Danny by my side.
>
> Chorus.
>
> Then, oh, my, do try, take in the bridge on a Sunday,/Laughing, chaffing, happy the lovers go by …."

The Brooklyn Bridge was born in the era in which film is born. And in the same city where film more intensely developed. Hence cinema, from its pioneering documentary era, bequeathed us scenes of the bridge and its traffic. For example, Thomas A. Edison already displays it on *Brooklyn Bridge Rail*, 1889, in *New York and Brooklyn Bridge from East River*, 1903 (Sanders, James, 2002) In 1899, the American Mutoscope and Biograph Company captured a lively overview of lower Manhattan with a camera placed on top of the bridge tower, *Panorama from the Tower of the Brooklyn Bridge*. In 1921, the image of the bridge was a key piece in *Manhatta*, the cinematographic portrait of New York by photographers Paul Strand and Charles Sheeler (Plasencia Lozano, Pedro, 2011).

Movies with notable scenes shot in the Brooklyn bridge.

Neath Brooklyn Bridge, Wallace Fox, 1942.
Arsenic and old lace, Frank Capra, 1944.
On the town, Stanley Donen y Gene Kelly, 1944.
It Happened in Brooklyn, Richard Whorf, 1947.
Abbott and Costello's Go to Mars, Charles Lamont, 1953.
A Thousand Clowns, Fred Coe, 1965.
Annie Hall, Woody Allen, 1977.
Saturday Night Fever, John Badhall, 1977.
Once upon a time in America, Sergio Leone, 1984.
Moonstruck, Norman Jewison, 1987.
Mo'Better Blues, Spike Lee, 1990.
Hudson Hawk, Michael Lehmann, 1991.
Secent of a Woman, Martin Brest, 1992.
Independence Day, Roland Emmerich, 1996.
Deep Impact, Mimi Leder, 1998.
Godzilla, Roland Emmerich, 1998.
The Siege, Edward Zwick, 1998
Kate & Leopold, James Mangold, 2001.
Gangs of New York, Martin Scorsese, 2002.
Spider-Man, Sam Raimi, 2002.
Stay, Marc Forster, 2005.
I Am Legend, Francis Lawrence, 2007.
Cloverfield, Matt Reeves, 2008.
The Dark Knight Rises (Batman 3), Christopher Nolan, 2012.
The Avengers, Joss Whedon, 2012.

Movies with notable scenes shot in Grand Central Terminal.

Modern Times, Charles Chaplin, 1936.
Around the World in 80 Days, Michael Anderson, 1956.
North by the Nothwest, Alfred Hitchcock, 1959.
The Taking of Pelham 123, Joseph Sargent, 1974.
Superman: The Movie, Richard Donner, 1978.
Arthur, Steve Gordon, 1981.
The Cotton Club, Francis Ford Coppola, 1984.
Falling in Love, Ulu Grosbard, 1984.
Midnight Run, Martin Brest, 1988.
The Prince of Tides, Barbra Streisand, 1991.
The Fisher King, Terry Gilliam, 1991.
Carlito's Way, Brian de Palma, 1993.
One Fine Day, Michael Hoffman, 1996.
Men In Black, Barry Sonnenfeld, 1997.
Armageddon, Michael Bay, 1998.
The Bone Collector, Philip Noyce, 1999.
Loser, Amy Heckerling, 2000.
Unfaithful, Adrian Lyne, 2002.
The Perfect Score, Brian Robbins, 2004.
Madagascar, Eric Darnell, Tom McGrath, 2005.
Revolutionary Road, Sam Mendes, 2008.
Hugo, Martin Scorsese, 2011.
Winter's Tale, Akiva Goldsman, 2014.

And since then, the bridge has continued to appear in dozens of films, constituting a very important part of the imaginary of the film buff in his 'prior' recognition of New York.

Three unforgettable examples: *On the Town*, Stanley Donen and Gene Kelly, 1944 (although the movie was filmed in studio, the initial number, the song 'New York, New York,' danced by the three sailors, goes through the most emblematic places of the city); *Mo'Better Blues*, Spike Lee, 1990 (Denzel Washington plays the life of musician Bleek Gilliam, with a melancholic and memorable scene in a solitary and nocturnal Brooklyn Bridge); *Gangs of New York*, 2002 (Martin Scorsese's film ends with a visual metaphor of the passing of time: drawings showing the successive transformation of the Brooklyn Bridge environment, yet leave as end point the landscape of the bridge before the fall of the WTC towers).

There it remains, operating in the real New York, and inspiring the New York of the movies, the bridge-cathedral of Brooklyn Bridge, with '[...] the effortful but gracious enforcement of synthesis, holding contraries together with the violence of a steel wire ...' (Conrad, Peter: 1984). Harvey Shapiro suggests: "The Bridge / still stands, getting ancient / with its freight of poetry," Harvey Shapiro (Shapiro, Harvey, *In Brooklyn Harbor*, 1978, in Shapiro, Harvey: 2006).

The triumphant portal of a continent

Grand Central Terminal is by far the most filmed train station of all times. Conceived as the gateway to America, symbolic place par excellence, New York's quintessence, it soon became, after its inauguration on February 2, 1913 replacing the old Grand Central Station, the mythical paradigm of arrival to the New World, the first point of entry into the heart of Manhattan, the promised land where progress is brewed. "... Triumphant portal to New York," in the words of one of its architects, Whitney Warren (Warren, Whitney, 1912). The portal evoked in its facade by the classical triple arch entrances, is in the manner of the portal in the great Roman public buildings.

Grand Central is the apotheosis of transit in modern cities. Every day, over half a million people, a third of them travelers, move through its 44 platforms and cross its large central atrium. Each year, it has 82 million users, 21 million tourists visit it, and 40 million take the subway, eat, or relax with a drink there. That is its great show, and these millions of lives inspire and make unique the stage of Grand Central, the setting of unforgettable scenes used in dozens of movies.

Charles Chaplin filmed masterfully in *Modern Times*, 1936, the huge windows of the station; the 'establishing shot' of *North by Northwest*, Alfred Hitchcock, 1959, captures the relentless frenzy in the Main Concourse of Grand Central; in *Unfaithful*, Adrian Lyne, 2002, Grand Central is the threshold that each time the protagonist crosses from doubt into adultery, and back, to return home laden with guilt. We've even seen Grand Central fly through the air after a collision with meteorites in *Armageddon*, Michael Bay, 1998.

Grand Central has also inspired songs with unforgettable performances: from 'Grand Central' by John Coltrane, and the rag No. 9 'Grand Central Morning' of 'The New York Rags' by David Chesky, to 'The Grand Central Symphony' by Lud Gluskin, in the style of the sixties.

The daily movie of Grand Central Terminal itself is one of the most stunning picture and sound shows that can be seen, for free also, in New York: leaning over one of the high terraces of the Main Concurse and watching the tingling in the lobby, accelerated and incessant, of those thousands of anonymous intersecting lives... If we do that and we have seen in *The Fisher King*, Terry Gilliam, 1991, the splendid take in which the fantasy of the tramp Parry, played by Robin Williams, slowly transforms that crowd into coordinated dance couples in the huge hall crowned by the sky blue ceiling with golden constellations, how to avoid repeating the scene in our imagination with the characters that we see down there?

By the way, that sky in the ceiling is upside down. It seems that the artists who made it, painters Paul Helleu and Charles Basing, put the sketch on the floor to look at it from above as they painted, contrary to how we look at the sky, from below. But New Yorkers say that, really, this is how God sees the heavens, from above!



▲ **King Kong** (Merian C. Cooper & Ernest B. Shoedsack, 1933). NYC Skyline

Nothing Sacred (William A. Wellman, 1937). NYC Skyline

Saboteur (Alfred Hitchcock, 1942). Statue of Liberty, Liberty Island



▲ **The House of 92nd Street** (Henry Hathaway, 1945). West 59th Street and Columbus Circle

Portrait of Jennie (William Dieterle, 1948). Pond, Central Park

The Naked City (Jules Dassin, 1948). Williamsburg Bridge



▲ **Force of Evil** (Abraham Polonsky, 1948). Wall Street

The Fountainhead (King Vidor, 1949). NYC Skyline

Strangers on a Train (Alfred Hitchcock, 1951). Pennsylvania Station, 7th Avenue and West 31st Street



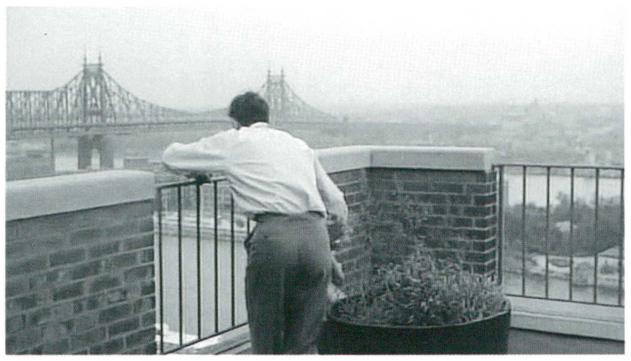






















▲ **Killer's Kiss** (Stanley Kubrick, 1955). Brooklyn Bridge

Sweet Smell of Success (Alexander Mackendrick, 1957). West 52nd Street

Cry Terror! (Andrew L. Stone, 1958). Queensboro Bridge

North by Northwest (Alfred Hitchcock, 1959). Grand Central Terminal, 89 East 42nd Street and Park Avenue

▲ **West Side Story** (Robert Wisw & Jerome Robbins,1961). 110 Street

Breakfast at Tiffany's (Blake Edwards, 1961). 5th Avenue

Blast of Silence (Allen Baron, 1961). Pennsylvania Station, 7th Avenue and West 31st Street

The Manchurian Candidate (John Frankenheimer, 1962) Bethesda Terrace, Central Park

▲ **Planet of the Apes** (Franklin F. Shaffner, 1968). NYC Skyline

Rosemary's Baby (Roman Polansky, 1968). Dakota Building, 72nd Street

The French Connection (William Friedkin, 1971). NYC Skyline

The Godfather (Francis Ford Coppola, 1972). Shooting at Mott Street





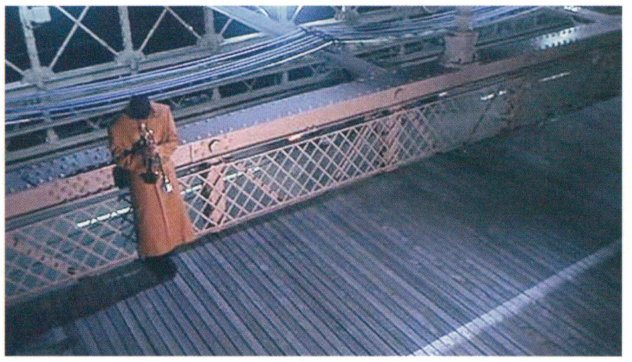




















▲ **The Godfather Part II** (Francis Ford Coppola, 1974). Recreation of Little Italy en 6th Street

Taxi Driver (Martin Scorsese, 1976). Times Square

Manhattan (Woody Allen, 1979). Queensboro Bridge

Once Upon a Time in America (Sergio Leone, 1984). Manhattan Bridge

▲ **Wall Street** (Wall Street, Oliver Stone, 1987). NYC Skyline

Working Girl (Mike Nichols, 1988). Staten Island Ferry, New York Harbour

Mo'Better Blues (Spike Lee, 1990). Brooklyn Bridge

The Fisher King (Terry Gilliam, 1991). Grand Central Terminal, 89 East 42nd Street and Park Avenue

▲ **Scent of a Woman** (Martin Brest, 1992). Waldorf Astoria Hotel

Léon (Luc Besson, 1994). Williamsburg Bridge

Looking for Richard (Al Pacino, 1996). Metropolitan Museum of Art

Spider-Man (Sam Raimi, 2002). Flatiron Building, 5th Avenue & Broadway

Films with notable 'establishing shots' of the Skyline.

The Last Weekend, Billy Wilder, 1945.
The Naked City, Jules Dassin, 1948.
How to Marry a Millionaire, Jean Negulesco, 1953.
West Side Story, Jerome Robbins y Robert Wise, 1961.
Two for the Seesaw, Robert Wise, 1962.
Manhattan, Woody Allen, 1979.
Escape from New York, John Carpenter, 1981.
Someone Watch over me, Ridley Scott, 1987.
New Jack City, Mario Van Peebles, 1991.





Manhattan's skyline from Brooklyn Heights Promenade

The skyline is New York

The skyline of Manhattan is the brand image of New York, the most characteristic symbol of the vertical city par excellence. Vertical city: the elevators made the skyline possible: without elevators, there would have been no skyscrapers.

No doubt, the quintessential image of New York is the profile of the skyscrapers of the city outlined on the sky. From different lookouts one can see this view of the landscape as if it were a postcard, and thus the image becomes an icon.

Walking across the Brooklyn Bridge, from this structure almost 50 m above the water, you have a panoramic view of the bay, in which the Manhattan Bridge and the banks of the East River in Brooklyn and Manhattan with their respective docks stand out. The walk along the elevated central path, with one lane for pedestrians and another for cyclists, while vehicle traffic is kept separated at a lower level, is a unique experience. This mixture of different flows, to which we have to add the traffic of vessels in the river and the circulation in the nearby bridge, brings dynamism to the walk.

Across the East River and from the Brooklyn Bridge Park we have spectacular views of the sunset over the skyline of lower Manhattan with the Brooklyn Bridge in the background. A higher point of view is obtained from Brooklyn Heights Promenade and Esplanade, a large landscaped promenade cantilevered over the Brooklyn-Queens Expressway (BQE) motorway, completed in 1950. This viewpoint has a perspective on Lower Manhattan, the Brooklyn Bridge and the port. In the mid 1940s Robert Moses proposed to build a highway running through Brooklyn Heights. After the strong popular opposition, a solution was found, building a road on two levels (the highway and the service road to the docks - Furman St.) above the waterfront. To isolate the neighborhood from the noise of the highway, this wooded walk was created (acacias, *Gleditsia triacanthos*) with benches, which the extraordinary mansions face, separated by a vegetation band of hardy shrubs, from which one can watch the same stunning view. It has a railing of steel bars, and the pavement is of hexagonal pavers alternating with larger rectangular pieces. The experience of this promenade was later repeated in Battery Park City Esplanade. The neighborhood of Brooklyn Heights was the first district of the city to be listed as a historic district in 1966. It was a dormitory suburb on the other side of the East River where Wall Street bankers built splendid houses in wooded and quiet streets of aristocratic appearance in the early nineteenth century. In many respects, it recalls Greenwich Village in Manhattan, and it was also the haunt of famous artists and writers.

Taking a free ferry from Battery Park, and after a 20-minute journey, you cross to Staten Island. Throughout the journey by ferry and from the terminal itself, on the other side, you can enjoy a magnificent view of the bay with all the profile of Lower Manhattan in the background. You also pass by the Statue of Liberty, another icon of the city, next to Governor's Island.

In the evolution of the skyline we can follow, also in film, the transformations of the city. It is a powerful icon that has ended up becoming a representation of the city.

In the particular jargon of film professionals, they call 'establishing shot' a wide panoramic view that locates or frames the events of the movie, or the following scene. The skyline! How many movies begin with that 'establishing shot'!

How to be in the New York night and not rewind in your mind the unforgettable introductory nine minutes from *Manhattan* by Woody Allen, 1979, with the musical accompaniment of "Rhapsody in Blue" by George Gershwin?

Nothing is as suggestive cinematically as the night skyline, illuminated by the bright small rectangles of hundreds of thousands of windows (the Twin Towers of the WTC had 43,600 windows), each window a single story, a potential movie. Those windows that play a key role in films such as *Rear Window*, Alfred Hitchcock, 1954, *12 Angry Men*, Sidney Lumet, 1957, *Catwoman*, Pitof Comar, 2004, and so many others.

If we 'zoom' in on this skyline (unique and unforgettable is the view of it from Rockaway Beach), the most iconic elements were first the Chrysler Building and the Empire State Building, completed in 1930. Although for twenty years the Empire State Building was called by New Yorkers the "Empty State Building," because it was not profitably occupied until 1950 [9].

In *The Fountainhead*, King Vidor, 1949, based on the eponymous novel by Ayn Rand in 1943, the clash of modern architecture with the previous, more 'academic and classic' architecture, arose starkly [187]. Before, the debate had already been raised, as to whether the planning of the first New York of the future had come from an idealization of the plasterboard towers of Dreamland Coney Island, or from the architectures of *Metropolis*, 1926, that Fritz Lang conceived after his first trip to New York.

The iconic attribute of the new modernity was then transferred to the Twin Towers of the World Trade Center that, upon their completion in 1973, with their simple shapes and height, dominated the skyline as no previous building had done before. In the splendid *Serpico,* Sidney Lumet, shot in the same year of 1973, the skyline already appears with the Twin Towers.

Let us consider the example of *King Kong* to show the new iconic value of the Towers [172]. In the *King Kong* of Merian C. Cooper and Ernest B. Schoedsack, 1933, the Empire State, at that time the world's tallest building, appears in the climax of the film and in all its advertisements; in contrast, in the version of *King Kong* by Dino de Laurentiis, 1976, the Empire was replaced by the then newly built World Trade Center towers, which exceed the Empire not only in height, but in connoting a modernized New York.

The September 11, 2001, after the 102 minutes it took the towers of the World Trade Center to collapse, the skyline of lower Manhattan was irrevocably altered. And the role to represent the 'Big City' went back to the old icons. The latest version of *King Kong*, Peter Jackson, 2005, returns again to the Empire State Building for its main scene.

The landmarks of the modern era of glass and steel, for example the Seagram Building, the AT&T or the Citicorp Center, since they are located in the midtown, do not have a strong presence in the skyline *"... and can never be adequately charged with enough meaning to replace the fallen Twin Towers"* [172]. The Empire, the Flatiron, the Chrysler, are again the symbols by which 'The Big Apple' must be recognized in film, as is evident in the film *Sky Captain and the World of Tomorrow*, Kerry Conran, 2004.

The power of representation of the skyline has remained for almost a century. Now the question must be asked: what will be the effect, regarding the iconic character of a new skyline, of the recently opened Freedom Tower, One World Trade Center, at Ground Zero, with its symbolic 1,776 (year of the independence) feet of height?

Despite the sarcasm in the ironic statement about New York from O. Henry (pseudonym of writer and storyteller William Sydney Porter): *"It'll be a great place if they ever finish it,"* [187] change and continuous transformation are in its essence, and in them lies much of its appeal. That tremendous appeal that makes us feel like Ernie Hudson, the character in *Ghostbusters*, Ivan Reitman, 1984, when he faces the glittering skyline and screams with all his might: 'I love this town' ... [185]. And it makes us agree with Woody Allen when he sits at sunrise in Riverview Terrace, with the Queensboro Bridge in the background, and he tells Diane Keaton: *"This is really a great city. I don´t care what anybody says..."* (*Manhattan,*Woody Allen, 1979).

Text: Santiago González Alonso



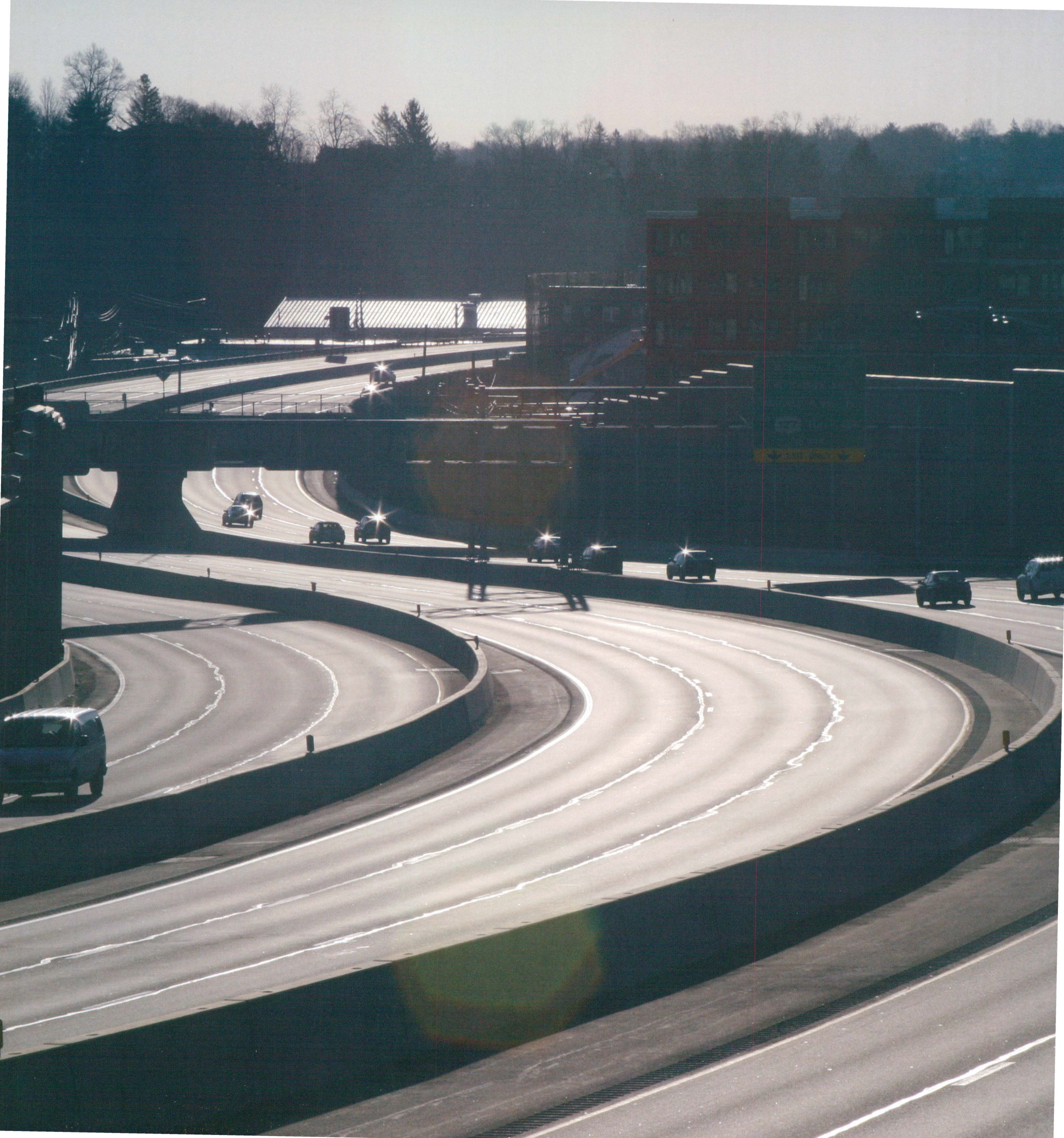




Brooklyn Heights Promenade

Skyline from Brooklyn Bridge

Skyline of Manhattan



18 | Works



Miami Airport, phase I, USA. 2009



Voie Maritime. 2012



Alaskan Way Tunnel, Seattle, United States. 2013



Teodoro Moscoso Bridge, Puerto Rico



James Cancer Hospital & Solove Research Institute



Autoroute 30 (A-30), Montreal, Canada



Autoroute 30 (A-30), Montreal, Canada



Beauharnois, Bridge sector 4. 2012



Teodoro Moscoso Bridge, Puerto Rico



Teodoro Moscoso Bridge, Puerto Rico



Teodoro Moscoso Bridge, Puerto Rico



Croton Falls Dam, Westchester County, New York. 2012



Beauharnois Bridge. 2012



Soulanges Tunnel, sector 1. 2012



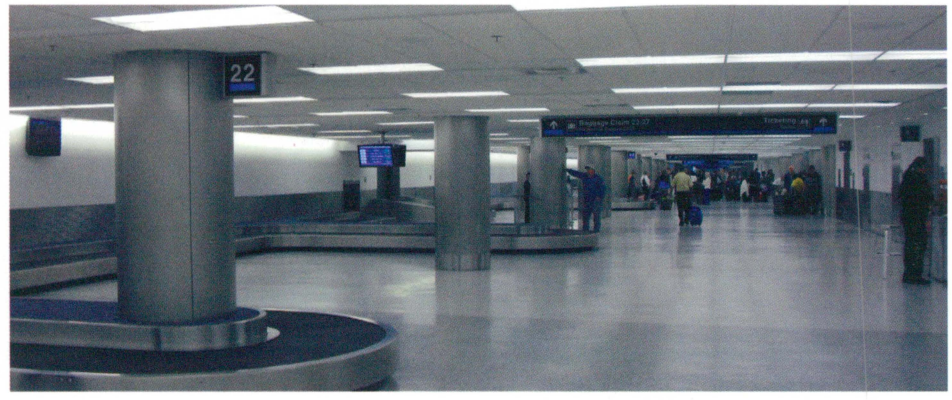
Beauharnois Bridge. 2012



Water pump, Manhattan, New York, United States. 2010



Vue échangeur, sector 1. 2012



Miami Airport, phase I, United States. 2009



Water pump, Manhattan, New York, United States. 2010



Croton Falls Dam, Westchester County, NY. 2012



New York Subway, United States



Highway I-287, New York, United States. 2010



New York Subway Tunnel



Calaveras Dam, San Francisco. 2014



New York Subway, United States



Croton Falls Dam, Westchester County, NY. 2012



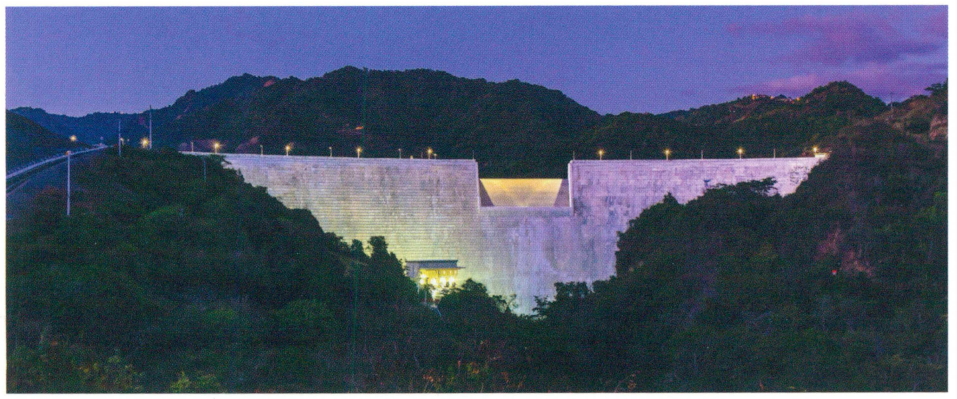
Highway I-75 Jacksonville, Florida, United States



Calaveras Dam



Water pump, Manhattan, New York, United States. 2010



Portugues Dam, Puerto Rico. 2014



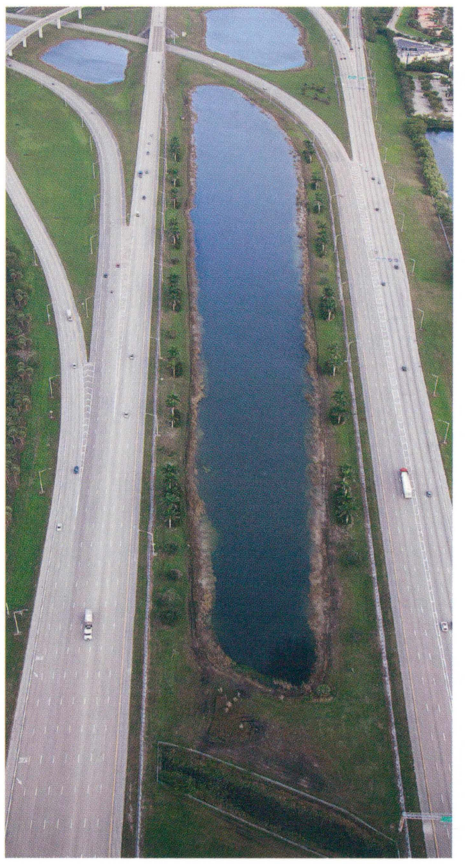
Highway I-287, New York, United States. 2011



Highway I-75 Jacksonville, Florida, USA



New York Subway, United States



Highway I-75 Jacksonville, Florida, USA



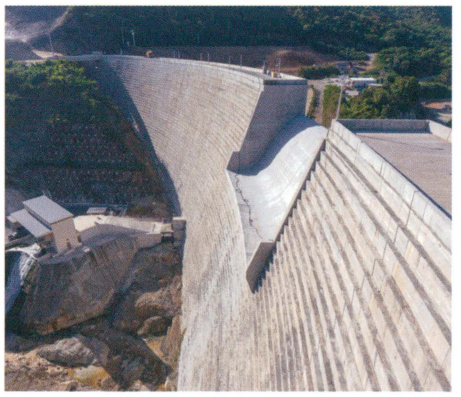
Highway I-287 Westchester County. 2011



Calaveras Dam, San Francisco. 2014



Water pump, Manhattan, New York, United States. 2010



Portugues Dam, Puerto Rico. 2014



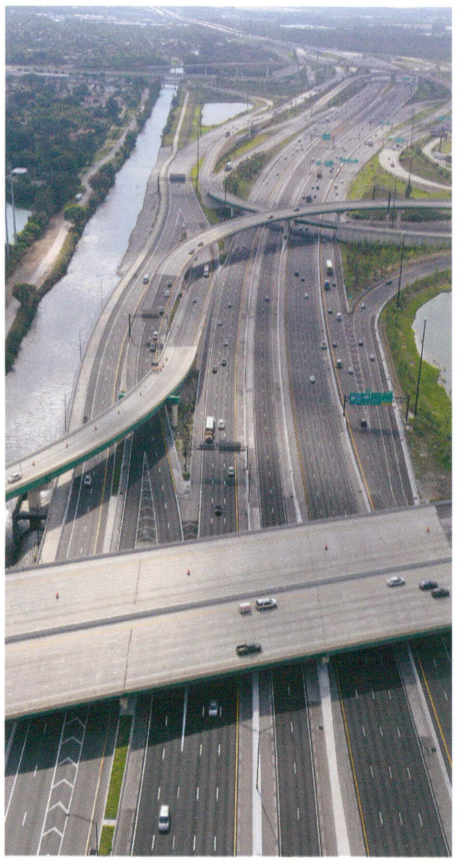
Highway I-287 Westchester County. 2011



Highway I-595. 2014



Highway I-75 Jacksonville, Florida, United States



Highway I-595. 2014



Brooklyn Subway. Refurbishing 5 stations, New York, USA. 2010



Highway I-595. 2014



Highway I-595. 2014



Puerto Nuevo River, Puerto Rico



Bechara Industrial Area, Puerto Rico



Seventh Avenue Subway, Schiavone, New York. 2012



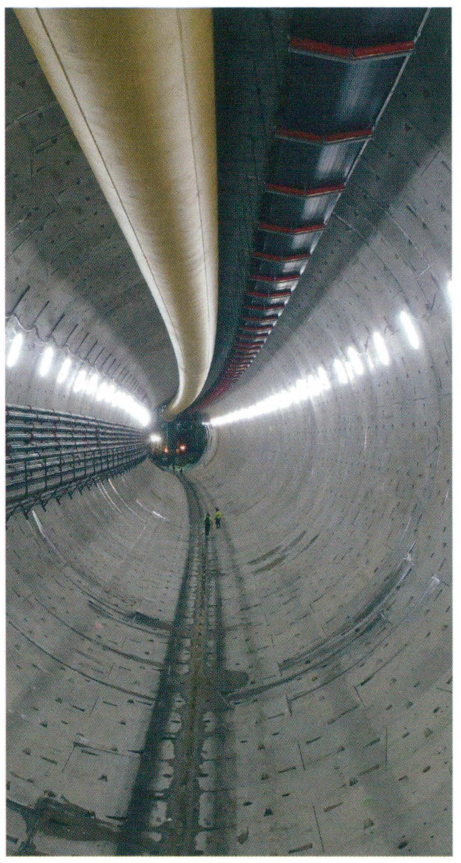
Light Rail, Ottawa, Canada



IMA House TV studio, Florida, United States, 2011



Puerto Nuevo River, Puerto Rico



Alaskan Way Tunnel, Seattle



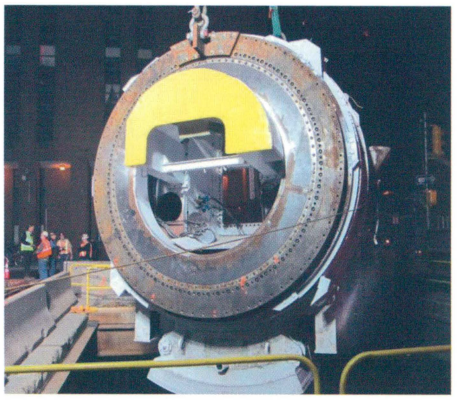
Second Avenue Subway



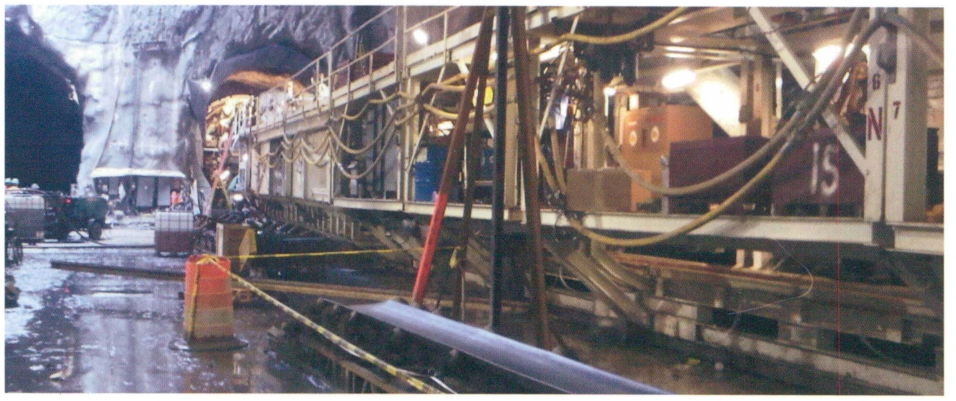
SR-23 Jacksonville, Florida, United States



South Fraser Perimeter Road, Vancouver, Canada



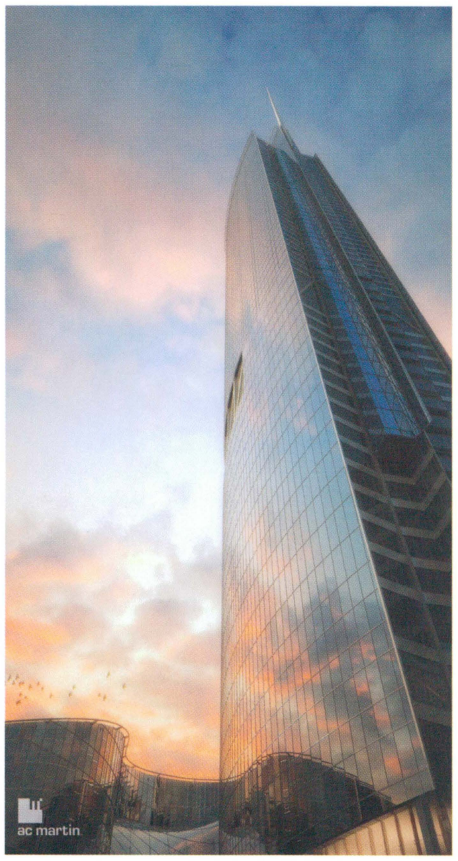
Second Avenue Subway



Second Avenue Subway



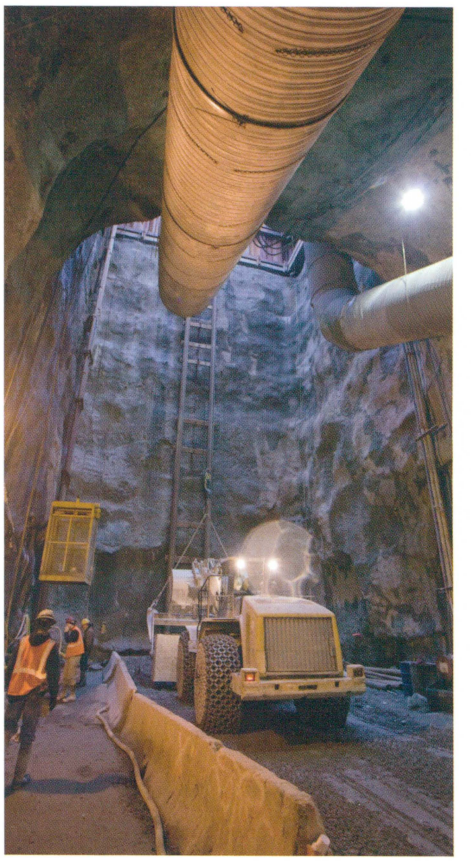
Light Rail, Ottawa, Canada



Wilshire Grand Rendering



I-75 Jacksonville, Florida, United States



Seventh Avenue Subway, Schiavone, New York. 2012



Seventh Avenue Subway, Schiavone, New York. 2013



Highway I-595. 2014



Highway I-287, Westchester County, New York, United States. 2011



Highway SR-23 Jacksonville, Florida, United States



South Fraser Perimeter Road, Vancouver, Canada



Yadkin River Bridge 2013



Highway I-595. 2014



Four Seasons Resort, Orlando, Walt Disney World



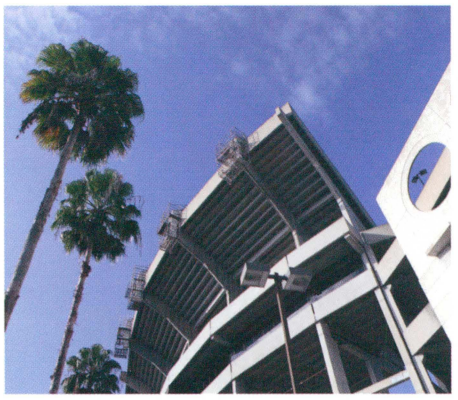
IMA House TV studio, Florida, USA, 2011



Second Avenue Subway



Novartis Oncology Consolidation Center



Citrus Bowl



Saale Elster



Transport Exchange Avenida de América



Gotthard Basistunnel



SFPR Intersection with Highway 99



Hospital Can Misses



Navoi 2 Initec



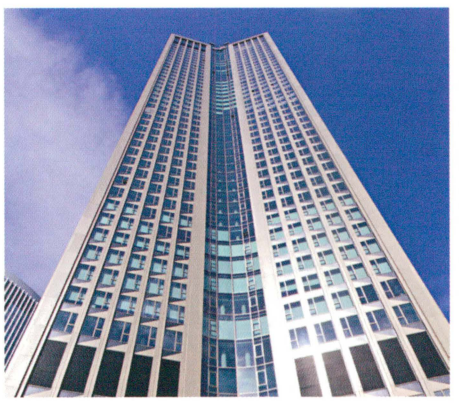
Jasmine Offshore



Judy 2 Offshore



Vapor OCP Marruecos Intecsa



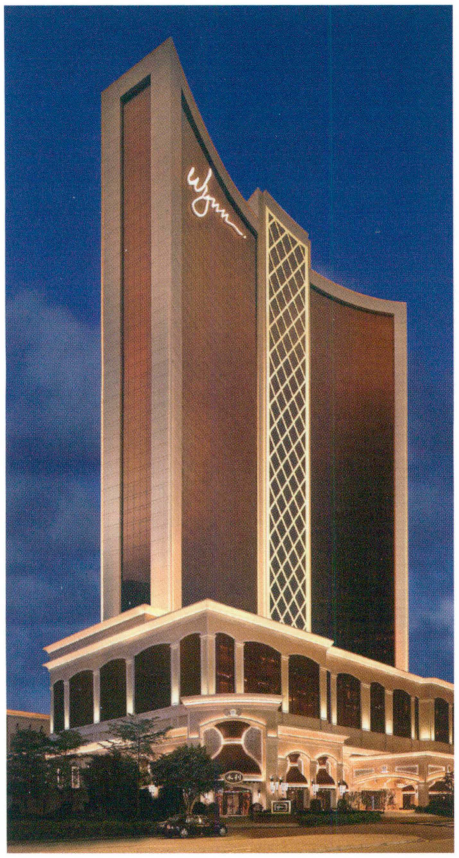
Tower 185



RENFE Mercancías section France S.I. Figueras Perpignan



NEAH Construction of the bridge over Saskatchewan River



LAIO Wynn Encore



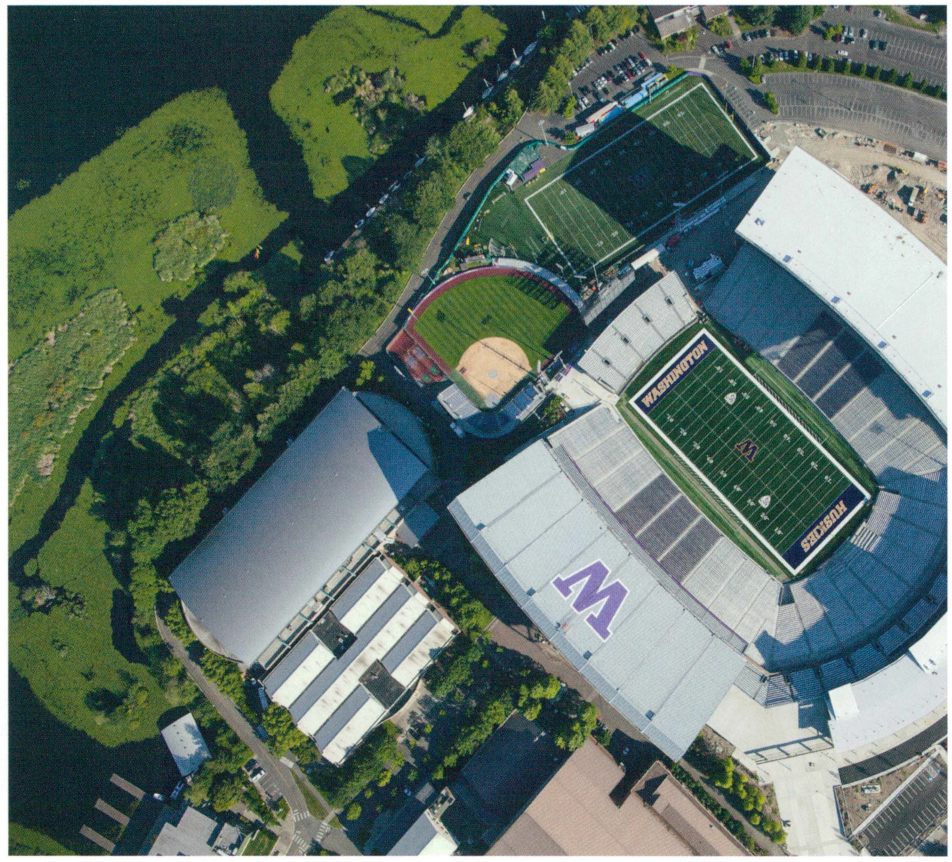
Oakland Airport Connector



Riga Airport



General area view Casablanca Solar Power Plant



Husky Stadium Seattle



General view Pointe Jarry November 2013



Manzanillo 3 Cobra Mexico



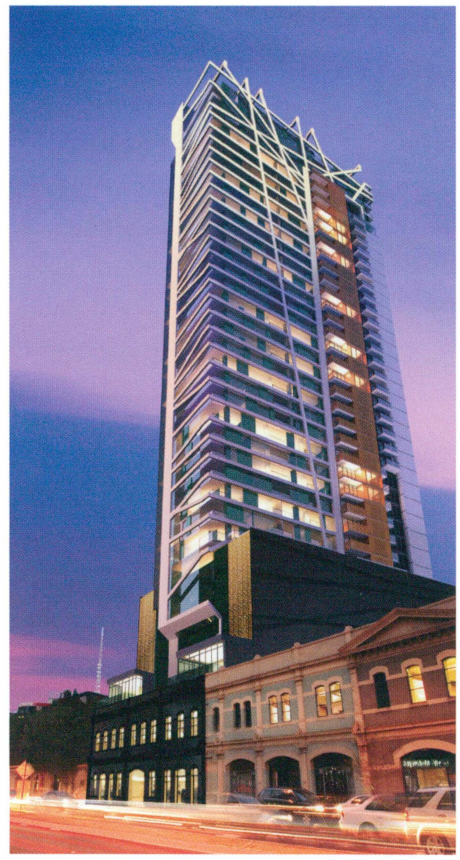
Port Mann Bridge



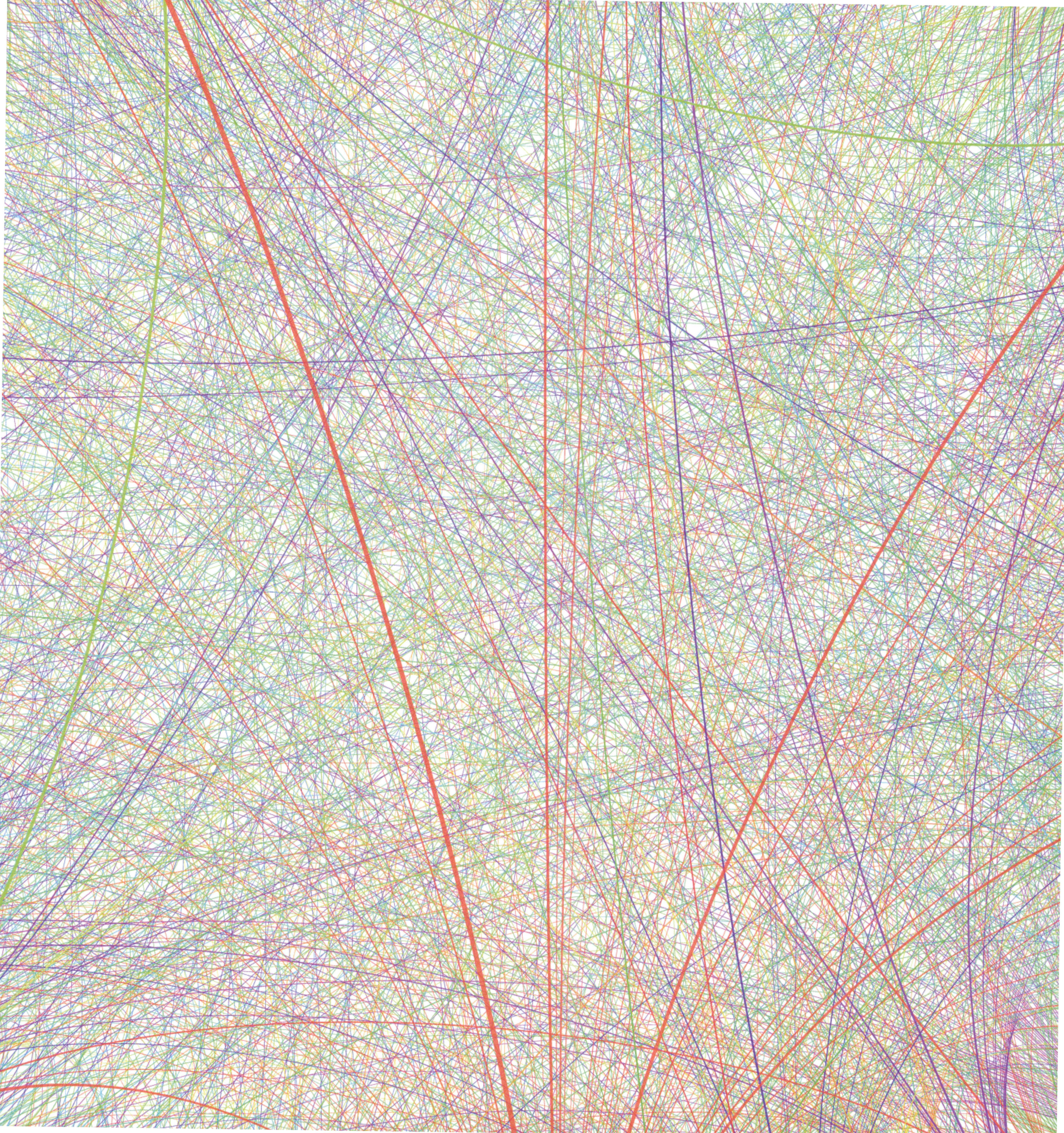
Letsabi



Vidar Seetest



LPPL WRAP



19 | References, indexes, notes

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Index

10 White St., 55
15-5 Ford Foundation, 15, 312, 330
3 World Trade Center, 322
52nd Street Project, 362
7 World Trade Center, 322, 349

A

Aaron Douglas, 203
Abby Aldrich Rockefeller, 321
Abram Hewitt, 55
accesses, 75, 88, 89, 90, 91, 100, 105, 116, 138, 140, 149, 160, 161, 166, 169, 170, 171, 172, 198, 223, 234, 236, 242, 257, 263, 266, 268, 272, 276, 283, 284, 294, 312, 313, 349, 370, 378, 393
ACS, 15, 333, 415
Ada Louise Huxtable, 144, 203
airport, 15, 18, 280, 281, 282, 283, 284, 286
Al Smith, 165
Alan Trachtenberg, 63
Albert Gleizes, 71
Alexander Jackson Davis, 53
Alfred Barr, 185
Alfred C. Maevis, 153
Alfred Craven, 46, 149
Alfred Fellheimer, 143
Alfred G. Meyer, 66
Alfred H. Barr Jr., 322
Alfred Lerner Hall, 105
Alfred Noble, 152
Alfred Stieglitz, 67, 69, 70, 71, 202, 205, 206, 207
Allen Ginsberg, 308
Allen Stern, 142
Alvin Langdon Cuborn, 69
Amanda Burden, 15, 294, 317, 347, 348, 354, 359, 365
Ambroise Vollard, 203
American cities, 74, 136, 218, 310
American Concrete Institute, 56
American Conservation Movement, 158, 305, 374, 375
American Institute of Architects, 158, 312
American Institute of Natural History, 53
American Society of Civil Engineers, 46, 125, 380, 415
Amos Eno, 68
André Derain, 203
Andrew Haskell Green, 77
Anthony Raynsford, 144
Arata Isozaki, 106
Archibald Gracie, 292
architecture, 22, 42, 52, 64, 67, 98, 99, 100, 103, 112, 114, 130, 146, 147, 177, 180, 181, 186, 187, 188, 190, 191, 192, 197, 198, 203, 205, 206, 207, 208, 209, 212, 217, 218, 219, 230, 242, 248, 290, 297, 307, 317, 320, 321, 332, 346, 360, 403
Art Deco, 166, 167, 176, 184, 185, 186, 188, 194, 341
arterial network, 222, 227, 262, 263, 276, 296, 311
Arthur Hewitt, 69
Arthur I. Perry, 268
artists, 14, 56, 69, 116, 202, 203, 205, 206, 207, 296, 305, 309, 316, 328, 369, 375, 380, 382, 387, 392, 396, 398, 402
Astoria Park, 230
August Belmont, 148
Austin Tobin, 15, 160, 280, 281, 286
Avery Hall, 103

B

Battery Park, 33, 170, 237, 288, 289, 290, 297, 313, 347, 354, 380, 402
Battery Park City, 288, 289, 290, 347, 402
Battery Park City Authority, 347
Baudelaire, 306
Bayonne Bridge, 100, 266, 267
Bellevue Hospital Center, 98
Belt Parkway, 225, 233, 234, 296
Benjamin Baker, 125
Benjamin Latrobe, 52
Benton MacKaye, 158
Bernard Tschumi, 105, 346
Betty Friedan, 305
Bill Baker, 321
Blackwell Island Bridge, 125
blocks, 18, 28, 30, 68, 88, 102, 105, 170, 176, 205, 237, 294, 305, 314, 315, 316, 348, 366, 368, 375, 386
Boat House, 83
Bog Brook Reservoir, 42
Bowling Green, 380
Brice Price, 55
bridge, 20, 23, 28, 33, 37, 38, 41, 44, 52, 60, 61, 62, 63, 64, 65, 66, 67, 71, 83, 100, 101, 102, 116, 123, 125, 127, 128, 130, 132, 133, 141, 144, 151, 159, 160, 161, 162, 166, 168, 170, 171, 194, 198, 205, 208, 222, 233, 234, 236, 238, 246, 256, 257, 258, 260, 261, 263, 266, 267, 268, 270, 271, 272, 274, 275, 276, 280, 281, 290, 293, 294, 298, 299, 300, 313, 315, 341, 368, 369, 379, 381, 395, 396, 397, 398, 402, 415
bridge, cantilever, 101, 125
bridge, connecting, 62, 123, 128, 151, 257, 260, 261, 381, 395
bridge, railway, 62, 260
Bronx, 15, 37, 41, 47, 48, 49, 61, 92, 98, 100, 148, 149, 152, 161, 163, 164, 211, 212, 222, 224, 225, 233, 234, 237, 238, 240, 242, 243, 261, 262, 263, 266, 268, 270, 271, 272, 276, 297, 306, 335, 336, 348, 376, 377, 378, 379, 395
Bronx River Parkway, 41, 163, 164, 211, 212, 224, 225, 377, 378
Bronx Zoo, 297
Bronx-Whitestone Bridge, 270
Brooklyn, 14, 28, 31, 32, 33, 41, 46, 48, 49, 56, 59, 61, 62, 63, 64, 66, 71, 76, 82, 88, 89, 91, 98, 100, 105, 106, 107, 108, 116, 118, 123, 125, 130, 141, 143, 144, 148, 149, 151, 159, 162, 170, 202, 212, 222, 224, 226, 227, 233, 234, 242, 256, 257, 260, 262, 263, 271, 274, 275, 276, 280, 281, 286, 290, 292, 294, 298, 311, 312, 347, 348, 359, 368, 369, 370, 375, 377, 381, 395, 396, 397, 398, 402, 415
Brooklyn Battery Tunnel, 170
Brooklyn Botanic Garden, 105, 106
Brooklyn Bridge, 14, 59, 63, 64, 89, 91, 100, 116, 118, 123, 130, 143, 160, 202, 256, 257, 260, 271, 294, 395, 396, 397, 398, 402
Brooklyn Bridge Park, 294, 402
Brooklyn Grand Army Plaza, 107
Brooklyn Museum of Art, 106, 375
Brooklyn Queens Expressway, 226
Brooklyn Riverwalk, 347
Brooklyn-Manhattan Transit (BMT), 149, 298
Bruckner Blvd, 336
Bruckner Expressway, 238, 268
Bryant Park, 46, 212, 213, 214
Buckminster Fuller, 188
buildings, 13, 14, 15, 18, 22, 28, 30, 32, 49, 52, 53, 55, 67, 68, 69, 71, 76, 83, 90, 92, 95, 98, 99, 100, 102, 103, 110, 111, 112, 114, 118, 128, 136, 141, 143, 146, 156, 157, 158, 166, 168, 170, 173, 176, 177, 180, 181, 182, 184, 187, 188, 190, 194, 196, 197, 198, 199, 205, 206, 214, 217, 218, 219, 230, 236, 237, 238, 245, 246, 248, 251, 253, 277, 286, 287, 288, 289, 305, 306, 307, 309, 310, 311, 312, 317, 320, 325, 326, 328, 336, 339, 340, 341, 346, 347, 348, 352, 355, 359, 360, 362, 365, 368, 369, 375, 376, 377, 386, 387, 388, 389, 394, 403
buildings, institutional, 14, 98, 99, 128, 166, 176

C

Calvert Vaux, 76, 82, 83, 88, 89, 92, 164, 225, 292, 384
canal, 14, 20, 33, 34, 35, 62, 266, 267, 298, 370
cantilever, 62, 123, 125, 128, 130, 169
Carl Condit, 55, 130, 131, 162, 203, 258
Carl Schurz, 292
Carl Schurz Park, 292
Carrère and Hastings, 110, 128, 213
Carroll Pratt, 115
Cass Gilbert, 100, 176, 177, 187, 257, 260, 271
cast iron facades, 53, 136, 310
Cathedral St. John the Divine, 100
Catskill Aqueduct, 40, 48, 215
Cemetery Trinity Church, 381
Central Park, 14, 37, 41, 46, 48, 49, 61, 74, 75, 76, 77, 82, 88, 89, 90, 91, 92, 95, 108, 144, 164, 212, 215, 224, 225, 247, 326, 360, 381, 387, 415
Charles C. Schneider, 101, 161, 256
Charles Dyer Norton, 159
Charles Evans Hughes, 321
Charles H. Whitaker, 158
Charles Lindberg, 194
Charles M. Jacobs, 151, 152
Charles McKim, 98, 100, 102, 106, 112, 114
Charles Reed, 142
Charles S. Frost, 67
Charles Sheeler, 202, 395, 397
Charles Whitney, 284
Chelsea, 204, 236, 307, 315, 336, 366, 368, 374, 375
Chelsea Piers, 236, 315, 375
Christian de Portzamparc, 15
Christopher Alexander, 317
Christopher Grant LaFarge, 99
Chrysler Building, 182, 186, 190, 207, 359, 402
CIAM, 219, 332
cinema, 215, 308, 380, 394, 395, 396, 397, 402, 403
City Hall Loop, 100
City Hall Park, 62, 380
City Hall Station, 395
city planning, 194, 211
City Planning Commission, 244, 347, 360
city road system, 263
City Water Tunnels, 49
Citygroup Center Atrium, 392
Clancy Brothers, the, 308
Clarence H. Blackall, 181
Clarence Stein, 158, 209
Clarke, Rapuano & Holleran, 215
classicism, 176, 219
Clement Greenberg, 203
Clifford M. Holland, 168
Clinton Lloyd, 92
coast, 33, 34, 35, 89, 90, 170, 197, 223, 235, 236, 281, 290, 294, 347, 348, 354, 356, 378, 402
Columbia University, 15, 77, 88, 89, 98, 102, 118, 304, 328, 347
conflicts of scale, 13, 316, 369
Cooper Union Building, 55
Cooper, Ecksut Associates, 335
Cornelius Vanderbilt, 136
corporations, 69, 157, 176, 177, 347
Corydon Purdy, 67
criticism, 56, 59, 64, 70, 132, 186, 191, 199, 208, 248, 257, 284, 346
Cross Manhattan Expressway, 15, 237
Cross River Reservoir, 43, 378
crossing Manhattan, 233
Croton Aqueduct, 34, 37, 46, 205, 233, 380, 384
crowd, 138, 142, 143, 144, 145, 146, 147, 206, 371

cultural landscape, 142
Curtis Ginsberg, 182

D

Damrosch Park, 252
dams, 38, 40, 41, 44, 208, 377
Dan Kiley, 253, 330
Daniel Chester French, 102
Daniel D. Badger, 53, 136
Daniel H. Burnham, 67, 136, 139, 159
Daniel L. Turner, 149
Daniel Libeskind, 352
David B. Steinman, 64, 133
David Childs, 322, 349
David P. Billington, 62, 65, 132
David Rockefeller, 322
Davis, Brody and Associates, 336
defense of the neighborhoods, 304, 306, 307
degradation, 77
Delano & Aldrich, 283
Delaware Aqueduct, 41, 43, 48
Delaware system, 48
Department of Environmental Protection, 41, 355
Der Scutt, Swanke Hayden Connell Architects, 338
Dia Art Foundation, 310, 377
Diller, Scofidio & Renfro, 366, 375
docks, 14, 31, 32, 36, 95, 159, 160, 208, 227, 281, 282, 286, 290, 294, 295, 314, 354, 366, 374, 375, 402
Donald Trump, 92, 337
DUMBO (Down Under Manhattan Bridge Overpass), 369
Dylan Thomas, 308

E

E. S. Savas, 77
East Branch Reservoir, 42
East River, 28, 48, 61, 62, 63, 71, 123, 128, 148, 149, 151, 152, 160, 168, 170, 191, 222, 226, 230, 231, 232, 233, 235, 247, 263, 266, 268, 270, 271, 276, 292, 293, 294, 296, 309, 311, 343, 347, 369, 374, 394, 395, 396, 397, 402
East River Park, 230, 292
East Side Waterfront, 235
Eastern Parkway, 90, 91, 108
École des Beaux Arts, 180, 185, 190
Edward Ferrari, 166
Edward H. Tracy, 46
Edward Hooper, 205
Edward Steichen, 69, 70
Edward Trumbull, 186
Edwin W. Bard, 162
Eero Saarinen, 251, 252, 284, 330
Egbert L. Viele, 75, 82
electricity, 52, 56, 67, 114, 143, 354, 355, 396
Elisha Graves Otis, 53, 376
Emery Roth, 329
Empire State Building, 28, 182, 184, 186, 237, 403
Erie Canal, 30, 33, 34, 136
Ernest Lawson, 69, 205
Evaristo Churruca, 64
exhibitions, 69, 71, 77, 223, 247, 296, 328
extending, 18, 88, 123

F

Fazlur Khan, 321
Federal Highway Administration, 300, 377
Federico García Lorca, 147, 203, 206, 207, 396
Flatiron Building, 67, 68, 182, 204, 387
Flushing Meadows, 197, 247, 251
Ford Foundation, 15, 312, 330
Fort Greene Washington Park, 88
Fort Point peninsula, 270
Fort Tryon Park, 235
Foster & Partners, 349
Francis Picabia, 203, 206
Francisco Franco, 251
François Hennebique, 56
Frank E. Winsor, 39
Frank Gehry, 15, 346
Frank Lloyd Wright, 326
Franklin D. Roosevelt, 98, 139, 211, 244, 292
Franklin D. Roosevelt (FDR) Expressway, 235, 276, 292
Fred Lavis, 169
Frederick James Gregg, 205
Frederick Law Olmsted, 14, 30, 44, 61, 74, 75, 76, 77, 82, 88, 89, 90, 91, 92, 98, 105, 108, 164, 203, 225, 226, 236, 296, 384
Frederick Lee Ackerman, 158
Frederick Uhlmann, 123

G

Gantry Plaza State Park, 294
gardens, 15, 74, 94, 103, 105, 106, 188, 194, 196, 252, 290, 292, 294, 316, 338, 342, 362, 368, 379, 384, 389
Garrett Eckbo, 330
GATEPAC, 179, 180
gentrification, 15, 307, 339, 340
Georg Simmel, 59, 60, 61
George B. Ford, 156
George B. Luks, 203
George B. Post, 55
George Bancroft, 75
George Bellows, 203, 205
George L. Dunkelberger, 166
George Lewis Heins, 99
George Pataki, 294
George Perkins Marsh, 21, 208
George S. Morison, 127
George W. Goethals, 168
George Washington Bridge, 15, 94, 100, 162, 168, 171, 236, 237, 238, 242, 256, 261, 262, 266, 271, 276, 281
George Washington Bridge Bus Station, 242
George Ziegler, 153
Georges Braque, 203
Georgia O'Keeffe, 71, 205, 206, 396
Gerald Stanley Lee, 52, 60, 64
Gertrude Stein, 69
Gilmore Clarke, 92, 95, 163, 211, 212, 224, 225, 236, 251, 284
Githens & Kelly, 108
Goethals Bridge, 161
goods, 32, 33, 35, 136, 161, 162, 261, 286, 366, 375
Gordon Bunshaft, 251, 321, 324
Gowanus Canal, 298, 370
Gowanus Expressway, 170, 298
Gramercy Park, 386
Grand Central Parkway, 215, 225, 268
Grand Central Station, 14, 41, 112, 114, 136, 137, 138, 139, 140, 141, 143, 144, 145, 152, 153, 194, 230, 284, 329, 371, 374, 394, 398
Grand Park, 315
Green Infrastructure Plan NYC, 358
Greenwich Village, 24, 102, 205, 206, 304, 308, 315, 396, 402
grid, 14, 28, 29, 30, 31, 32, 62, 112, 169, 206, 217, 218, 274, 316
Guastavino, 83, 95, 100, 103, 118, 394
Guastavino Fireproof Construction Co., 118
Guastavino system, 118
Gustav Lindenthal, 100, 101, 125, 128, 130, 131, 133, 151, 160, 168, 256, 266
Guy Pène du Bois, 205
Gwathmey Siegel, 328

H

Hall of Fame for Great Americans, 98
Han Meyer, 20, 226
Hans Ulrich Grubenmmann, 256
Harlem, 29, 37, 44, 48, 71, 88, 89, 95, 100, 136, 140, 149, 224, 233, 238, 243, 245, 256, 262, 276, 293, 336, 348, 374, 376, 377
Harlem River, 37, 44, 48, 100, 149, 224, 233, 238, 256, 262, 276, 293, 336
Harvard Graduate School of Design, 218
Haughwout Building, 53
Haussmann, 90
Hell Gate Bridge, 100, 130, 131, 160, 230, 256, 267, 268
Henri Matisse, 69
Henry Adams, 143
Henry C. Turner, 56
Henry Hornbostel, 130
Henry Hudson Parkway, 91, 92, 95, 164, 212, 224, 226, 235, 236, 294, 313, 326
Henry Ives Coob, 67
Henry Thoreau, 158, 208
Henry Wright, 158, 209
Hermann Merkel, 211
Herzog & de Meuron, 346
High Bridge, 37, 44, 48, 100, 233
High Line, 15, 295, 347, 365, 366, 368, 375
High Line Park, 366
Highbridge Park, 233
Hillary Ballon, 112
Hillview Reservoir, 40, 48, 49
Hispanic Society of America, 207
Holland Tunnel, 140, 167, 168, 169, 171, 237, 261, 276, 277, 280, 311, 312
Homer G. Balcom, 182
horizontality, 110, 131, 180, 334
Housing Conservation Coordination, 365
Howard Mumford Jones, 143
Hudson Canal, 33
Hudson River, 15, 31, 33, 34, 37, 47, 48, 92, 94, 136, 151, 168, 222, 234, 256, 263, 276, 293, 298, 311, 314, 315, 374, 377, 395
Hudson River Park, 314, 315
Hudson River Waterfront, 235
Hugh Ferriss, 130, 198, 202, 203
Hugh L. Sloan, 169
Hurricane Sandy, 354, 355
Hutchinson River Parkway, 225, 238, 377

I

I. M. Pei, 143
IBM Building, 332, 392
IBM Building Atrium, 392
Idlewild Airport, 283
improving cities, 304
Institute Park (Brooklyn Museum of Arts), 105, 106, 108
Inwood Hill, 235
Iñaki Ábalos, 346
International style, 219, 338
iron, 24, 35, 52, 53, 55, 56, 59, 62, 66, 71, 76, 102, 112, 136, 137, 142, 171, 208, 310, 328, 368, 376, 380, 382, 384, 386
Isambard K. Brunnel, 35, 151
Isamu Noguchi, 194, 324, 388, 389
Islamic Cultural Center, 322

J

Jack Kerouac, 308
Jacob Alspector, 328
Jacob Riis, 30, 68, 205, 292, 376
Jacob Wrey Mould, 76, 88, 380
Jacqueline Kennedy Onassis, 144
James Bogardus, 53, 376
James Corner Field Operations, 366
James Fanning, 322
James Kellum Smith, 98
James Moore, 205
James P. Kirkwood, 46
James Stewart Polshek, 106
Jameson W. Doigt, 162
Jane Jacobs, 15, 102, 238, 274, 296, 304, 306, 308, 310, 311, 312, 313, 316, 317, 382
Jason Barr, 156, 182, 341
Jay Downer, 211
Jean Nouvel, 15, 368, 369
Jean Paul Sartre, 203, 206, 340
Jeff Koons, 194
Jerald K. Kaplan, 336
Jeremiah Johnson, 63
Jerome Park, 47, 49
Jerome Park Reservoir, 47, 49
Jersey City, 61, 151, 161, 169, 170, 171, 172, 197, 261, 262, 263, 266, 276
Jessica Lange, 308
Jessie Tarbox Beals, 69
Jo Mielziner, 251
Joe DiMaggio, 95, 236, 314
Joe DiMaggio Highway, 95, 236, 314
John A. Roebling, 14, 52, 61, 62, 63, 64, 118, 125, 274, 396

John B. Jervis, 14, 28, 33
John B. Snook, 136
John Burgee, 321, 332, 333
John D. Rockefeller, 191, 322, 326
John Edward Jackson, 69
John F. Kennedy (JFK) International Airport, 283
John G. Sterns, 67
John H. Duncan, 92, 108
John Jay College of Criminal Justice, 322
John Lindsay, 312, 359
John M. Kyle, 172, 261
John Marin, 203
John McAndrew, 322
John Merrill, 321
John Meyer, 256
John P. Gaynor, 53
John Reed, 308
John Rendel Jr., 30
John Rutherfurd, 29
John Sloan, 69, 203, 204, 205
John T. O'Neill, 153
John Wellborn Root, 67, 136
Jones Beach, 225, 228, 229, 230
journalism, 304
Jörg Schlaich, 354
José María Sert, 194
Joseph Pennell, 69
Joseph Stella, 56
Joyce, 306
JP Morgan Atrium, 393
Juan Herreros, 15, 346
Julius Khan, 56
Julius W. Adams, 46

K

Karl Emil Hilgard, 256
Karl Friedrich Schinkel, 53
Keneeth Frampton, 346
Kensico Dam Park Plaza, 41
Kensico Reservoir, 48
Kevin Roche, 199, 284, 330
Khan & Jacobs, 284
Kill van Kull, 263, 267
Kings Highway, 90

L

La Guardia Airport, 283
landfills, 33, 290
Lancelot Brown, 76
Le Corbusier, 23, 190, 197, 203, 206, 216, 316, 317, 320, 324
Lee Weintraub, 294
Leffert L. Buck, 123, 128
Leon Moisseiff, 127, 258
Leslie G. Holleran, 164, 211, 215, 224, 225, 284
Lester Tichy, 283
Lever House, 321, 324, 388
Lewis Mumford, 14, 64, 158, 160, 186, 194, 198, 202, 203, 208, 210, 211, 224, 229, 248, 258, 260, 261, 304
Lincoln Center, 15, 92, 191, 251, 316, 321
Lincoln Tunnel, 170, 222, 280
Lion's Head, the, 308
Lipstick Building, 320, 333
Long Island City, 294, 296, 342, 343
Long Island Expressway, 169
Louis E. Jallade, 56
Louis Skidmore, 321
Lower Manhattan, 237, 286, 309, 311, 313, 314, 351, 354, 382, 402
Lynden Miller, 315

M

Madison Square, 24, 67, 68, 98, 187, 374, 386, 387
Madison Square Park, 386
Major Degan Expressway, 215, 336
Maki & Associates, 349
Manhattan, 14, 18, 19, 29, 30, 31, 32, 33, 36, 41, 46, 48, 49, 52, 61, 62, 63, 65, 66, 71, 75, 76, 88, 89, 91, 92, 98, 100, 114, 116, 123, 125, 127, 128, 130, 136, 138, 140, 143, 144, 148, 149, 151, 152, 153, 156, 157, 159, 160, 161, 162, 168, 169, 170, 171, 176, 179, 180, 182, 188, 194, 197, 198, 199, 204, 205, 207, 222, 223, 227, 233, 234, 235, 237, 238, 242, 248, 251, 261, 262, 263, 268, 271, 274, 275, 276, 280, 281, 284, 286, 287, 289, 290, 293, 294, 296, 309, 311, 312, 313, 314, 315, 321, 332, 339, 340, 341, 342, 347, 349, 354, 365, 366, 369, 374, 376, 378, 379, 380, 388, 389, 390, 392, 394, 395, 396, 397, 398, 402, 403, 415
Manhattan Bridge, 41, 116, 125, 127, 128, 130, 168, 227, 237, 271, 276, 311, 369
Manhattan House, 321
Manhattan Municipal Building, 98, 116
Manhattan Yacht Club, 290
Manufacturers Hanover Trust, 321
Marcel Breuer, 143
Marcel Duchamp, 71, 203, 206
Mario J. Buschiazzo, 180
Mark di Suvero, 296
Mark K. Morrison, 336
Marshall Berman, 202, 240, 246, 247
Mateo Gand, 212
Max Abramovitz, 190, 198, 251, 252, 283
McKim, Mead & White, 14, 83, 98, 102, 190, 382
Meatpacking, 374, 375
Merrit Parkway, 91, 95, 165, 167, 377
Metropolitan Transport Authority (MTA), 370
Michael Arad, 351
Michael Graves, 332
Michael Harrington, 304, 308
Michael Kimmelman, 360
Michael R. Bloomberg, 28
Michael Rapuano, 212, 224, 284
Michael Sorkin, 22, 30, 276, 312, 332
Mid Manhattan, 237, 374
Mid Manhattan Expressway, 237
Midtown, 14, 140, 161, 169, 170, 179, 191, 214, 222, 231, 282, 294, 332, 333, 360, 374, 395
Mies van der Rohe, 157, 320, 322, 324, 325, 330
Minoru Yamasaki, 143, 283, 287, 288
Modern Art, 166
modern life, 22, 60, 61, 66, 374
modern man, 22, 60, 61, 66, 374
modernity, 13, 14, 20, 22, 23, 52, 59, 60, 61, 65, 67, 69, 71, 114, 137, 176, 188, 202, 206, 216, 217, 219, 243, 246, 274, 305, 306, 346, 376, 396, 403
MoMA, 71, 296, 326, 343
Montgomery Schuyler, 59, 102, 180, 203
monumentality, 28, 40, 56, 63, 106, 125, 141, 142, 258, 371
monumentalism, horizontal, 334
Monuments, 63
Morgan Library & Museum, 98
Morningside Park, 88, 89
Mosholu Parkway, 336
museums, 106, 184, 204, 290, 292, 293, 296, 310, 314, 320, 322, 323, 326, 328, 342, 343, 352, 377, 380
Museum of Modern Art (MoMA), 71

N

Napoleon Lebrun, 108
Nathaniel Owingsen, 321
National Trust for Historic Preservation, 286
Nelson A. Rockefeller Park, 289
Nelson Rockefeller, 191
New Croton Aqueduct, 46
New Croton Reservoir, 42, 43
New Jersey, 15, 32, 68, 75, 77, 82, 94, 149, 151, 159, 160, 161, 162, 168, 169, 170, 172, 215, 222, 261, 263, 276, 280, 281, 286, 287, 293, 298, 300, 311, 312, 314, 366, 374, 379
New World Trade Center, 352
New York and New Jersey Port Authority, 15, 151, 266, 280, 352
New York City Department of City Planning, 294, 347
New York City Transport Authority, 153
New York Eskimo Pie Corporation Building, formerly Thomson Meter Company Building, 56
New York Port Authority, 33, 160, 283
New York Public Library, 37, 98, 110, 213, 214, 368, 374
New York State Park Plan, 164
New York State Thruway Authority (NYSTA), 299
New York State Urban Development Corporation, 347
New York Times, 13, 68, 69, 137, 143, 146, 304, 314, 316, 317, 332, 339, 347, 390, 415
New York Times Building Garden Court and Rooftop Garden, 390
New York University, 136, 321, 382
New York and cinema, 394
New York's Fair (1939), 197, 247, 251
Newark Airport, 282
Nikola Tesla, 52
Nikolaus Pevsner, 219
Noguchi Foundation, 296, 343, 389
Noguchi Museum, 296, 342
Norman Mailer, 308
North Cove, 290
North River Water Pollution Control Plant, 94
Northern State Parkway, 225
Northwest Corner Building, 105

O

Ocean Parkway, 89, 90, 91, 225, 377, 415
Ole Singstad, 168, 169, 170
Olmsted & Vaux, 75, 82, 89, 108
Olympic Tower New York, 322
One Chase Manhattan Plaza, 321
One World Trade Center, 322, 352, 403
One Worldwide Plaza, 322
Othmar Ammann, 15, 100, 160, 161, 168, 172, 234, 256, 257, 260, 261, 266, 267, 268, 270, 271, 274, 276, 281, 284
Outerbridge, 161
Oyster Bar, 394

P

passengers, 32, 33, 35, 53, 112, 136, 137, 138, 139, 142, 143, 144, 145, 146, 147, 152, 153, 182, 283, 284, 286, 315
PATH Terminal, 349
Patrick Geddes, 158, 208
Paul Cézanne, 69, 203
Paul Manship, 194
Paul Rudolph, 312, 336
Paul Strand, 202, 395, 397
Pennsylvania Railroad (PRR), 151
Pennsylvania Railroads Co, 374
Pennsylvania Station, 24, 98, 111, 112, 114, 137, 151, 153, 168, 374
Peter Cooper, 55, 215, 224, 245
Peter Hall, 158, 160
Peter Stuyvesant, 245
Peter Walker, 351
Philip Johnson, 15, 94, 144, 185, 251, 252, 320, 321, 322, 325, 332, 333, 335, 338
photography, 67, 69, 71, 218
Pier Luigi Nervi, 261, 371
Pierre Cantacuzene, 328
piers, 31, 32, 33, 36, 162, 314
Pietro Belluschi, 251, 252, 329
planning regulations, 156
plots, 29, 30, 63, 114, 386
population, 21, 30, 33, 46, 74, 75, 77, 91, 148, 157, 158, 159, 204, 209, 245, 261, 294, 298, 305, 307, 317, 339, 340, 358, 376, 379, 383
port, 31, 32, 33, 34, 35, 36, 71, 95, 161, 162, 247, 257, 262, 266, 267, 280, 281, 286, 295, 298, 314, 341, 348, 370, 375, 402
Port Authority, 151, 160, 161, 162, 172, 222, 257, 261, 266, 267, 268, 271, 280, 281, 282, 283, 286, 288, 294, 298, 300
Port Authority XE "Port Authority" Bus Terminal, 172
Port Authority of New York, 172, 281, 300
Post Office, 24, 98, 114, 115, 374, 380
powerful characters, 211
Pratt Institute of Brooklyn, 322
preservation, 23, 24, 82, 310, 377
Prospect Expressway, 91
Prospect Park, 76, 82, 83, 89, 105, 108, 377
public, the, 41, 70, 146, 223, 240
public parks, 74

Q

Queens, 31, 32, 49, 61, 89, 90, 108, 148, 149, 152, 153, 161, 169, 214, 222, 225, 227, 230, 234, 247, 248, 263, 268, 271, 284, 294, 296, 322, 342, 348, 369, 379, 395, 402
Queens Midtown Tunnel, 169
Queensboro Bridge, 128, 130, 228, 403
Queensbridge Park, 296

R

Rachel Carson, 305
Rafael Guastavino, 83, 95, 100, 103, 116, 118
Rafael Moneo, 105, 346
railway, 35, 41, 62, 92, 94, 112, 114, 115, 123, 130, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 148, 149, 151, 159, 160, 161, 162, 168, 204, 208, 209, 222, 226, 232, 235, 257, 266, 268, 276, 280, 281, 282, 286, 294, 298, 300, 335, 336, 340, 365, 377
Rainey Park, 296, 343
Ralph Emerson, 158
Ralph Modjeski, 127
Ralph Smittie, 170, 172
ramp, 88, 330, 378
Random House Tower, 322
Raymond Hood, 187, 188, 190, 193, 194, 214, 321, 332, 334
Red Hook, 298
Red Hook port, 298
Reed & Stern, 142
Regional Plan Association (RPA), 159, 209, 339
Regional Planning Association of America (RPAA), 158, 159, 209
reservoirs, 20, 37, 38, 39, 41, 42, 48
Rexford Tugwell, 244
Reyner Banham, 332
Richard Dattner, 94
Richard Foster, 321
Richard Meier, 346
Richard Morris Hunt, 76
Richard Rogers, 349, 352
Richard Sennett, 317
Riverbank State Park, 94, 236
Riverside Park, 88, 92, 95, 224, 226, 314
road transport, 159
roads, 12, 76, 91, 159, 163, 165, 166, 167, 208, 209, 210, 211, 212, 215, 222, 223, 225, 228, 231, 234, 240, 256, 274, 299, 316, 348, 359, 377, 378, 379
Robert A. Caro, 223, 226, 237, 253, 304
Robert A. Stern, 181, 187, 194, 219, 284, 320, 334, 336
Robert F. Kennedy Bridge, 276
Robert F. Wagner, 290
Robert F. Wagner Jr. Park, 290
Robert Fulton, 35, 62
Robert Harvey Whitten, 156
Robert Henry, 205
Robert Maillart, 131
Robert Moses, 15, 46, 77, 83, 91, 92, 95, 102, 160, 165, 197, 198, 212, 215, 222, 223, 224, 225, 226, 227, 228, 230, 233, 234, 235, 237, 238, 240, 242, 243, 244, 246, 247, 251, 253, 263, 268, 274, 276, 281, 290, 292, 296, 298, 304, 309, 311, 312, 313, 315, 316, 326, 359, 382, 384, 402
Robert S. Peabody, 67
Robert Wagner, 312
Rockefeller Center, 14, 144, 157, 188, 190, 191, 192, 193, 194, 197, 217, 218, 219, 321, 334, 341
Rockwell Kent, 205
Rod Steiger, 308
Rondout Reservoir, 43
Roosevelt Hospital, 322
Russell Hitchcock, 185

S

Sadakichi Hartmann, 69
sailboats, 35, 415
Samuel Huckel, 138
Samuel Parsons, 89, 92, 292
Santiago Calatrava, 349, 352
Sara Ruth Watson, 64
Saw Mill River Parkway, 225, 377
scenes, 15, 394
Scientific American, 130, 137, 146
Seagram Building, 325, 326, 403
September 11 Memorial Park, Reflecting Absence, 351
sewage and rainwater 49, 95, 355, 356
Shandaken Tunnel, 48
Sharon Reier, 130
Sheridan Square, 308
ships, 33, 35, 36, 263, 267, 281, 415
Shirley Smith, 263, 266
SHOP architects, 360
Shore Road Park, 296
Shreve, Lamb and Harmon, 182
Sigfried Giedion, 131, 132, 203, 217, 218, 219
Sigvald Johannesson, 169
Silverstein Properties, 349
Simeon deWitt Clinton, 33, 37
skyline, 56, 179, 231, 314, 333, 368, 394, 395, 402, 403
skyscrapers, 12, 14, 19, 21, 22, 23, 56, 63, 67, 68, 69, 70, 71, 143, 156, 157, 158, 177, 179, 180, 181, 182, 184, 187, 188, 190, 191, 194, 196, 197, 207, 218, 228, 237, 258, 261, 315, 321, 325, 332, 337, 340, 341, 347, 349, 359, 360, 362, 365, 368, 374, 379, 390, 394, 396, 402
slim skyscrapers, 360
Socrates Sculpture Park, 296, 343
SOHO (SOuth of HOuston), 277
Solomon R. Guggenheim Museum, 326
Sony Building (ATT Building), 332
Sowinski Sullivan Architects, 294
squares, 23, 90, 103, 157, 184, 230, 252, 316, 347, 348, 379, 385
St. John the Divine, 100
Stanford White, 98, 108, 115, 382, 387
Staten Island, 49, 61, 82, 159, 161, 262, 263, 348, 402
stations, 22, 56, 63, 100, 112, 116, 137, 146, 149, 153, 248, 261, 355
steel, 22, 44, 52, 55, 56, 67, 100, 114, 125, 132, 168, 171, 179, 182, 186, 190, 215, 247, 248, 253, 256, 257, 258, 260, 261, 266, 267, 293, 295, 300, 301, 324, 328, 333, 349, 365, 368, 384, 395, 398, 402, 403
Steven Hall, 346
Stuart Chase, 158
Stuyvesant Square Park, 384
Sunday Herald Tribune, 304
Suzanne Stephens, 320
symbol, 22, 64, 65, 69, 123, 143, 176, 177, 182, 184, 185, 215, 248, 284, 312, 341, 381, 396, 402

T

T. S. Eliot, 147
Taconic State Park Commission, 211
Taconic State Parkway, 210, 211, 212
Talbot F. Hamlin, 203
Tappan Zee Bridge, 298, 300, 301
technology, 56, 62, 63, 125, 137, 151, 181, 212, 263, 280, 396
Theodore Long, 94
Thomas Adams, 14, 156, 159, 160, 197, 222, 238
Thomas Balsley, 294
Thomas Bender, 22, 108, 160, 206
Thomas Edison, 52
Thomas Pope, 62
Throgs Neck Bridge, 271
Time Warner Center, 322
Times Square, 15, 334, 335, 374, 390
Tompkins Square Park, 383
tourism, 308, 358
Town Hall, 98, 115
Town Planning Institute, 159
Trans World Airlines (TWA) TerminalJFK airport, 284, 286
Tribeca (TRIangle BElow CAnal), 33, 276, 277, 307, 369
Triborough Bridge & Tunnel Authority, 263
Triborough Bridge (Triborough Suspension Bridge), 160, 169, 227, 230, 231, 232, 235, 263, 268, 276
Triborough Bridge Authority, 227, 235, 268
Trump International Hotel and Tower, 337
Trump World Tower, 359
Turner Construction Co., 56
Turner Intl., 333
Twin Towers, 182, 283, 349, 352, 354, 359, 403

U

Union Square Park, 384
Upper Manhattan Expressway, 15, 237
urban development, 334, 337, 348, 379
urban planning, 156
urban rehabilitation, 294, 311

V

Van Wick Expressway, 215
Verrazano Narrows Bridge, 242, 263, 267, 271
Verrazano Strait, 262
Vicent Scully, 332
visibility, 115, 177, 307, 325, 359
vision of American cities 304
Voorhees, Gmelin & Walker, 185

W

Walker O. Cain, 98
Wallace K. Harrison, 14, 176, 190, 191, 193, 197, 198, 251, 252, 284
Walt Whitman, 31, 33, 56, 88, 147, 203
Walter Benjamin, 394
Walter De Maria, 310
Walter F. Wagner, 144
Walter Gropius, 320, 329
Ward Island Park, 232
Warren & Wetmore, 142, 157, 230, 374
Washington A. Roebling, 63
Washington Bridge, 100, 101, 161, 238, 256, 415
Washington Irving, 75
Washington Square, 98, 102, 312, 315, 376, 381, 382
Washington Square Arch, 102
Washington Square Park, 381
water distribution network, 49
water supply, 14, 34, 37, 40, 41, 46, 49, 76, 377
water treatment plant, 49, 94, 133, 232, 355, 356
waterfront, 18, 31, 32, 33, 92, 165, 225, 226, 228, 230, 287, 288, 294, 312, 313, 314, 347, 348, 354, 356, 366
West Branch Reservoir, 43
West Side Highway, 95, 312
West Side Waterfront, 235
Westchester County Parks Commission, 163, 211
White Horse Tavern, 308
Whitestone Bridge, 130
Whitney Warren, 398
Willem de Kooning, 167
William B. Parsons, 148
William Cullen Bryant, 75
William E. Ward, 55
William J. Wilgus, 14, 136, 139, 140, 142, 168, 222, 230
William Lescaze, 106
William M. Kendall, 116
William Mead, 98
William R. Martin, 92
William Strickland, 52
William van Allen, 186
William Walsh, 205
Williamsburg Bridge, 123, 125, 128, 130, 271, 292, 395
Woolworth Building, 55, 68, 187
World Trade Center, 15, 33, 182, 237, 287, 289, 316, 349, 351, 352

Y

Yoshio Taniguchi, 32

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Chapter 1

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Chapter 2

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Chapter 3

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p. 31 Plan of the city of New York and of the island: as laid out by the commissioners, altered and arranged to the present time / engraved by J.F. Morin. The Lionel Pincus & Princess Firyal Map Division, The New York Public Library.

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p. 37 Profile and Ground Plan of the Lower Part of the Croton Aqueduct, by John Jervis. John B. Jervis Drawings Collection, Jervis Public Library.

Chapter 4

p. 55 Front Elevation, 78 Greene Street, 1901. Winston Weisman Collection of Architectural Photographs, PR 73, Department of Prints, Photographs, and Architectural Collections, The New-York Historical Society.

p. 56 Elephant Hotel, Coney Island (1885-1896).

http://en.wikipedia.org/wiki/File:Lucy-USpatent268503_1882.jpg plan and section.

p. 57 The colossal elephant of Coney Island. (1885). Scientific American Magazine, July 11, 1885 Issue.

p. 58 Statue of Liberty (Bartholdy & Eiffel, 1886). Library of Congress, Prints & Photography Division, HAER NY, 31-NEYO,89 (sheets 31 and 34 of 36).

p. 63 Horizontal projection of the system of cables. Harpers Monthly Magazine Vol. 66 December 1882 to May 1883, From the Collection of Brigham Young University-Idaho, David O. McKay Library.

p. 63 Bridge section showing the circulation for pedestrians, carriages and railway. Harpers Monthly Magazine Vol. 66 December 1882 to May 1883, From the Collection of Brigham Young University-Idaho, David O. McKay Library.

p. 64 Elevation of the bridge showing the ropes used for temporary cable system. Harpers Monthly Magazine Vol. 66 December 1882 to May 1883, From the Collection of Brigham Young University-Idaho, David O. McKay Library.

p. 65 The great East River suspension bridge: connecting the cities of New York and Brooklyn, looking west, by Currier & Ives, c.1883. Library of Congress, Prints and Photographs Division, LC-DIG-pga-00757.

Chapter 5

p. 72 View of Central Park. Library of Congress, Geography and Map Division.

p. 75 Hinrichs' guide map of the Central Park, Mayer, Merkel & Ottmann, Lithographers, 1875. Library of Congress, Geography and Map Division.

p. 76 Central Park The Lake in the Lower Park. View taken near Fifth Av. And 59th St. Greensward, Sketch n° 1. (En Olmsted, 1973, p. 224) "Greensward" Sketch No. 1: The Lake In The Lower Park, Frederick Law Olmsted, landscape architect, 1822-1903. (1970).

p. 76 Central Park Mixed Traffic on a Transverse Road in 1859. "Archway Under Carriage Drive: For Traffic Road Across The Park". Annual Report of the Board of Commissioners of The Central Park (1858) p. 34.

p. 77 Central Park, detail of water tanks. Taylor, 1879. From the map The city of New York. Will L. Taylor, chief draughtsman. Library of Congress, Geography and Map Division.

p. 82 Prospect Park. Annual reports of the Brooklyn Park Commissioners, 1861-1873 (1861), from the Collection of The LuEsther T Mertz Library, the New York Botanical Garden.

p. 82 Design for Prospect Park in the City of Brooklyn by Hayward, States & Koch, 1869. Annual reports of the Brooklyn Park Commissioners, 1861-1873 (1861), from the Collection of The LuEsther T Mertz Library, the New York Botanical Garden. Museum of the City of New York.

p. 88 Design for Laying out the Grounds Known as Fort Greene or Washington Park, in the City of Brooklyn, Olmsted, Vaux & Co. 1867. : Brooklyn Park Reports:

1874 to 1879 Inclusive, Ald. William F. Aitken, 1880. From The Lionel Pincus & Princess Firyal Map Division, The New York Public Library.

p. 88 Preliminary Study for the Design of Morningside Park de Olmsted y Vaux,[1873], 1914. From The Lionel Pincus & Princess Firyal Map Division, The New York Public Library.

p. 89 Sections east-west between streets 112 and 113 (where they wanted to build the gym) and near the 118th Street entrance showing the evolution of the 1887, and 1985 proposals. Conceptual Plan for Morningside Park. City of New York. Department of Parks &Recreation, 1985.

p. 92 Riverside Park (Olmsted, 1875) [80:200].

p. 93 The Hudson River and Riverside Park, North from 93rd St., 1910. Museum of the City of New York. Detroit Publishing Co. / Museum of the City of New York.

p. 93 Aerial view of the River Side Park with Hendry Hudson Parkway, north from near 70th St., 1975. Unknown photographer. Museum of the City of New York.

p. 94 Project done for the Riverbank State Park by Dattner, 1969. Courtesy of Dattner Architects.

p.94 Proposal for the Riverbank State Park by Gruzen & Partners, 1969.

Chapter 6

p. 100 The Washington Bridge, recently completed, over Harlem River, New York City. Scientific American v. 60, n-20, 1889.

p. 103 Columbia University Planter Boxes Display Beds. Courtesy of Columbia University.

p. 103 Columbia University, New York, ca. 191-. Picture Collection, The New York Public Library, Astor, Lenox and Tilden Foundations.

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p. 109 Metropolitan Life Insurance Co. Buildings. Herbert Gehr/ The LIFE Collection/Getty Images

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p. 114 Post Office: Lexington Avenue & Forty Third Street Elevations. Courtesy of New York Transit Museum.

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p .116 West Elevation. Municipal Office Building for the City of New York, 1907. Competitive design for the Manhattan Municipal Building. McKim, Mead & White / Museum of the City of NYork.

p. 124 First outline of the Williamsburg Bridge [101:160]. From Engineering News, August 20, 1896.

Chapter 7

p. 136 The Grand Central Depot, New York. Courtesy of New York Transit Museum.

p. 137 Interior view of Grand Central Depot train shed. Courtesy of New York Transit Museum.

p. 138 The terminal yard and buildings, showing the express level, with Park Avenue and the cross streets restored to city use, and blocks available for erection of business buildings. Scientific American December 7, 1912, Volume 107, No. 23.

p. 139 General sectional view of the Grand Central Terminal. Scientific American December 7, 1912, Volume 107, No. 23.

p. 139 View Showing the Suburban Concourse, the Express and Suburban Loops and the Interboro, Hudson, and Belmont Subway Tunnels. Scientific American Supplement, Volume 74, December 7, 1912.

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p. 144 Jan. 30, 1975, file photo, Jacqueline Kennedy Onassis, center left, and Bess Myerson, center right, walk with architect Philip Johnson, left, and Rep. Ed Koch, right, as they leave New York's Grand Central after holding a news conference for the "Committee to Save Grand Central Station." (AP Photo/ Harry Harris, File).

p. 149 Transportation Hudson tubes [Boring shields by which Hudson River tunnels were excavated.] 1908. Milstein Division of United States History, Local History & Genealogy, The New York Public Library, Astor, Lenox and Tilden Foundations.

Chapter 8

p. 154 "Elephants Traveling Through Lincoln Tunnel After Rail Strike" © Bettmann/Corbis.

p. 161 Outerbridge (John A. L. Waddell, 1928) "New Jersey approach to Outerbridge crossing bridge, note distant horizon New York skyline and almost in the middle of the horizon the twin towers of the Verrazano-narrows bridge." Lowe, Jet, 1991. U.S. Government, HAER. Library of Congress.

p. 162 and 163 Bronx River Parkway Reservation, The Bronx to Kensico Dam, White Plains, Westchester County, NY. HAER NY-327, 18/22. Library of Congress, Prints & Photographs Division.

p.164 Bronx River Parkway Reservation, The Bronx to Kensico Dam, White Plains, Westchester County, NY. HAER NY-327, 2/22. Library of Congress, Prints & Photographs Division.

p. 165 Merritt Parkway, Beginning in Greenwich & running 38 miles to Stratford, Greenwich, Fairfield County, CT. HAER CONN,1-GREWI,2(sheet 4 of 21). Library of Congress, Prints & Photographs Division.

p. 166 Detail of decorative abutment showing concrete butterflies. Merritt Parkway, Merwins Lane Bridge, Fairfield, Fairfield County, CT. HAER CONN,1-FAIRF,24—4. Library of Congress, Prints & Photographs Division.

p. 171 "Midtown Manhattan, Showing Entrance to The Lincoln Tunnel Under The Hudson River, 05/1973". National Archives Photo Number 548359.

p. 172 Helicopter view of the bus terminal bldg. Margaret Bourke-White/ The LIFE Picture Collection/Getty Images.

Chapter 9

p. 177 Woolworth Building: Plan ground floor, by Cass Gilbert Penn State Libraries Pictures Collection.

p. 182 Isometric 33rd Street and 5th Ave. (Looking North). Harold Rider Collection, ArchiTech Gallery (Shreve, Lamb & Harmon).

p. 195 Hanging gardens, Raymond Hood, Rockefeller Center, Nueva York, 1930-1933, (Koolhaas, 2004).

p. 195 Rockefeller Center. City Garden Club and fountain from above, and British garden, horizontal. Samuel H. Gottscho, 1934. Museum of the City of New York.

p. 199 United Nations Headquarter Blueprint, Site Plan. United Nations Archive.

Chapter 10

p. 202 Joseph Stella, The Brooklyn Bridge: Variation on an Old Theme, 1939. Oil on canvas, 70 × 42 in. (177.8 × 106.7 cm). Whitney Museum of American Art, New York.

p. 203 Joseph Stella, Luna Park, c. 1913 Oil on composition board, 17 1/2 × 23 3/8 in. (44.5 x 59.4 cm). Whitney Museum of American Art, New York; gift of Mrs. Charles A. Goldberg

p. 204 City from Greenwich Village – John Sloan. Peter A. Juley & Son Collection Smithsonian American Art Museum.

p. 204 Jefferson Market, Sixth Avenue – John Sloan. Peter A. Juley & Son Collection Smithsonian American Art Museum.

p. 206 Radiator Building Night, New York. Georgia O'Keeffe, 1927. The Alfred Stieglitz Collection, Fisk University, Nashville, Tennessee.

p.213 New York Public Library Stack Section below Bryant Park. Courtesy of Davis Brody Bond.

p.213 Site plan. Bryant Park: Intimidation or Recreation? 1981, by Project for Public Spaces, Inc. Courtesy of OLIN Studio.

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Chapter 11

p. 225 Landscape by Moses. [32:1].

p. 229 Jones Beach area view. New York Public Library, ID: 1636062. Courtesy of NYS Office of Parks, Recreation and Historic Preservation.

p. 229 Jones Beach Central Mall looking north from beach lifeguard tower. New York Public Library, ID: 1636061. Courtesy of NYS Office of Parks, Recreation and Historic Preservation.
p. 231 Astoria Park-Queens, ca.1955. New York (N.Y.). Parks, Recreation and Cultural Affairs Administration / Museum of the City of New York.

p. 245 Plan, Stuyvesant Town Corporation Project: E. 14th Street to E 20th Street; 1st Avenue to Avenue C; East River Drive. Courtesy NYC Municipal Archives. Photo Bureau, M.L.I. Co., NYC Department of Records.

p. 249 Fairgrounds Sketches, Maps and Plans Diagrammatic map of Fairgrounds. New York World's Fair 1939-1940 records, Manuscripts and Archives Division, The New York Public Library Astor, Lenox and Tilden Foundations.

p. 250 Map of the underground garage at Lincoln Center. NYC Department of Records, Mayor Robert F. Wagner Collection. Courtesy NYC Municipal Archives.

p. 251 Map of Lincoln Center and the surrounding areas 1961; NYC Department of Records, Mayor Robert F. Wagner Collection. Courtesy NYC Municipal Archives.

Chapter 12

p. 256 y 257 Proposals of bridge over the Hudson, Gustav Lindenthal [110:92 a 95].

p. 263 Aerial photograph of the entrances to the Verrazano Bridge from Brooklyn. Published in: Rastorfer, David; 2000. Six Bridges. The Legacy of Othmar H. Ammann. Yale University Place, New Haven and London: 162. Unknown photographer. Courtesy of MTA Bridges and Tunnels, Special Archives.

Chapter 13

p. 289 Battery Park City, landfill in the Hudson River, Battery Park to Chambers Street. View to the southeast, 1975 Battery Park City Authority.

p. 292 Schenck & Co. Bird's eye view of lower New York. Picture Collection, The New York Public Library, Astor, Lenox and Tilden Foundations.

p. 294 The Palisades of the Hudson. Emmet Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, The New York Public Library, Astor, Lenox and Tilden Foundations Emmet, Thomas Addis.

p. 294 Detroit Publishing Co. Palisades of the Hudson River, New York. (1908-1909). Photography Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, The New York Public Library, Astor, Lenox and Tilden Foundations.

p. 296 Aerial view of parachute jump ride. Margaret Bourke-White/The LIFE Picture Collection/Getty Images.

Chapter 14

p. 313 Lower Manhattan Expressway, New York City. Bird's-eye perspective section. Rendering by Paul Rudolph [ca. 1970]. Library of Congress Prints and Photographs Division LC-DIG-ppmsca-26438.

Chapter 15

p. 322 MoMA sculpture garden (Philipp Johnson and James Fanning, 1953) [5:315].

p. 330 Ford Foundation. Plan and cross section [50:340].

p. 342 Plan. Noguchi Museum.

Chapter 16

p. 350 National September 11 Memorial Section. Handel Architects LLP. Planta y sección este-oeste (Handel Architects) [www.archdaily.com].

p. 365 View of Hudson Yards from the High Line. Courtesy of © Related-Oxford.

p. 366 High Line Section. James Corner Field Operations and Diller Scofidio + Renfro, Courtesy of the City of New York.

p. 368 The Croton Water Reservoir / A. Fay. (1850) Eno Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, The New York Public Library, Astor, Lenox and Tilden Foundations.

p. 368 On the Promenade, Brooklyn Bridge, New York, U.S.A. (c1895). New York Public Library, ID: g91f173_152f.

Chapter 17

p. 379 Public squares, parks and places in the city of New York. The Lionel Pincus & Princess Firyal Map Division, The New York Public Library.

p. 382 Washington Square Park. Schematic Plan. Parks Department. http://watercourses.typepad.com/watercourses/2008/09/washington-square-park.html

p. 385 Spangenberg, Charles. Proposed Plan Improvements Of Union Park. New York City, Parks Department annual report. (New York: [s.n.] 1871). Picture Collection, The New York Public Library, Astor, Lenox and Tilden Foundations.

p. 388 Isamu Noguchi, model of the sunken marble garden of the Beinecke Library, Yale University, New Haven, Connecticut, 1963, work by SOM. Noguchi Foundation, New York.

p. 394 View of New York, From Brooklyn Heights. Palmer, F., 1849. New York Public Library, ID: 805023.

p. 395 Bruce, Edward, Power. ca. 1933. Oil on canvas 30 x 45 in., 76.2 x 114.3 cm. Gift of Mrs. Edward Bruce, 1957. The Phillips Collection, Washington, D.C.

Notes

[1] Marsh, George Perkins; 1864. *Man and Nature; Or Physical Geography as Modified by Human Action*. Charles Scribner, New York, 1865.

[2] The building of New York. *Architecture* 56 (Dec. 1927): 324 Cit. en [3:19].

[3] New York City Landmark Preservation Commission.

[4] Los incontables mástiles, los blancos vapores costeros, las barcazas, los transbordadores, los negros vapores de altura, bien formados;

La hermosa ciudad, la ciudad de rápidas y chispeantes aguas! La ciudad de chapiteles y mástiles / La ciudad anidada en bahías! Mi ciudad! [traducción del autor].

[5] ...Miré hacia la parte baja de la bahía para ver llegar los barcos/Ví como arribaban, vi a bordo a quienes estaban más cerca/Vi las blancas velas de goletas y veleros, vi los buques fondeados/Los marinos atareados con la jarcia o a horcajadas en las vergas/Los mástiles redondos, el balanceo de los cascos, los leves gallardetes sinuosos/ Los grandes y pequeños vapores en movimiento, los pilotos en sus cabinas/ La estela blanca dejada por su paso, el trémulo y rápido torbellino de las ruedas/ Las banderas de todas las naciones, su descenso al atardecer... [traducción del autor].

[6] New York Times, Jan 14, 1885.

[7] The American Society of Civil Engineers is the best source for the participation of civil engineers. http://www.ascemetsection.org/content/view/341/875/

[8] Whitman, Walt; 1856. *Song of the Open Road*.

[9] http://timothyquigley.net/vcs/simmel.html

[10] [located in New Haven, Connecticut, 125 km from downtown Manhattan, about 4 or 5 hours on the fastest trains of the time].

[11] Alludes to the prophet Isaiah, 40:4.

[12] There is a plan of the recognition of Central Park at http//:nycma.lunaimaging.com, ,dpr_d_3172

[13] All of this is currently available on many institutional websites.

[14] James ST Stranahan was a powerful businessman living in Brooklyn who had a very active role in the great works of the city. From 1860-1882 he remained as president of the Brooklyn Park Commission from 1869-1883 and was also a member of the Commission for the construction of the Brooklyn Bridge over the East River. In the last years of his life he made a strong defense of the consolidation of Greater New York and lived long enough to witness the event [87:20].

[15] Ocean Parkway. *Landmarks Preservation Commission Report*, 28 January 1975, Nº 3 LP-0871.

[16] William McAlpine, president of the ASCE in 1869, and William R. Hutton, construction engineer, collaborated on the Washington Bridge.

[17] Built by Turner Construction Company, of ACS Group.

[18] The development of the concepts of place, form and type as well as their role in the design of bridges can be followed in [3] Aguiló, Miguel; 2008. *Forma y tipo en el arte de construir puentes*. Abada, Madrid.

[19] Congestion of the Traffic at the Grand Central Station. *Scientific American* 83, (Dec. 1, 1900):338. Cited in [100:54].

[20] Editorial, *New York Times*, (Mar. 26, 1899): 18, col. 6.

[21] http://web.mta.info/capital/esa_alt.html

[22] Survey is an American magazine, launched in 1921, with a supplement entitled Survey Graphic that became a separate publication in 1933, focused on research and socio-political analysis of national and international issues.

[23] http://en.wikipedia.org/wiki/Taconic_State_Parkway

[24] The images of the details are widely collected in the Historic American Engineering Record (Library of Congress) HAER CT-63. (http://www.loc.gov/pictures/item/ct0484/).

[25] See: Aguiló, Miguel; 2008. *Estructuras para los edificios singulares españoles*. ACS, Madrid.

[26] Group of Artists and Spanish Technicians for the Progress of Contemporary Architecture, founded in 1930 in Zaragoza to promote rationalist architecture. Among their leading members were José Manuel Aizpurua, Antoni Bonet i Castellana, Fernando Garcia Mercadal, Josep Lluis Sert and Josep Torres Clavé. In 1932, they published this article in their magazine *A. C. Documentos de Actividad Contemporánea*.

[27] The figures vary in height according to sources. Here are marked those contained in the guide of the ASCE [7:110].

[28] Willis, Carol; 1995. *Form Follows Finance: Skyscrapers and Skylines in New York and Chicago*. Princeton Architectural Press, 2008. An earlier essay with a similar title was published in: Willis, Carol; 1992. Form Follows Finance: The Empire State Building. In: [162:160-187].

[29] Hood, Raymond; 1929. A City Under a Single Roof. *Nation's Business* vol. 17, n. 12 (Nov. 1929), pp.19-29 [56:61].

[30] http:// pendientedemigracion.ucm.es/info/angulo/volumen/Volumen04-2/articulos01.htm

[31] http://www.nytimes.com/1981/12/03/obituaries/wallace-harrison-dead-at-86-rockefeller-center-architect.html

[32] Ssu-ch'eng Lian (China), Oscar Niemeyer (Brasil), Nicolai Bassov (USSR), Ernest Cormier (Canada), Le Corbusier (Francia), Vladimir Bodiansky (Francia), Wallace K. Harrison (USA), G. A. Soilleux (Australia), Max Abramovitz (USA) and consultants Ernest Weismann (Yugoeslavia) y Mattehew Nowicki (Polonia) [153:608].

[33] Mumford, Lewis; 1951. The Sky Line. Magic with Mirrors I:90.

[34] http://www.thefreelibrary.com/Sidewalk+Critic%2c+Lewis+Mumford's+Writings+on+New+York.-a054454985.

[35] It is something common to the whole group mentored by Robert Henry, with John Sloan, George Luks, William Glackens, Everett Shinn, George Bellows and another that would later be known as the Ashcan School, whose painting was inspired by Franz Hals, Velázquez and Manet, and they admired Daumier and the Impressionists.

[36] According to Robert Moses himself, Franklin D. Roosevelt asked for a full-time secretary for TSCP and Moses told him that the Parkway should pay. Roosevelt never forgave him for that. See note 23.

[37] Overseeing the design and construction management of the northern stretch of the Taconic State Parkway was initially in charge of EJ Howe, followed by James W. Bradner, Jr. and James Bixby, and had the cooperation of civil engineer Charles E. Baker and landscape architect Theodore Bowman. (http://tclf.org/landscapes/taconic-state-parkway).

[38] See note 23.

[39] (Herald Statesman, Yonkers, N. Y., Sat., Feb. 7, 1959).

[40] Unlike his predecessors, Mayor Fiorello Laguardia saw the recession as an opportunity *de reconstruir Nueva York como una ciudad moderna, agradable estéticamente y eficientemente planeada*, thanks to the possibilities opened by federal funds [79:318].

[41] In the original, bayberry, untrimmed privet, and dwarf pine.

[42] Dick Schaap, Herald Tribune, 14/01/1965

[43] Engineering News Record, 1927.

[44] www.sílive.com (accessed 13/01/2014).

[45] Aronson, Michael; 1999. Austin Tobin the Port Authority. *New York Daily News*, 25 Oct. 1999. http://www.nydailynews.com/archives/news/austin-tobin-port-authority-article-1.846161#ixzz2yVYABeeb

[46] http://gatewayny.com/battery-park-city-transportation.html; www.mappery.com/ maps/Battery-Park-City-Map-2.jpg

[47] Bernardo, Leonardo; Weiss, Jennifer; 2006. *Brooklyn by Name*. New York: New York University Press: 41-42.

[48] www.asla.org

[49] www.socratessculpturepark.org

[50] http://en.wikipedia.org/wiki/Tappan_Zee_Bridge

[51] Brenner, Elsa; 2000. Future of Bridge Stirs Bicounty Cooperation. The New York Times, April 30, 2000.

[52] http://www.popularmechanics.com/technology/engineering /infrastructure/

[53] These have been translated into Spanish: *La economía de las ciudades* (Ediciones 62,1969), *Muerte y vida de las grandes ciudades* (Península, 1973), *Las ciudades y la riqueza de las naciones* (Ariel, 1986).

[54] http://www.nytimes.com/2006/04/26/books/26jacobs.html

[55] Marshall Berman, citing the literary critic Paul de Man, in: Literary History and Literary Modernity (1969),

[56] Developed in Use and Abuse of History, 1873

[57] See note 55.

[58] Williams, Timothy; 2014. Cities mobilize to help those who held out. *New York Times*, 4/3/2014.

[59] Lago, Eduardo;2014. El perdedor de Greenwich Village: a propósito del Greenwich Village. *El País, Babelia*, 23/08/2014:19.

[60] New York Times, 3/3/2002.

[61] http://www.hudsonriverpark.org

[62] Ouroussoff, Nicolai; 2006. Outgrowing Jane Jacobs and Her New York. The New York Times, April 30, 2006.

[63] London Standard Chatered Bank, Pierpont Morgan Library en Nueva York y National Gallery of Art in Washington, D.C.

[64] Magnolias survived 18 years and currently there are 17 species of large size (including an acacia a Norfolk pine and eucalyptus are included), 1,000 shrubs, 150 vines and 22,000 ground cover plants. There are also seasonal plants that bloom and provide colorful (tulips in spring, begonias in summer, chrysanthemums in autumn and winter poinsettias) (Isaac, 2007, p. 33). One can enjoy the garden by walking through it on the ground floors, as well as from the balconies and glass walls of the offices overlooking the courtyard.

[65] Johnson, Philips, 1978. 'Re-Building,' *New York Times*, 28 December 1878: A17. Cited by Robert A, Stern in [151:497].

[66] http://www.derscutt.com/index.php/projects/detail/trump_tower/#

[67] http://www.worldarchitecture.org/authors-links/pmzfg/batik-biennale-and-the-death-of-the-skyscraper-interview-with-rem-koolhaas.html

[68] New York Times, 5 Nov. 2010. http://www.nytimes.com/2010/11/07/realestate/07cov.html?_r=0

[69] http://www.ted.com/talks/amanda_burden_how_public_spaces_make_cities_work

[70] Cardwell, Diane, Once at Cotillions, Now Reshaping the Cityscape, *The New York Times*, 15 January 2007.

[71] Dal Co, Francesco; 2008. 7 World Trade Center. El Primer Rascacielos de la Zona Cero. En: El futuro de los rascacielos. *Minerva 07*, Círculo de Bellas Artes, Madrid. http://www.revistaminerva.com/articulo.php?id=209

[72] http://www.nytimes.com/2004/12/29/arts/design/29burd.html? pagewanted=print&position=

[73] See note 72.

[74] Mazo, Estela S.;2014. La calle 57 de Nueva York, el refugio de los millonarios. *Expansión*, 10 enero 2014. Casas p. 6

[75] See note 69.

[76] See note 69.

[77] http://inhabitat.com/brooklyns-gowanus-canal-gets-superfund-status/ http://m.inhabitat.com/inhabitat/#!/entry/509c2c87d7fc7b5670507bd0

[78] http://gothamist.com/2014/11/09/photos_a_sneak_peak_at_the_gleaming.php #photo-1

[79] New York City Department of Parks & Recreation at http://www.nycgovparks.org

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Editorial team:
Patricia Hernández-Lamas (Architect)
Ana Rubio-Gavilán (Civil Engineer)
Óscar Castro-Cuartero (Civil Engineer)

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Grupo ACS
Avenida Pío XII, 102
28036 Madrid
Tel. 91 343 92 00
www.grupoacs.com