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1976

PUBLIC WORKS AND THE PATTERNS OF URBAN REAL ESTATE GROWTH IN MANHATTAN, 1835-1894

by

EUGENE P. MOEHRING

A dissertation submitted to the Graduate Faculty in History in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1976

This manuscript has been read and accepted for the Graduate Faculty in History in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

May 17, 1976
date

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May 17
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FOREWORD

Past urban research has largely ignored the vital role of public works. In most places, the installation of an infrastructure (i.e. a network of paved streets with sewer, gas and water mains underneath) was an arduous task which invariably strained municipal resources. Problems came at every turn. For one thing, distribution was rarely equitable. Indeed, political and economic considerations usually awarded certain locales priority. And this, of course, influenced the growth rates of every neighborhood in town.

This book begins in 1835 with the Croton Aqueduct and attempts to describe the relationship between real estate and infrastructure in America's largest city. Public works, here, will be broadly defined to cover not only road improvements but also docks, bulkheads, schools, hospitals, parks, bridges, markets, police and fire stations. Some topics, however, will not be treated. The telephone, electric lighting, steam heat and other innovations whose development came mainly after 1880 have been left for a subsequent volume. In general, coverage of most subjects runs into the 1870's, although the connection between Brooklyn Bridge and the great annexation is traced up to the referendum of 1894.

Numerous people have assisted me. In particular, the staffs of the New York Public Library, New-York Historical Society and the Municipal Reference Library of the City of New York have been most generous with their time. Special thanks go to Mr. Cliff Sumers of Consolidated Edison who took time out from a busy schedule to help uncover early gas company records. Professor Leo Hershkowitz and Mr. William Asadorian of the Queens College Historical Documents Collection were also of great service in helping me locate vouchers and other city documents. Above all, though, I wish to express my warmest appreciation to Professor Richard C. Wade who suggested some of the themes and whose encouragement, patience and expertise aided this effort throughout. And lastly, of course, I thank my mother and father for the confidence and support which spurred me onward.

E. P. M.
New York, New York

TABLE OF CONTENTS

FOREWORD.....iv-v

LIST OF TABLES.....vii

LIST OF ILLUSTRATIONS.....viii

LIST OF MAPS.....ix

CHAPTER 1: JACKSONIAN MANHATTAN.....10

CHAPTER 2: THE BUILDING OF THE CROTON SYSTEM.....42

CHAPTER 3: CITY IMPROVEMENTS: PROCEDURES AND PROBLEMS, 1835-1860.....86

CHAPTER 4: PUBLIC WORKS AND THE NEIGHBORHOODS, 1835-1860.....132

CHAPTER 5: THE WATERFRONT.....180

CHAPTER 6: POLICE, FIRE AND HOSPITALS.....224

CHAPTER 7: PUBLIC MARKETS AND SCHOOLS.....281

CHAPTER 8: LABOR AND CONTRACTING.....347

CHAPTER 9: CENTRAL PARK AND THE BOOM OF UPTOWN REAL ESTATE.....391

CHAPTER 10: NEW YORK IN THE TWEED YEARS, 1860-1871.....425

CHAPTER 11: THE BROOKLYN BRIDGE ERA.....477

CHAPTER 12: THE URBAN CHALLENGE.....524

BIBLIOGRAPHY.....553

LIST OF TABLES

Table — Page

1. PERCENTAGE OF NEW SEWERS LAID EACH YEAR.....455

2. LINEAL FEET OF SEWERAGE LAID BETWEEN 1850 AND 1860.....455

3. LINEAL FEET OF SMOOTH PAVEMENT LAID BETWEEN 1840 AND 1867.....456

4. REAL ESTATE TAX PER $100 OF ASSESSED VALUATION.....506

LIST OF ILLUSTRATIONS

Figure		Page
1.	SEWER DISTRICT NO. 10	143
2.	GROUND PLAN OF THE EASTERN DISPENSARY	266
3.	PRIMARY SCHOOL, FRONT VIEW	309
4.	PRIMARY SCHOOL, PLAN OF 1st FLOOR	310
5.	WARD SCHOOL NO. 19, PLAN OF CELLAR	312
6.	WARD SCHOOL NO. 19, PLAN OF 1st FLOOR	313
7.	WARD SCHOOL NO. 19, PLAN OF 2nd FLOOR	314
8.	WARD SCHOOL NO. 19, PLAN OF 3rd FLOOR	315
9.	GRAMMAR SCHOOL NO. 57, PLAN OF 1st FLOOR	317
10.	GRAMMAR SCHOOL NO. 57, PLAN OF 2nd FLOOR	318
11.	GRAMMAR SCHOOL NO. 57, PLAN OF 3rd FLOOR	319
12.	GRAMMAR SCHOOL NO. 57, PLAN OF 4th FLOOR	320

LIST OF MAPS

Map		Page
1.	MANHATTAN'S GROWTH NORTHWARD, 1642-1836	16
2.	GAS MAINS AND SEWERS UP TO 1838	31
3.	CROTON WATER MAINS	72-73
4.	SEWERS INSTALLED	146-147
5.	GAS MAINS LAID	158-159
6.	SMOOTH PAVEMENT LAID	167-168
7.	THE WATERFRONT IN 1853	201
8.	POLICE STATIONS, 1848 AND 1858	227-228
9.	POLICE STATIONS, 1858 AND 1871	231-232
10.	FIRE HOUSES, 1839	244
11.	FIRE HOUSES, 1848	246
12.	FIRE HOUSES, 1871	251-252
13.	MEDICAL FACILITIES	260-261
14.	PUBLIC MARKETS	291
15.	SCHOOL HOUSES, 1847	301
16.	SCHOOL HOUSES, 1858 AND 1870	328-329
17.	CENTRAL PARK AND IMPROVEMENTS, 1857-1871	405
18.	TWEED RING LAND AND IMPROVEMENTS I	461-462
19.	TWEED RING LAND AND IMPROVEMENTS II	463-464
20.	STREET IMPROVEMENTS, 1876-1883	485-486
21.	UPTOWN LOT VALUES, 1877	493

CHAPTER 1

JACKSONIAN MANHATTAN

In 1835, New York was America's fastest growing metropolis. Throughout the nineteenth century it served as the focal point where the great forces of immigration, industrialization and urbanization converged. While population raced toward the million mark and Wall Street underwrote the nation's destiny, real estate values soared from the Battery to Harlem. A building boom swept northward up the island, transforming one-time farmland into residential and business centers--all in a few years.

Indeed, the maelstrom of change swirled everywhere, as beleaguered politicians struggled to cope with unprecedented problems. Almost suddenly, the city had to extend streets, provide water, dig sewers, improve docks and lay gas mains while also building schools, markets, hospitals, fire houses and police stations. Then, bowing further to the insatiable demands of promoters, the town financed a massive aqueduct, boosted uptown land values with a Central Park and co-opted Brooklyn with a "wonder of the world." More and more, public works assumed a crucial new role as America's first "modern city" emerged.

By 1830, no rival approached New York in size. Neither St. Louis, New Orleans, Cincinnati, Charleston or Washington, despite their heightening importance, could claim 35,000 inhabitants. Philadelphia and Baltimore were the closest challengers with 80,000 each. But Manhattan, a town of 60,000 at century's end, already counted 197,000 in 1830 and over 268,000 five years later.[1]

In fact, from 1821 to 1835 every ward's population tripled or quadrupled.[2] Advances were greatest in residential sections north of the business district. Here government strained to control the explosion. Although in the 1820's and '30's aldermen boosted representation by adding new wards, the effort seemed fruitless. Still, New York had begun a century-long race to extend public services to its nascent communities. The task was demanding enough, but a floodtide of immigrants only complicated matters.[3]

Throughout the era, newcomers poured in, swelling downtown accommodations and driving natives uptown to rural havens. As a result, between 1830 and 1835 the city's North (Twelfth) Ward witnessed a doubling of occupants. And, gradually, as upper and lower ward interests diverged, it became politically unworkable. By 1836, a Common Council committee recommended its division. Members reasoned that with the lower section undergoing street regulation and paving, "everyone must be convinced that the whole time which the representatives of that ward can devote to it, will be required in that

section of the ward"--thereby leaving the residents north of 40th Street in need of new aldermen. Separation occurred in 1835.[4]

Industrialization had helped spur the growth. Urban manufactures prospered following the Napoleonic peace. Between 1821 and 1835, for instance, the number of saw mills jumped from one to five, while iron works multiplied from two to fourteen. And, as more of the cotton and woolen finishing trade entered town, the factory district expanded. By 1835, textile plants were triple the amount present fifteen years earlier.[5] Breweries, shoemakers--all types of business flourished. Amidst the boom, Gotham drew praise from native and foreigner alike. A typical voice was that of the British exporter and inventor Peter Neilson, who, in 1830, lauded the "great public markets" and "many thriving factories."[6] Boosters everywhere celebrated New York's success.

Future prospects seemed unlimited as the steam engine's arrival presaged the demise of rural factories. And with water power fast declining as the major energy source for industry, all cities, with their cheap labor and convenient waterways, attracted manufacturers by the score. Surely New York, chief port and financial capital of the nation, led the list of preferable locations.

Blessed by Nature with navigable rivers on three sides, Manhattan enjoyed a lucrative commerce with the world. Total shipping entering and leaving the port rose nearly every year after the War of 1812. From 1821 to 1835, both out-going and in-coming tonnage almost doubled. Foreign trade grew steadily also, with the value of imports for 1835 alone exceeding the previous year's figure by $20 million.[7] In every category the seaport surged ahead of its nearest American competitor, Boston.[8]

More than one visitor stared in awe at the "forest of masts" lining the waterfront as "hundreds of sloops... crowded berths along the North and East Rivers."[9] The forty-one piers flanking the west side and thirty-four on the east persuasively symbolized the city's commercial hegemony. Yet, not content with this success, New York persisted in dock construction. In 1835, accommodations reached only as far as Pier No. 41 at Charles Street on the Hudson and No. 33 off Catharine on the East; by 1845, however, facilities extended to No. 53 at Gansevoort, while, across town, more than sixty others led up to 14th Street.[10]

Throughout the 1830's, the port experienced a sustained expansion, which forced New Yorkers to recover their lowlands from the sea. On the west side, for example, above Canal Street, high tide frequently inundated the swampy "Lispenard Meadows." After 1815, the city filled most of these marshes with earth from surrounding hills. Later, authorities reclaimed the area west of Greenwich Street from North Moore to Laight by

dumping "land" made "in part by the refuse and rubbish from old buildings [and] cellars."[11] Indeed, Gothamites utilized old rags, dead animals, garbage--literally anything--in their campaign to extend the waterfront.

Unfortunately, expediency often prevailed as builders threw up many piers in a matter of weeks. Faulty construction invariably resulted, saddling proprietors with unending repair bills. In an age of industrial revolution, Manhattan's wharves were, at best, "frail structures, built in conformity with the ideas of a past age and the requirements of a primitive commerce."[12] Few enjoyed secure anchorage to the river's bed. Improved building materials existed, but dock owners shunned the expense. In most cases, they favored wood over concrete and steel. This choice, however, had disadvantages, since fire posed a constant threat above water, while below, timbers quickly rotted in salt-laden tides. In fact, throughout the 1840's, 50's and 60's, shippers complained about landing valuable cargoes on docks which often "disappear beneath the waves" or "succomb to the pressure of rapid currents and drifting ice, and are bodily swept from their foundations."[13]

The waterfront deteriorated for other reasons as well. Not only were accommodations poor, but the relative absence of new, steam-powered hoisting engines retarded commerce further. In addition, wholesalers suffered from a lack of warehousing. Various groups advanced plans to remedy these evils, but apathy and red tape postponed action until the 1870's.

As a result, the port of New York suffered an ambivalent fate: decay in the midst of prosperity. By 1840, years of stunted growth lay ahead. In the end, reform would come only after the desertion of numerous shippers to Hoboken, Brooklyn and other rivals.

On land, boundaries had been pushing steadily northward since the seventeenth century. Every year saw more people moving to these suburbs. Upon its completion in 1812, the new City Hall stood perched upon the frontier, but, by 1835, it lay more in the center of things. As MAP 1 shows, 14th Street became the approximate border of Jacksonian Manhattan, although numerous houses dotted streets farther uptown.[14]

As population rose and more industries settled, lot prices soared, dictating a rapid change of land use. In fact, the value of Gotham's real estate stood at $64.8 million in 1826, $87.6 million in 1830 and over $143 million in 1835.[15] As late as 1820, many dwellings still occupied the land below Chambers Street and downtown merchants continued residing above their stores. But change presided over future events.

By 1830, brick and stone challenged flammable wood for new construction. But the former exceeded the latter in expense. Therefore, as laws gradually proscribed new timber buildings within the fire limits,[16] lower and middle-class

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THE BATTERY
CITY HALL PARK
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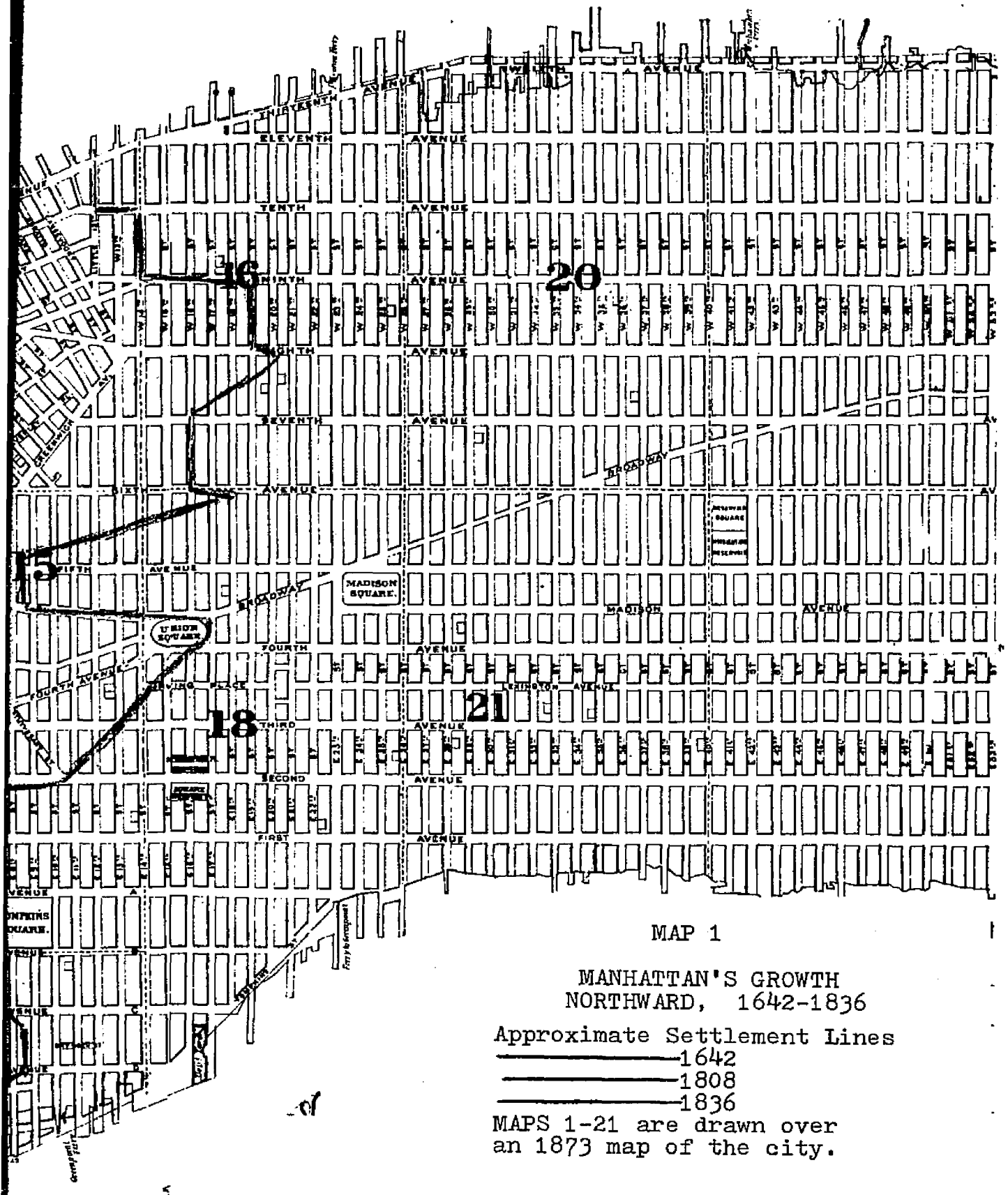
13

MANHA
NORTHW

Approximate

MAPS 1-21 a
an 1873 map



MAP 1

MANHATTAN'S GROWTH
NORTHWARD, 1642-1836

Approximate Settlement Lines
1642
1808
1836

MAPS 1-21 are drawn over an 1873 map of the city.

residents had to move farther north.[17] As a result, 90 per cent of all new homes built in 1824 were in the "upper wards," and of the the 1,624 new edifices, less than half were brick or stone. These costlier models usually graced the exclusive thoroughfares; indeed, Broadway claimed thirty-two, the Bowery fifteen and Beekman Street twelve. Nevertheless, despite its exile, wood still accounted for over half the total. Division Street alone had seven such structures, and, farther up, Hammersly, Hammond and other northern roads counted no recent, brick dwellings whatsoever.[18]

By the 1830's, a frenetic building fever had seized downtown investors. The city boasted 877 new structures in 1834, 1,259 the following year and the figure rose steadily until the Panic of 1837.[19] Two and three-story brick houses, serving as either private residences or tenements were the rage. Often they accounted for half the annual figure. In 1834, over forty rose on 2nd Street, twenty-three on Greenwich and another twenty near Washington Square. Many other routes also shared in the bounty, including Houston, Attorney, Bleecker, Broome and, of course. Broadway. Brick dwellimgs advanced well north of 14th Street as well, with 17th alone getting twenty in 1835.[20]

Thanks to strict fire laws, brick soon draped virtually every downtown artery. New stores began rising, three, four and five stories high. During 1835, ninety-one appeared in the First Ward, accounting for 90 per cent of its recent construction. While the Second and Third, also

comprising the business district, totaled eighty-two new stores between them. Most other wards, though less involved with the wholesale trade, could point to a modest number of these "splendid"structures.[21]

Change pervaded lower Manhattan. As the old wards became more commercialized, they lost all but their most opulent residents. And, eventually, incessant real estate forces would dislodge even the John Jacob Astors. Indeed, rents soared in the prosperous twenties and thirties, driving scores from their homes. No one escaped the onslaught. Even Philip Hone, bank president and former mayor, complained in 1836 of being

> turned out of doors. Almost everybody downtown is in the same predicament, for all the dwelling houses are to be converted into stores. We are tempted with prices so exorbitantly high that none can resist, and the old downtown burgomasters, who have fixed to one spot all their lives, will be seen during the next summer in flocks, marching reluctantly north to pitch their tents in places which, in their time, were orchards, cornfields, or morasses a pretty smart distance from town, and a journey to which was considered an affair of some moment and required preparation beforehand, but which constitute at this time the most fashionable quarter of New York.[22]

This spirit of change gripped everyone. Many a veteran noticed that "whole streets...in the First Ward, that were formerly filled with private dwellings have changed their character, and are now occupied by warehouses,...or as banks, insurance offices and brokers &c." Wall, Pearl, Water, Broad and Garden enjoyed the most complete transformation--gone forever were the small shops and worker's cottages.[23] Where would smaller industries go? The sheer velocity of

change clouded most business decisions with uncertainty.[24] Even such leaders as William B. Astor might predict that retail dry-goods would eventually reach Prince Street, but who could be sure?[25]

Despite the calamitous Panic of 1837, the process continued. Nothing could halt urbanization's momentum. Businessmen like Hone could only marvel at the spectacle.

> ...the pulling down of houses and stores in the lower [wards] is awful. Brickbats, rafters and slates are showering down in every direction. There is no safety on the sidewalks, and the head must be saved at the expense of dirtying the boots. In Wall Street...there is the beautiful new Bank of the United States, still obstructing the walk. Besides which four banks, the City, Manhattan, Merchant's, and Union are in the progress of destruction; it looks like the ruin occasioned by an earthquake...Farther up, at the corner of Chambers Street, a row of low buildings has been removed to make way for one of those mighty edifices called hotels--eating, drinking, and lodging above, and gay shops below; and so all the way up [town]. The spirit of pulling down and building up is abroad. The whole of New York is rebuilt once in ten years.[26]

Finally, in 1833, the rising value of downtown lots forced the City Council to pass an ordinance forbidding new cemeteries south of 14th Street. Five years later, it imposed a $250 fine upon anyone "opening or digging" a grave. Despite the protests of Perkins Nichols, who had invested over $50,000 in land and contracts to extend Marble Cemetery, the law remained in force. Nichols and the Trustees of St. Mark's Church fought a losing battle with nearby lot owners who characterized the graveyard as "injurious to the value of property in the neighborhood, and tend[ing] to diminish the rents of houses." Real estate demands had dictated more rural cemeteries.[27]

Northern Manhattan seemed rural, yet even here villages experienced growth. With the extension of the Harlem River Rail Road from Prince to 125th Street, Harlem soon discovered its land filling up with homes and retail stores. Lots everywhere appreciated, becoming, almost overnight, prime building sites.

Although the boom was city-wide, real estate progressed at different rates around town. The principal business district, comprising the first three wards, possessed the highest valuations. Factories, large office buildings and sumptuous mansions inflated the figures. As commerce crept westward, Wards Five, Eight, Nine and Fifteen experienced sizable gains, while Twelve and Sixteen (the latter recently carved from the former) prospered as residential suburbs. But, the east side languished in a flood tide of immigrants, tenements and run-down warehouses. Nevertheless, by 1836, almost every district enjoyed rising land values.[28]

By 1830, the business district had begun to spread northward. The dictates of Fashion no doubt led many firms uptown. By the mid-1830's numerous publishers, law firms and newspapers had flocked to offices around City Hall Park. James Gordon Bennett heralded the opening of the nearby Astor Hotel as "a new era in the neighborhood of the Park, [predicting] that all strangers, distant merchants, [and] foreign travelers, will entirely congregate in that delightful

neighborhood." And Bennett, himself a resident lot owner, urged in editorials that Congress enhance the vicinity with a new Customs House, Court House and Post Office.[29]

Specifically, land values rose in both commercial and residential sections until the Panic of 1837. Philip Hone could attest to the boom of the 1830's. In 1832, he bid for a 25X100-foot lot at the corner of Broadway and Park Place which brought $37,000--more than double its value in 1820! Hone declined an offer in 1835 to purchase seven lots on Second Avenue below St. Mark's Place for $35,000. Several months later, they sold for $38,000, and speculators described it as a "bargain."[30] In 1825, the New York Gas-Light Company bought a corner house at Hester and Orange Streets for $2,436.83, plus ground in Orange, Little Water and Cross Streets. The total cost came to $12,128.19. Twenty-four years later, the utility moved to the East River and sold its property for $37,225--more than triple its original price.[31]

Uptown land also enjoyed sharp gains. By 1836, plots two miles from City Hall brought $8,000 to $10,000, roughly twice their value in 1830. Even in the distant Eleventh Ward, fronting the East River, lot prices rose in the period from $2,000 to $3,000 for mid-block sites and $4,000 to $5,000 for corners. But, farther north real estate grew more slowly, with lots along Bloomingdale Road (today upper Broadway) near 100th Street averaging only $450 to $500.[32]

The great fire of 1835 boosted downtown values even higher. The reason? Lower Manhattan, built without foresight in colonial times was a patchwork of twisted streets. One destructive blaze could level every structure for blocks, forcing both city and landowner into a program of transforming once darkened and crooked alleys into those straight, broad, gas-lit thoroughfares so compatible to commerce. The cost in 1836 of widening a busy street not gutted by flames approached $5,000 per foot. Thus, the Common Council planned extensive alterations in the "burnt district" which would

> render the entire surface of that section much cleaner drier and more eligible for the transaction of business than it has heretofore been, and will also, enable the proprietors of buildings to have much more convenient cellars for the reception of goods, than has hitherto been the case.[33]

The holocaust of 1835 gutted over 670 buildings in the lower east side section bounded by South, Wall and Broad Streets down to Coenties Slip. With old housing demolished, land values soared. In fact, Philip Hone reported that one parcel of twenty lots sold in February of 1836 "at most enormous prices, greater than they would have brought before the fire when covered with valuable buildings." The land, purchased earlier in the century for $93,000, yielded $765,000 at auction.[34] Ironically, the disaster triggered a boom, since adjacent business sections profited by the temporary loss of accommodations. Within days, rents for vacant stores and offices in lower Manhattan jumped by 100 and 150 per cent.[35]

In fact, office space had been scarce in New York throughout the early 1830's. Nevertheless, business had always been selective in choosing locations. Often single industries would concentrate in a certain block or neighborhood. During these years, for instance, William Street from Wall to Pine served as the "fashionable dry-goods center."[36] But, the industry's wholesale trade inhabited Pearl from Coenties to Peck, while the "cheap retail drygoods stores" occupied upper Pearl and Chatham. Such patterns stayed intact unless disrupted by sharp, demographic changes or a large conflagration. Hence the 1835 fire finally expelled dry goods from Pearl Street. In subsequent years it found no permanent home and instead drifted uptown in the wake of retreating suburbs.[37]

Dry goods was not alone in choosing a niche. Indeed, wholesale groceries settled mostly in Broad, Water and Front Streets.[38] Broadway, the city's most popular thoroughfare, attracted "the principal retail shops of jewelers and watch-makers; also the principal book stores, merchant tailors, hatters, carpet and fancy dry goods stores, [and] confectioners."[39] Tanners and curriers thrived along Ferry and Jacob, furriers on Water, cabinet makers in Broad, while Pine, Wall and Nassau boasted numerous law offices. Still, such trends were never universal, for, as one observer reported, "other trades and occupations are so diffused over the city, that no one particular spot could be designated as appropriated to them."[40]

Whatever the case, individual lot owners were both aware of these patterns and quick to capitalize on opportunities. Frequently, one speculator would control two or more adjacent buildings. For example, B. P. Melnick owned Nos. 233, 235 and 237 Hudson Street and leased them all. In this instance, chair-making was the block's chief industry. In Melnick's case, he rented each house to a different chair manufacturer. No. 237's ground floor remained vacant, so Melnick converted it to living space. Speculators continually erected multi-story brick dwellings and either rented them as apartments or as factories and warehouses.[41] As a result, residence and commerce and even wholesale and retail often shared the same address. A typical example was Hudson where at No. 231 an umbrella factory occupied the top floor while a fruit shop claimed the first. Again, one man owned Nos. 231, 229 and 227, but lived elsewhere. John Oouthout varied the pattern, renting the latter numbers not to a company, but rather to a shoemaker and grocer, respectively. And, both shopkeepers acted typically, utilizing the sidewalk level for business and upstairs for living quarters. Similar practices existed on nearby Vandam and Spring Streets as elsewhere in New York.[42]

In other sections owners opted more for dwellings. Such was the case on the west side in Bank and Hammond Streets. As immigrants invaded both blocks, landlords rushed to subdivide their buildings. Churches, merchants and city politicians entered the speculation. Thomas Woodruff,

alderman of the distant Fourteenth Ward, rented three apartments at No. 135 Hammond Street. Many foreigners, eager for rooms in an already crowded town, moved in despite local "nuisances," including a big soap factory at Bank and Washington Streets. And investors reproduced these scenes throughout the city. Without doubt, until 1837 real estate was a sound investment.[43]

Streets were a primary concern of lot owners. As late as 1835, unpaved thoroughfares blanketed lower Manhattan. Puddles froze into ice ponds during winter, while spring thaw reduced most roads to quagmires. Throughout the 1830's, promoters, civic leaders and newspaper editors condemned these conditions, making the issue a public scandal. Nevertheless, the calamitous situation enriched local humor immeasurably, as citizens favored each other with "tall tales" of their adventures crossing Gotham's streets. In 1837, a city guidebook caught the flavor of this banter.

> Scene (One of the principal streets of New York. A mother looks for her five year-old boy who fell in the mud.)
>
> Mother: (with a stick poking in the mud) Ah me! I'm sure he's abouts some where, the dear cratur (sic), and if I ownly (sic) had a longer stick, so that I could poke down a grain deeper, I should find the darling!
>
> Walker: What have you lost good woman? (lending the aid of his cane to assist in the search)
>
> Mother: Och, bless your kind soul! it's my swate little child, my darling Jemmy, that's lost in the mud... Ah. I'm sure he must be here--jist here abouts where I saw him trying to cross a minute ago.[44]

Winter played havoc with every street. Years later, one old-time resident of the dry goods district remembered how

> the boys used to get old boots, and, placing them on a pole, would make in the slush of snow and ice footprints all across Pearl Street, as if persons had been passing, and then would run around the corners to see some stranger step into the trap and sink above his knees in water and slush.[45]

Despite disasters like the 1832 cholera epidemic, officials continued paving with cobblestones. This contributed to poor sanitation, since the surface hosted vast networks of crevices into which dirt, blood, urine and other putrescent matter invariably settled. These substances, once embedded, defied removal by broom, water or other cleaning methods. Worse still, New York, already handicapped by a poor water supply, inadequate sewerage and an unwanted plethora of cesspools, could ill-afford this rough pavement. Authorities groped in vain for a solution. Perhaps it lay in Europe.

Cobblestone was London's traditional covering, because, unlike smoother rivals, it withstood heavy traffic and required less repair. Nevertheless, the British had constantly searched for replacements. By 1830, the newest candidate was wood. Manhattan, too, gave it a try; in the same decade officials paved Broadway with it from Chambers to Warren. But these timbers raised fears in a city so often scorched by fire. Indeed, James Gordon Bennett advised the council to "lose no time in passing a law prohibiting under severe penalties, all persons from smoking segars (sic) or carrying fire of any description between Chambers and

Warren Streets."[46] By 1836, wood planks widened Fulton from Broadway to East River.[47] The movement, however, was short-lived, since Russ, Belgian trap-block and other smooth rivals soon came to ease the problem.

Extension was another issue. Throughout the 1830's, sanguine lot owners petitioned City Hall to extend roads uptown, but, despite sympathetic politicians, the process of opening and paving was slow. Each route advanced at a different pace. Fourth Avenue stretched north to the Harlem River in 1837; Seventh followed suit in 1859, and Sixth by Civil War's end. As late as 1846, Eleventh reached only to 33rd Street. New York laid out its main thoroughfare, Broadway, from 21st to 43rd Street only in 1838, though by 1851, it approached the lower eighties. Lexington grew at a similar rate, crossing 42nd in 1833, the upper sixties during 1838 and lower Harlem by 1866. And, even as the first shots rang out at Fort Sumter, Madison had yet to encounter 50th Street.[48] In most cases, town growth outraced improvements.

Water posed another problem. Though blessed with sufficient streams and wells for colonial residents, Gotham stood no prospect of supplying nineteenth-century populations. As 1800 approached, the number of pumps multiplied rapidly, soon dotting almost every downtown street corner. And throughout the city, vendors lugged filled casks of "tea water,"

selling for two cents a pail.[49] But, still, the shortage grew with each year.

In addition, citizens universally decried the liquid's taste. Chemical impurities abounded because of New York's geographical make-up and the presence of cesspools. Unfortunately, sandy alluvium covered much of lower Manhattan. Hence rain had first to trickle through this impure layer before meeting the rock below. The lack of sewerage also caused difficulties. In 1829, researchers from the Lyceum of Natural History estimated that in every twenty-four hours New Yorkers deposited over one hundred tons of excrement into the alluvium sediment. No wonder shafts sunk into this man-made quagmire produced "brackish and very hard" water.[50] Therefore, as the 1830's progressed, citizens faced the dual problem of an impure and inadequate supply.

The Manhattan Company's Works, established in 1799 and feebly extended along wooden pipes, offered no solution as downtown wells ran dry.[51] The mismanaged firm, chartered to draw water from the Bronx River, pumped instead from a source on Centre Street.[52] By 1833, twenty-three miles of pipe ran from the 13th Street reservoir down Broadway, branching off along the way to those few elect routes deemed by Fashion as home for New York's opulent. Over 34,646 feet of twelve, ten and six-inch mains lay in the roads, yet demand far exceeded supply.[53]

Fires usually drained reserves. During savage

conflagrations hose companies retreated to the rivers and pumped salt water, even though it "was found to injure the... engines."[54] After 1815, authorities devised a new strategy; they erected forty public cisterns for water storage. This alleviated shortages in some areas, but failed to end the problem.[55] In winter these tanks froze, depriving firemen of their chief weapon. The great blaze or 1835, occurring in sub-freezing temperatures, forced desperate brigades to abandon the icy cisterns and again stretch lines down Coenties Slip to the river. Several crews with hand engines pumped, while others jumped up and down on hoses for three days to prevent clogging.[56]

As conditions worsened, citizens took solace in their momentous decision of the previous spring to build the Croton Aqueduct. This massive conduit, despite its great cost, symbolized New York's determination to face the mounting problems of urbanization. More importantly, the project served as precedent for more far-reaching public works programs.[57]

New York, following the 1816 trail blazed by Baltimore, became the second American city to gaslight its streets.[58] As early as 1816, the Council Committee of Arts and Science had studied the issue. Later, authorities permitted the laying of temporary tin mains in Chatham from Broadway to Fulton to illuminate "several street lights and store windows."

Samuel Leggett, a noted banker, and Henry Eckford, a large real estate holder, had pushed the project past the experimental stage. A group of investors soon joined these two and formed the New York Gas-Light Company. Finally, in 1823, after months of private lobbying, the firm obtained

> the sole and exclusive privilege and right of laying or placing underground, pipes in all and every of the public streets and parts of the streets of the city of New-York, between the Batteryand Grand Street ...for conducting Gas, for lighting the public lamps in the streets and parts of streets south of said line, and the houses and buildings, fronting...on, or bounded by or adjacent to the streets..."--below Grand.[59]

Just seven years later, the city empowered a second utility, Manhattan Gas-Light, to supply areas north of Grand.

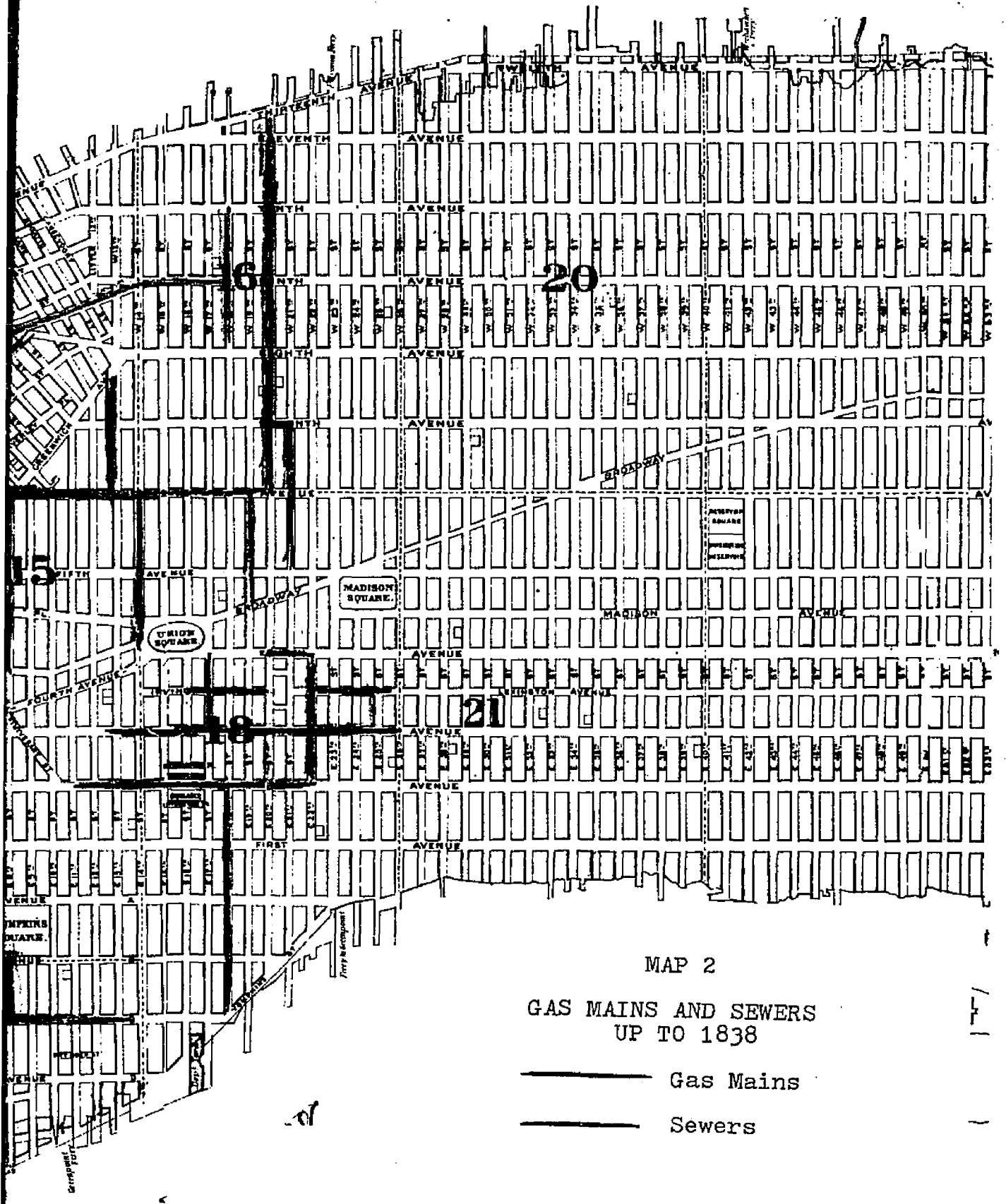
Universal service was not immediate. A glance at MAP 2[60] shows that most lamps were downtown. In fact, the first thoroughfare lit was opulent Broadway from the Battery to Grand. Usually, the companies laid mains only in roads where owners had "fitted up" their buildings for gas. Despite outcries for lighting by citizens of more impoverished neighborhoods, the Lamps Committee of the Board of Aldermen concurred with this policy when it resolved that each company should

> light the public lamps, in such streets and places as they may have a reasonable prospect of deriving public custom from, sufficient to compensate them for the loss sustained on the public lamps to be lighted; which, in the opinion of your committee, include all streets where main pipes are laid or may be laid, with the prospect of the advantages of private custom as before mentioned.[61]

The map reveals the ubiquitous presence of lines throughout the downtown business district. Wall, Pearl,

N
E
A
S
T
CITY HALL
PARK
THE BATTERY
1
2
3
4
5
6
7
8
9
10
11
12
13
14

N
0
MADISON SQUARE.
UNION SQUARE.
TOMPKINS SQUARE.
FOURTH AVENUE
BROADWAY
LAFAYETTE PL.
GAS MA



MAP 2

GAS MAINS AND SEWERS
UP TO 1838

——— Gas Mains

——— Sewers

Maiden Lane and other commercial arteries all enjoyed service as networks criss-crossed the first three wards. In addition, many wealthy, residential blocks along Bowling Green, Beekman, Cliff, Washington and Greenwich Streets also won attention.[62] And the upper west side, too, especially homes and stores along the busy Hudson Street thoroughfare, far outdistanced eastern wards in pipe mileage. In fact, the entire section above Catharine Slip fared poorly. East of the Bowery, a scattering of feeble oil lamps symbolized the area's plight. Wards Seven, Ten, Eleven and Thirteen, laden down by the mounting weight of immigrant inundations, evoked scant concern from the utilities. Apparently, local landlords felt the strong housing demand made improvements unnecessary. And sustained by this belief, they still cloaked their brothels, groggeries, warehouses and tenements in a blanket of darkness.

Thus, several patterns of gas service had emerged by 1838. First, downtown needs took precedence over others. The enormous real estate value of the business district dictated the need for a vast pipe network. Office buildings, fine stores and plush hotels generated sufficient income to permit the cost of installation to be written off as overhead. Second, the utilities supplied those residential neighborhoods largely inhabited by Gotham's"most respected" citizens. At times, however, other home owners, fortunate to live amongst a cluster of trade concerns, might also enjoy the light. But uptown New York, despite its substantial

population, went unprovided, except for some lines along such higher-class thoroughfares as Hudson Street. Nevertheless, uptown, though admittedly forced to wait in line briefly like a misbehaved schoolboy, suffered nothing compared to that perennial waif, the waterfront. Indeed, this section, neglected by both city and gas authorities alike, remained dark, dangerous and crime-ridden into the 1850's.

Sewers lagged far behind other public works because of high costs. In 1835, for example, the expense of building a 1,840-foot line in Centre Street exceeded $7,500.[63] And, as time went on, prices soared meteorically, forcing city fathers to use these conduits only for draining sub-surface water. But the latter was no small function, because streams pervaded Manhattan Island. Geographically, it was a mixture of rocky land and swamp. The lower city lacked elevated ground. A sharp fissure, hosting a creek, cut from Broad to Wall Street. A marsh nearly connected the East River with a pond (The Collect) surrounding Centre Street from Cross to Walker.[64] From here water proceeded through the Canal Street depression to the Hudson. Near this outlet, a continuous swamp divided lower districts from the higher ground north of Canal. On the east side, marshes claimed the section between 12th and Grand. Minetta Brook, fed by springs as far north as Fifth Avenue and 20th, flowed into

the Hudson just north of Canal. Another tributary meandered southward from 27th near Fifth, greeting the East River some ten blocks later. Unlike San Francisco, New York cut down many of its hills, using the land to fill sunken areas. As a result, by 1880, the entire shoreline between the Battery and 35th Street on the east side and 40th on the west was "made" ground.[65]

Sewer construction was traditionally sluggish. In colonial times the city had merely walled in the natural water course traversing the island at Canal. Subsequent years saw attention given only to "the low swampy areas which were the most troublesome."[66] But, following the cholera epidemic of 1832, New Yorkers, fearful of disease-producing wetlands, intensified these programs. MAP 2 reveals scant progress up to 1838. Unlike gas, sewer locations did not necessarily correspond to wealthy enclaves. Chambers Street in the old "Lispenard Meadows," Canal and other water-drenched thoroughfares held first claim on the public treasury. Broadway, the Bowery, Washington and Greenwich Streets headed a long list of roads lacking conduits.

But, lot owners in the few places treated to lines were by no means without problems. Many of these early structures suffered from poor design. For example, the main at Pearl and Maiden Lane was "very large [and] arched," leading one contemporary to complain "it was so high that, in passing along Pearl on the south sidewalk, one had to

ascendquite an elevation to get over [it]."[67] Such grade disruptions were no boon to real estate. During good weather the steep inclines merely slowed traffic, while in winter these "ice-coated arches" posed a constant threat to pedestrians and animals.[68]

Design was but one drawback, construction and maintenance were others. Early tubes were of wood and stone, but the former gradually rotted, while the latter were "hard to handle and large flat stones for covering the sewers [to permit vehicular traffic to pass over] were not easily available."[69] In addition, segments of these early tunnels cracked, settling below the accepted grade, thereby interrupting the flow and creating subterranean pools of stagnant water. By the 1830's, brick had become the standard material for sewers. Though construction improved and costs declined, still, "nothing of a system was thought of, each street having its direct outlet to the river by the nearest course."[70] It was not until the 1840's and later that New York finally aimed at draining every thoroughfare.

Such anarchy fostered mayhem throughout the city. Springtime was particularly hazardous on the lower east side, for as winter snows melted, "the mouth of the sewer at Pearl Street would often clog up, and then the water would back up as far as Gold Street." This had forced officials to place Gold Street's sidewalk two feet above the gutter to avoid "the great flow of water that came down from Broadway, Nassau, William and Liberty Streets."[71] Cascades frequently

abounded, as warmer temperatures transformed thoroughfares everywhere into river beds and pond bottoms. Yet, for years, hesitant politicians ignored the flooding.

The city, therefore, chose the easiest route, concerning itself with ground water drainage and leaving waste matter to the cess pool. But colonial solutions had no place in a metropolitan setting. Too often, authorities failed to see the environmental implications of urbanization. For one thing, the failure to recognize the need for "sewer systems" condemned rich and poor sections alike to the noxious presence of human and animal excrement. Still, however, leaders in the 1830's had begun to glimpse the task ahead. They sensed the arrival of a new era and began to prepare for the transition. In gas, streets, sewers and all services there were deficiencies, but this was not surprising in a city beset by the strains of adolescence. Forced to confront unprecedented challenges, the town moved to expand public works. Slower growth would have permitted a more considered response, but as business prospered, real estate soared and population raced northward, government was rushed. And, inevitably, miscalculation and discrimination ensued. As a result, some fortunate neighborhoods won services early, while others, especially those on the east side, waited for years. Nevertheless, the struggle at least had begun; New York would try to keep pace with its urbanization.

NOTES

[1]George Waring, Jr., Report on the Social Statistics of Cities (2 vols.; Washington: Government Printing Office, 1886), I, 533.

[2]New York State Assembly, Journal (Albany, 1822) "Appendix" for 5th Session, p. 23; New York State, Census... for 1835, p. 26.

[3]David Valentine, Manual of the Corporation of the City of New York (30 vols.; New York: David Valentine and others, 1841-1871), 1868 ed., p. 444.

[4]New York City, Board of Aldermen, Documents of the Board of Aldermen of the City of New York (35 vols.; New York: 1834-1870), II, Document #66, January 18, 1836, 320.

[5]New York State, Census...for 1821, p. 23; Census... for 1835, p. 26.

[6]Peter Neilson, Recollections of a Six Year's Residence in the United States (Glasgow: D. Robertson, 1830), pp. 32-46, passim.

[7]I. N. P. Stokes, Iconography of Manhattan Island (6 vols.; New York: R. H. Dodd, 1915-1928), V, 1733.

[8]The Journal of Commerce (New York), September 28, 1832.

[9]Henry Collins Brown, ed., Valentine's Manual of Old New York (New York: Valentine's Manual, Inc., 1921), No. 5 [New Series], p. 166.

[10]T. & E. H. Ensign, "Map of the City of New York, 1845" (New York: T. & E. H. Ensign, 1845); John Disturnell, New York As It Is in 1835 (New York: John Disturnell, 1835), see the map between pp. 206-207.

[11]Citizen's Association of New York, Report...upon the Sanitary Condition of the City (New York: D. Appleton and Company, 1866), pp. 33-34.

[12]"Memorial of the Ship Owner's Association of New York City...November 17, 1866...to the Honorable Committee of the Senate" in Piers andWharves ofNew York, Remedy Proposed by the New York Pier and Warehouse Company (New York, 1869), p. 54. Sources reveal that the complaints expressed in 1866 held true as far back as the 1820's.

[13]Ibid.

[14]Waring, I, 554-555.

[15]See either Samuel Osgood, New York in the Nine-Century (New York, 1867), p. 67 or Valentine's Manual... for 1866, p. 178.

[16]Aldermen, Documents, II, #110, February 15, 1836, 584.

[17]Ibid., see #89,pp. 464-473.

[18]James Hardie, A Census of New Buildings Erected in This City in the Year 1824... (New York, 1825), pp.12-15.

[19]See Valentine's Manual...for 1842-43, p. 254 for for building figures for the years 1834-1841.

[20]Aldermen, Documents, I, see the report of the City Inspector dated February 3, 1835; Ibid., II, #89, February 15, 1836, 464-473.

[21]Ibid.

[22]Philip Hone, The Diary of Philip Hone, ed. by Allan Nevins (New York: Arno Press, 1970), p. 202.

[23]Stokes, V, 1672.

[24]Ibid., p. 1739.

[25]Ibid.

[26]Hone, pp. 394-395.

[27]Aldermen, Documents, V, #15, September 24, 1838, 180-181.

[28]See Ibid., III, #43, October 13, 1836, 377 for actual figures.

[29]The Herald (New York), September 25, 1835.

[30]Hone, pp. 54-58.

[31]New-York Gas-Light Company, Minutes of the New-York Gas-Light Company from April, 1823 to June, 1871, pp. 30-31, 247.

[32]Hone, pp. 203, 253.

[33]The Journal of Commerce, May 23, 1833; Aldermen, Documents, II, #101, February 29, 1836, 538.

[34]Ibid., p. 199.

[35]The Herald, December 21, 1835.

[36]Valentine's Manual of Old New York, p. 151.

[37]Ibid., p. 178.

[38]Ibid., p. 154.

[39]Stokes, p. 1673.

[40]Ibid.

[41]Journal of Commerce, September 14, 1832.

[42]Ibid.

[43]Ibid., May 1, 1833.

[44]Asa Greene, A Glance at New York... (New York: Asa Greene, 1837), p. 171.

[45]Valentine's Manual of Old New York, p. 153.

[46]The Herald, September 21, 1835.

[47]Ibid., June 15, 1836.

[48]John J. Post, Old Streets, Roads, Lanes, Piers and Wharves of New York (New York: R. D. Cooke, 1882), pp. 67-68.

[49]Valentine's Manual of Old New York, p. 164.

[50]For the water problem, see Nelson Blake, Water for the Cities (Syracuse: Syracuse University Press, 1956), pp. 100-120, and Valentine's Manual of Old New York, p. 164.

[51]See Blake, pp. 100-120 for more on the water crisis.

[52]See Edward Wegmann, The Water Supply of the City of New York, 1658-1895 (New York: J. W. Wiley & Son, 1896), 1-17.

[53]Some of the major streets with Manhattan pipes were 13th, Third Avenue, the Bowery, Chatham, Pearl and William Streets; Ibid., p. 17.

[54]Ibid., pp. 14-17.

[55]Ibid.

[56]Lowell Limpus, History of the New York Fire Department (New York: E. P. Dutton & Co., 1940),pp. 152-160; The Herald, December 18-21, 1835.

[57]A good treatment of the Crotondebate is offered in Blake, pp. 121-143.

[58]For a list of the dates in which the first American cities contracted for gas lighting, see Louis Stotz, History of the Gas Industry (New York: Stettiner Bros., 1938), p. 9.

[59]Aldermen, Documents,I, #48, March 16, 1835, 552.

[60]For sewer locations, seeIbid., V, #45 March 25, 1839, 491-494. Gas main locationscan be found by checking the New-York Gas-Light CompanyMinutes up to 1838 and also by consulting New York City, Board of Aldermen,Proceedings of the Board of Aldermen of the City of New York (New York, 1834-1870) all volumes up to 1838.

[61]Aldermen, Documents, I, #55, April 20, 1835, 602.

[62]There is no one source for locating the early gas mains. In addition, below Grand Street there may have been a few more thoroughfares with gas for which records are missing. See n. 60. For the location ofwealthy sections, consult Edward Pessen, Riches, Class and Power in America Before the Civil War (Lexington, Mass,: D. C. HEath & Co., 1973), map between pp. 175-176.

[63]Aldermen, Documents, I, #19, October 1, 1834, 161.

[64]For a topographical map of New York City, see Waring, I, between pp. 560-561.

[65]For information concerning the location of sewers on MAP 2, see Aldermen, Documents, XIV, #18, November 1, 1847, 278-293.

[66]Waring, I, 561.

[67]Valentine's Manual of Old New York, p. 152.

[68]Ibid.

[69]Waring, I, 570.

[70]Ibid.

[71]Valentine's Manual of Old New York, p. 153.

CHAPTER 2

THE BUILDING OF THE CROTON SYSTEM

Every growing metropolis, sooner or later, must look beyond corner wells to some distant place for its water. This search repeated itself many times in the nineteenth century all across the country. As population flooded New York and other cities, supplies quickly gave out. Dry wells and sub-surface pollution increasingly portended the on-coming crisis. The situation required action, but politicians retreated from the painful thoughts of building expensive systems. Philadelphia had done it by 1822, but as costs rose precipitously other cities sought less burdensome alternatives.

New York's water crisis had antedated the Revolution. Even before 1776 public and private shafts had yielded an impure product. By the 1780's, contamination of underground streams had affected nearly every source in town, including the famous "Tea Water Well" on Chatham Street.[1] The latter's poisoning resulted in a New York Journal investigation which traced the problem to Fresh Water Pond. According to reports, this lake had become

> a very sink and common sewer. It's like a fair every day with whites, and blacks washing their

> clothes, blankets and things too numerous to mention; all their suds and filth are emptied into this pond, besides dead dogs, cats, etc., thrown in daily[2] and no doubt many buckets from that quarter of town.

Ensuing years saw city and state combine on various measures to improve conditions. In 1787, the legislature empowered New York to appoint annually one or more ward officials to oversee pumps and supervise repairs. On another front, the town encouraged new well construction with subsidies; after 1792 the Common Council paid $1 per foot of depth for shafts built according to municipal specifications. Funds for repair, cleaning and construction came from a state-authorized tax.[3]

Despite these reforms, however, water demand still outstripped supply. This continuing crisis forced the consideration of various plans, including the aborted project of Christopher Colles. Prior to 1776, this Irish-born engineer had constructed a network of pinewood pipes downtown. The conduits, emanating from a plant west of Fresh Water Pond, would have serviced Broadway and adjacent streets. But, before its completion, the Revolution intervened. And with priorities confused by both British rule and liberation, the project languished.[4] While leaders groped for more practical solutions, Colles's system sat unused. But conditions only worsened with delay.[5] Finally, in 1799, the legislature acted, rewarding the so-called Manhattan Company with a charter linking the outfit's banking privileges to a proviso that it supply

New Yorkers with "pure and wholesome" water. This strange agreement cemented a convenient partnership between Jeffersonians in City Hall and the new bank. And with the appointment in 1803 of company president De Witt Clinton as Mayor, the marriage drew even closer.

The state's action proved disastrous, for banking was the chief concern of company directors. The firm revived Colles's system and laid its own pipes merely to assuage citizens and encourage the government to continue selling bonds and depositing municipal revenues. As a result, Clinton and associates moved slowly, laying only twenty miles of leaky, wooden pipes in the first decade. At no time did mains extend north of Grand Street.[6] This arrangement hardly met the city's needs.

From the outset, flimsy service sparked discontent. As early as 1804, the angry Common Council, shocked by a virulent yellow fever epidemic, moved to purchase the bank's water rights. Despite Clinton's eagerness for the deal, the state legislature adamantly opposed it. Indeed, Federalists hated both Clinton and the company's founder, Aaron Burr. These Hamiltonians believed the bank a "knavish speculation" and the water works its intolerable progeny. Why purchase this splintered network? Why lay this burden on New York? In a growing chorus newspapers attacked the beleaguered system, charging that "some wells have been dug in the filthiest corners; a small quantity of water has been conveyed in wretched wooden pipes, now

almost worn out for family use.[7]

The Federalists stalled the transfer until 1808 when a Jeffersonian legislature granted another charter. The company greeted this new instrument with glee, since it gave the bank all rights to sell or lease its works to the city. Unfortunately, lawmakers inserted a provision extending the bank's life thirty years after the sale. Clinton and associates rejoiced at the obvious: a postponed sale now gave the firm almost perpetual existence. All it need do was maintain a cheap, sub-standard system.[8]

As a result, the town suffered. Still, only twenty-three miles of pipes ran through Broadway and select streets south of 13th. The company made no effort to supply the entire city. This perfunctory service immediately drew complaints. At times no water flowed downtown. In 1809, some neighborhoods went months without a drop. Newspapers contended there was "no family...regularly supplied with Manhattan water."[9] Again, in 1811, the outfit cut pressure below Grand Street. During that torrid summer lower wards went five and six days without water.[10] Repairs frequently halted the flow for weeks. But, despite public uproar, municipal authorities did little. Why antagonize a leading city creditor?[11]

Nevertheless, crisis loomed as population and buildings multiplied yearly. Increasingly, fires raged out of control for lack of water. Finally, in 1817, apprehensive

politicians took action. After investigating various schemes, the Common Council agreed to build a network of forty cisterns connected by hydranted, iron pipes. But, at best, this was a stop-gap measure for a town still retreating from the inevitable.[12] As matters worsened, more ideas arose. In 1821, Mayor Stephen Allen headed a committee which proposed diverting the Bronx River into the Harlem, damming the latter and pumping its contents into a reservoir. Several years later another group suggested connecting the Bronx and Saw Mill Rivers to create a storage capacity worthy of an expensive aqueduct.[13] In 1825, the state legislature chartered the New York Water-Works Company which planned to secure water from the Rye Ponds in Westchester; unfortunately, legal defects in the charter scared off investors. Disappointment also plagued stockholders of the rival Sharon Canal Company whose engineers underestimated the volume of water needed, a blunder which eventually doomed the eneterprise.[14]

As each project failed the peril grew for New Yorkers. Every year, despite new cisterns, the fire menace increased. Although forty tanks serviced Manhattan by 1829, firemen still needed another sixty. Instead the Common Council, anxious to cut expenditures, built a large reservoir at 13th Street with mains and street spouts extending down Broadway to the Bowery.[15] The Manhattan Company had forced this action, too, because after 1830 it refused to install additional fire hydrants.[16]

Uncompromising policy and declining water quality gradually disrupted relations between city and bank. By 1830, the Manhattan Company's water-works was more a liability than asset. Moreover, authorities realized that the supplementary cistern system was no solution either; only a massive, publicly-owned conduit, extending far upstate, could offer an adequate supply. Engineers eventually decided to build an aqueduct from the distant Croton River.[17] A number of specialists, including the late Governor's son, Colonel De Witt Clinton, surveyed the basin and deemed the project feasible.[18] Next, Croton supporters, led by Manhattan State Senator Myndert Van Schaick, lobbied in Albany for the appointment of impartial Commissioners to examine the proposed route. Governor William Marcy appointed five, and in November of 1833, they issued a report supporting the plan.[19]

The City Council, though intrigued by the findings, cowered at high cost estimates. Van Schaick, however, felt the Commissioners had exaggerated expenses and urged Marcy to select a new Board. He concurred and in 1834, a new act authorized the re-investigation of Croton. The measure also submitted the issue to voter referendum upon aldermanic approval of the project.[20]

In the new study, engineers made several changes including the substitution of a low causeway instead of "High Bridge" for carrying water pipes across Harlem River. In addition, the Commissioners estimated that owners of at

least 30,000 building lots would subscribe for the utility. Thus, $310,000 could be collected annually in rents which would easily defray the $5.4 million cost. These factors, in the end, made the enterprise more attractive. Delighted aldermen later approved the scheme and the electorate followed suit in April of 1835.[21]

Historians traditionally have stressed threats of disease and fire as the prime motivations for building the aqueduct. For years scarcity of pure water had imperiled public health. Indeed, throughout the early nineteenth century, medical authorities had condemned Manhattan Company water as impure. One physician characterized it as "frequently productive of diseases of the stomach and bowels especially with strangers upon the first use of it. Gravel, and other complaints of the kidneys, are of frequent occurrence among our citizens, and, I believe are oftentimes attributable to the water as their source."[22]

City newspapers also joined the campaign. In 1835, the New York Commercial Advertiser, noting that "bad air and bad water are leading causes of sickness in all populous towns," described Manhattan water as "impregnated with...vile and disgusting ingredients." Therefore, the editor asserted, building the Croton Aqueduct was mandatory, for "the public health requires it."[23]

In 1834, the Water Commissioners themselves had

the firm's water analyzed by a chemist. The main shaft on Reade Street yielded 125 grains of solid matter per gallon. A sample of public wells throughout "the densely populated parts of the City" resulted in an average of 58 grains.[24] It seemed clear to investigators "that the use of water thus impregnated, can be no other than unwholesome, and more or less hurtful to the digestive organs of those who partake it."[25]For years New Yorkers had contributed to the problem. Though required to clean their sidewalks half way from house to gutter, many citizens ignored the law. Such habits only promoted yellow fever and cholera.[26] Gradually, however, Manhattanites learned of Philadelphia's success in curtailing disease by washing the streets,[27] and by the 1830's a consensus arose to imitate the Quaker City's example.

If disease was a threat, so was fire. To a great extent, this dreaded peril aided the Croton movement, as dwindling water supplies threatened property owners. The cistern campaign of the 1820's, the abrupt erection of the 13th Street reservoir and the use of hand engines to pump river water all reflected the town's growing desperation. Both contemporaries and historians have emphasized the menace fire posed to townsmen. Frantic editorials asserted the need to protect people from conflagration, and such arguments no doubt went far in converting a public traditionally fearful of costly projects to support of Croton.[28]

Still, landlords represented only one group

victimized by spreading flames; insurance companies were another. The early decades of the nineteenth century witnessed the rapid growth of that industry. Already by 1835, New York possessed over twenty such firms.[29] Only one factor threatened the stability of this nascent enterprise, Gotham's lack of water. Thus, as the 1830's progressed, fire officials and private carriers, attempting to prevent catastrophe, had city fire limits extended northward.[30]

Yet insurance directors must have squirmed as the grim statistics poured in. Claim figures rose every year in the 1830's, with 1834 the worst ever. For the thirteen-month period ending January 31, 1835, fire damage exceeded $910,000.[31] But the Chief Engineer provided this total, not the companies themselves. The figure probably surpassed a million dollars.[32] During the month of January 1835 alone, twenty-four blazes gutted thirty-seven buildings causing $177,000 worth of property loss. Undoubtedly, these soaring monthly costs worried insurance officials. So far, these destructive fires had been sporadic, localized and controllable. But, under right conditions--high winds, frozen cisterns and icy rivers--any conflagration could engulf half the business district. Such a prospect invited disaster for the youthful industry.

Security, a perennial goal of investors, impelled Gotham's leaders to fight for Croton. Manhattan Company executives, wary of a blow to their charter, might menace the enterprise,[33] but they were no match for the city's

insurance firms. Indeed, the latter were a subtle but effective force supporting Croton. The logic was simple: with claims approaching a million dollars per year and rising, the aqueduct had to be built.

The project's cost--engineers estimated it between $5 and $6 million--was no longer an issue. Even allowing for an inflated $7 million figure, fire damage would certainly pass that total by 1842.[34] These facts painted a giant graph in the minds of insurance men. Though the year was 1835 and the Croton expense line still meandered far above the claims curve, by 1842 these two would cross. Therefore, work had to begin immediately on the aqueduct. Water, and plenty of it, had to flow downtown by the early 1840's; Croton did it by 1842.

To win approval for the work, private carriers needed to influence two groups, the Water Commissioners and the Common Councils of 1833-35. Neither posed a problem, for insurance directors sat in both. And, fortunately, conflicts of interest bothered Jacksonians not at all. Three insurance leaders were Water Commissioners. Stephen Allen, the Board's President, former New York Mayor and Assistant Alderman (1833-35), served on the executive council of the Firemen's Insurance Company.[35] Another Commissioner, Saul Alley, held a large interest in the Farmer's Fire Insurance and Loan Company.[36] A third, the only Whig of the five, William W. Fox, was a Director of the Merchant's Fire Insurance Company.[37] And even subsequent Commissioners like

Philip Hone (Eagle Fire Insurance)[38] and Zebedee Ring (New York Fire Insurance) had interests to safeguard.[39]

The industry wielded influence over the Common Councils as well. Francis Fickett, an Assistant Alderman (1832-33) and member of the powerful Street Committee, was a New York Fire Insurance Company executive.[40] Alderman Peter Titus (City Fire Insurance),[41] James Monroe (American Fire Insurance),[42] and John Delameter (Greenwich Fire Insurance),[43] no doubt contributed their support for Croton.

In addition, interlocking directorates brought few frowns from public leaders. Alderman Gideon Ostrander of the 1834-35 council that endorsed the Water Commissioners's second report, sat as Director for both Aetna and New-York Bowery Fire Insurance Companies.[44] And Lambert Suydam, an Assistant Alderman in the same council, served as president of the Manhattan Gas-Light Company (an outfit badly in need of more water to condense its gas) and also held a chair on the Equitable Fire Insurance Board.[45]

Apparently, the industry was an investment rage in Jacksonian Manhattan. Such luminaries as Anson G. Phelps, Hamilton Fish and Samuel Ruggles, among others, held large shares in these firms.[46] Joining this elite were New York's most important politicians. By 1835, such influential figures as former Mayor Gideon Lee (Trader's Insurance),[47] and future Mayor Isaac "Rag Baron" Varian (Greenwich Fire Insurance)[48] were executives. And, of course,

the reigning Mayor, Cornelius Lawrence, whose veto could damage any project, served as Director for both the Firemen's and City Fire Insurance Companies.[49]

With such a network of vested interests sustaining it, Croton faced slim chance of still-birth. This is not to say the lobby was the over-riding force favoring the aqueduct; no one group determined its approval. Rather, the insurance clique was but one of many factors crucial to the project's survival.

Aside from insurance, historians have scarcely touched another compelling reason for building Croton: the need of a pure and abundant water supply for industrial uses. This consideration also impressed the Water Commissioners, who in their 1834 report estimated the number of industrial"water takers" in town.[50] Their research pointed to a crisis arising in various trades because of dry wells downtown. Indeed, the Board found "an opinion ...gaining ground with many of those who require large quantities of water for conducting their business, that the supply on this island [was] annually diminishing."[51] The investigators encountered frantic manufacturers at a chemical works on West 33rd Street's waterfront and a turpentine distillery on the East River. The complaint at each location was the same: water could not "be procured in sufficient quantity from the large wells on the premises, where but a few years past, it was obtained in abundance."[52] This condition required both firms to

cart it at great expense from distant wells.[53]

The New-York Gas-Light Company faced the same problem. Formerly, its engines pumped 20,000 gallons in ten hours from its private shaft, but, in 1834, the task suddenly took sixteen hours. With the source drying up, anxiety grew, and engineers "found it necessary to return the water to the well after using it for condensing the gas."[54]

The Commissioners, therefore, knew of the diminishing supply available to industry and used it as a subtle argument favoring Croton. Moreover, their report contained estimates of how much water each trade needed. Research showed that even retail groups like the town's 3,146 taverns and hotels or its 86 livery stables would require thousands of gallons for which proprietors would gladly pay in advance.[55] Furthermore, the Commissioners reasoned, these huge revenues would, in a few years, offset construction expenses.

To appreciate this point, one must see the vital role played by water in many New York industries. Baking was a prime example. The Commissioners reported 267 cake shops in Gotham. As with many processes, baking required abundant and pure water. Bread and pastry-making demanded "the highest standards of a potable drinking supply," without excessive residual chlorine, plus a low manganes content. Flaunt these simple rules, the city's bakers warned, and destroy the taste of their product.[56]

Manhattan boasted seven "sugar houses."[57] Here refiners needed water of "moderate purity" for both the syrup and washing stages. A perennial danger menaced New York's refiners: water, if not liberated from such destructive electrolytes as sodium and potassium chlorides, would disrupt the entire reaction by inverting the sugar. Such an event would severely damage the end-product.[58]

Patrons of Gotham's taverns and hotels contributed heavily to consumption. In fact, the Commissioners stated that some bar owners and hotel keepers paid up to $300 yearly for Manhattan Company supplies, but poor service forced them to cart additional gallons from uptown wells at considerable expense.[59]

Yet, these retailers suffered nothing compared to brewers. Twelve "brewhouses" thrived in town.[60] Beermakers required a supply of exceptional purity. In addition, they needed it soft for bottling and cask-washing. Whether malting, brewing or distilling, producers demanded "sterile water" lest the yeast be affected, "changing the palate of the particular beer being [made]." And, brewers needed water for still a third process, cooling.[61] No wonder this group became a powerful force favoring the new aqueduct. In fact, several men assured the Commissioners "that sooner than be without Croton water, they would be willing to pay four or five thousand dollars per year for the use of it in their brewry." Furthermore, they predicted that "all other brewers in the city would be willing to pay for it as liberally as they would."[62]

A similar need characterized the town's sixty-three distilleries. Here again, volume was the crucial factor. One distiller, upset by the scarce Manhattan Company supply, complained he was not getting the 500 hogsheads required daily. Without a secure source, he contended, his lucrative business would face disaster.[63]

New York's twenty tanners and forty-three dyers undoubtedly favored the aqueduct. The average tanner used 600-700 gallons of water per 100 pounds of raw hide.[64] In addition, quantities had to be free of iron, manganese and bicarbonate hardness. The latter was especially objectionable in the "liming" of hides, because it produced deposits of calcium carbonate that interfered with subsequent dyeing. Whether for rinsing or dyeing, manufacturers needed soft water.[65]

Gotham's fifty-eight soap and candle-makers, annoyed at having to pump their own wells, told the Commissioners they would gladly pay $60 per year for Croton service.[66] With gas lighting still in its infancy, the candle industry was booming. Between 1800 and 1855, numerous inventors had patented candle-making machines. The new concept employed was the cylindrical metal candle mould, surrounded by large tanks of both hot and cold water. Within a few decades the process had revolutionized the field. As a result, New York chandlers who readily adopted these innovations found their estimated need for water soaring in the 1830's and 40's.[67]

Soap manufacturers also sought water for two steps in their production process. First, the liquid had to be mixed with salt to cause saponification. Second, this reaction itself needed steam to prevent the vat solution from boiling over.[68]

But candle and soap-makers were not alone; others, though still satisfied with volume, objected to impurities. These sentiments commonly held by the town's industrial community encouraged the Commissioners. In fact, they joyously reported that the city's ten marble manufacturers, requiring 400 gallons each day "would willingly abandon their wells and pay one hundred dollars per annum..." for Croton water.[69]

Another factor mandated larger supplies for New York's industries. The steam engine. perfected by James Watt in 1769, already exerted influence over American technology. By 1835, engineers had improved Watts's model by lightening the weight of its movable parts, thus increasing both the steam pressure and engine speed.[70] Gradually, the number of such machines multiplied; by 1834, officials counted sixty.[71] At this time, most companies used them for hoisting. The engines could be used on the waterfront for transferring bulky cargo or in local quarries for lifting stone. And, as shown, some businesses had them pump water. The Steam Age brought sweeping changes to American industry, for these machines marked the doom of rural factories. Already in the 1830's, textile mills and other plants, liberated from

dependence on water power, began fleeing country streams. Lower transportation costs induced producers to locate near wholesalers and retailers and this, in turn, sparked a mass emigration of industry to cities like New York. By the 1830's it was apparent to all that sustained town growth dictated an adequate water supply.

In fact, during the early explorations for an acceptable source, government officials rejected the Rye Ponds and Bronx River because one factory, dependent on these sources, had received scarcely enough volume to turn one of its three wheels.[72] Certainly, a larger storage basin--more like the massive Croton--would be needed to power New York's many drive wheels and steam engines.

Thus, Gotham's leading businessmen and bankers favored the aqueduct not just to sustain existing factories, but attract new ones as well. Leaders hoped to capture New England and Pennsylvania textile mills. The Croton Aqueduct, if built, would surpass even Philadelphia's system in output. With such an advantage, New York could outbid rival cities for industries newly-dependent upon steam.[73] Hence, for the resident manufacturer, desperate to find a secure water source, and the real estate speculator, eager to promote local growth, Croton was essential. And, with a pure supply critical to most every industry, together with the meteoric rise of steam power, an aqueduct would open unlimited investment frontiers in Gotham. Therefore, as the Industrial Revolution gained momentum and factories

invaded cities everywhere, New York's elite assigned the aqueduct top priority.

Following voter approval of Croton in 1835, the Water Commissioners and city collaborated on a funding plan. Of the $2.5 million in stock originally authorized by Albany, authorities immediately issued shares totaling $1 million at 12½ per cent above par. The Panic of 1837 disrupted later financing, but construction never ceased, because the Rothschilds and other brokers found European investors.[74] In 1840, when costs exhausted the first loan, state legislators approved floating more stock.[75] Though the ultimate figure exceeded $10 million, the Commissioners and city, despite occasional disagreements, financed everything successfully.[76]

Engineering went less smoothly. Early in 1835, conflicts arose between Chief Engineer David B. Douglass and the Commissioners over surveying delays. Finally, after months of waiting, the frustrated officials fired Douglass, and, in October of 1836, appointed John B. Jervis, former Resident Engineer of the Erie Canal. Within months, Jervis and staff completed computations. This permitted authorities to advertise for contract bids in the first construction "Division," running from Croton Dam to Sing-Sing.[77]

These districts resulted from an engineering decision to build the aqueduct piecemeal. Planners

apportioned the work into five "Divisions." The first ran south to Sing-Sing, the next three extended down to Harlem River, while the last encompassed Manhattan.[78] Officials then sub-divided each division into "sections," which were the basic contract units. Twenty-one sections composed the First Division and fifty-three the Second. These smaller zones, however, were of unequal distance, since geographic conditions determined their lengths.[79]

Occasionally, the same builder worked adjacent portions. This was the case, for instance, in the Third Division where the Case family combined to build Sections 75-77.[80] But this was atypical.[81] More often, if a company held multiple contracts at all, it did so on three or four sections, all miles apart.[82] Undoubtedly, this haphazard arrangement dictated by the low-bid system impeded continuity on the construction line.

To ease these disruptions the Chief Engineer assigned a "Resident Engineer" to each division. The First, therefore, had a staff of one Resident and three "Assistant Engineers," plus two "Rodmen" and two "Axemen." The former held permanent positions, while the latter were temporary. In addition, several inspectors, who themselves were either professional "mechanics" or masons, supplemented the crew. They performed a crucial function for engineers by supervising progress on four to six sections each.[83]

Despite snags in land appraisals along the route, construction raced onward. By June, 1838, over two miles

of aqueduct stood completed, with the next thirty-one miles to Harlem River ready to commence. The Commissioners, engineers and builders shared the credit. In particular, Jervis emphasized the lack of price-gouging while also praising the "large competition for contracts." And, though he conceded original bids were high, he allowed "this was not strange, as the work was new at the time, and the contractors felt an uncertainty as to its cost." In fact, he noted, "at subsequent lettings..., as men became more familiar with the work, the rate steadily declined."[84] Then too, the attitude of builders also pleased Jervis. True, he admitted, there were "misconceptions" about blueprints and "defects" in work, but, in the end, errors usually were corrected with "cheerfulness."[85]

Unfortunately, Westchester residents proved less cooperative. From the outset, they vigorously opposed the aqueduct, claiming it disfigured their fields and divided property. To country-dwellers it symbolized an illegal trespass by big city interests. For years these up-staters had tried blocking the project in Albany. Failing this, they sought to hinder construction by filing exaggerated award claims against Croton's land appraisers. The Water Commissioners wanted to purchase the route quickly, but when farmers demanded amounts "far exceeding the [land's] value," officials had "no other resource but an appeal to the Court, for an appointment of disinterested men as Appraisers."[86] Indeed, law suits over real estate continued

well into the 1840's.[87]

Property disputes raged as well along sections in northern Manhattan. By mid-1835, the Water Commissioners had obtained over sixty acres of city ground,[88] but, once again, difficulties arose over "the enormous damages claimed by some of the owners." Although some delays occurred because of the aldermen's tortoise-like pace in establishing street grades along the aqueduct line,[89] the Twelfth Ward's residents were the main obstacle. These citizens repeatedly balked at paying Croton taxes, insisting their numerous wells rendered the project useless to them. This opposition posed a severe threat, since levies were essential to liquidate the interest payments on Croton stock. Aside from the tax, uptowners also charged that engineers had designed the pipeline to supply only the lower city; and, in 1838, the aldermanic Committee on Roads and Canals supported the claim.[90]

This affair illustrates the incredible confusion surrounding the aqueduct from its inception. Gotham's political leaders annually committed the town to a $10 million debt for a forty-mile conduit, which, they thought could only provide water below 42nd Street. And no councilman rose to challenge the Committee. Apparently, this was the prevailing assumption at City Hall. The Water Commissioners could scarcely restrain their contempt for the ignorant aldermen. As Stephen Allen put it: "the committee might, with the same propriety say, no provision is made for

supplying that part of the city, between the receiving reservoir at 86th Street, and the distributing reservoir at 34th Street."[91] Indeed, believing the 42nd Street reservoir to be at 34th was no less a delusion than assuming the aqueduct could not service every building. Actually, Croton water could be pumped to the attic levels of every Manhattan edifice except to floors above basements on the highest ground of the upper west side.[92]

Eventually, the Twelfth Ward gave in. Clearly, the aqueduct could only stimulate uptown's economy. Thus, as a health safeguard, a protection against fire and an "encouragement...to the growth of commercial, manufacturing and mechanical business," Croton ensured sustained growth for the town as a whole. Moreover, its supporters asserted, "every addition to the number of...inhabitants of the lower Wards, extends the compact part of the city towards, and into, the Twelfth Ward, giving vast additional value to its lands." For, as water officials concluded in 1843, Twelfth Ward property "would be almost worthless, were the lower part of the island agricultural."[93]

To provide optimal service, engineers had planned two reservoirs for Manhattan. The first, a receiving basin located off Fifth Avenue between 79th and 86th Streets (today in Central Park) would store 158 million imperial gallons, or the full capacity of the aqueduct for 3¼ days. It allocated water to a distributing center at 42nd Street off Fifth Avenue (today the New York Public Library). This

lower reservoir, rising forty feet above the ground, would hold 19 million imperial gallons. Three three-foot diameter pipes would extend down Fifth Avenue connecting the tanks.[94]

Controversy, however, continually threatened progress. As previously shown, conflict raged along the Manhattan route. Lot owners brought numerous suits against appraisers, and, in 1845, contractors for the distributing facility joined the act. They went to court objecting to official orders directing them to omit the digging up of rock at the reservoir's bottom. The Commissioners had merely sought to cut expenses, but the irate builders, having allowed for the excavation in their bid, sued, claiming to "have been deprived of the most profitable part of their contract."[95]

Yet, this seemed but a tiff compared to the donnybrook between the state and city for control of pipe installation below 42nd Street. In 1840, anti-Jacksonians, who now controlled the state legislature, had replaced the Democratic Water Commissioners with Whigs.[96] The old Board had considered the section below 42nd the town's domain, but the new appointees disagreed, and on May 4, 1840, they announced that their own engineers would examine official plans for the pipe system.[97] The Whigs then charged New York authorities with procrastination in laying only 35 of the 165 miles of water mains needed. In addition, the former claimed, the existing conduits

suffered from metallic hardness, casting doubts on "whether the iron would admit of being drilled to draw water."[98]

Battle lines formed quickly. Within weeks the Common Council rose to the challenge, appointing a Joint Committee chaired by the prominent manufacturer, Peter Cooper. On August 3, 1840, the council created the Croton Aqueduct Department and a salaried ($1,000 per year) Commissioner selected by the aldermen.[99]

Conflict continued for over a year as the state appointees rejected some work vouchers approved by the new city agency. Contractors often found themselves caught in between. In 1841, for instance, the City Comptroller refused to pay builders of the 42nd Street reservoir, because the Whig Commissioners were supervising bill payment in Manhattan. Clearly, the reservoir was in the Commissioners's jurisdiction, but in the cloud of battle borderlines blurred.[100] Victory for town authorities finally came in April, 1841, when state legislators passed an act restricting their appointees to activities north of the lower reservoir.[101]

The early mains, originally intended for fire-fighting, date from 1833. Until 1840, yearly expenditures for these installations ranged from $22,000 to $68,000,[102] but supply figures were suspect owing to poor management

of inventories. Unfortunately, the increased duties of the Water Purveyor forced his daily absence from the Public Yard. As a result, investigators charged, "thousands of dollars worth of pipes [were] passing in and out of the yard, without so much as being counted by anyone having charge of the public interest." Thus, throughout the 1830's, City Hall paid contractors $250,000 for conduits on trust.[103]

Administration tightened in the 1840's under the Croton Aqueduct Department, but crisis loomed again in the form of un-mained streets. Indeed, as the great project approached completion, officials rushed to build a distributing system. In 1840, authorities urged that "no time be lost in making necessary contracts for pipes to be delivered as fast as they can be laid through the dense part of the city."[104] Nevertheless, a special committee warned, short cuts should be avoided. Philadelphia had attempted to save money by laying small-diameter pipes, but this had led to thirty-minute delays for full pressure. New York, guarding against the temptation of haste, would make no such error.[105]

But still, time was Gotham's worst enemy. Despite assurances from builders, the city often waited months for deliveries. In late 1840 alone, two contractors failed to produce over 48,000 feet.[106] Impatient officials might rant, but pipe manufacturers were few in Jacksonian times. Broken promises had to be tolerated.

Various measures eased the strain. Town leaders aided production by engaging several firms, including reliable outfits like J. W. Brick & Co., a prime gas company supplier. In addition, officials contracted out-of-state, making agreements with A. M. Jones & Brother among others.[107]

By 1841, three "companies" of workmen had laid enough pipe to exhaust inventories. Stockpiles always ran low, because shipments rarely arrived on time. Indeed, by spring, Ellicut & Brothers owed the city 98,000 feet, triple their debt of the previous autumn. Then too, A. M. Jones & Brother still lacked the 27,000 feet guaranteed six months earlier.[108]Rarely, however, did the town penalize suppliers for tardiness. Instead, the latter continued receiving payments in city bonds "at par" and won new contracts well into the 1840's.[109]

Others fared less favorably. As early as 1835, stop-cock manufacturers like James Robertson faced trouble. The valves, originally designed for the Philadelphia system, failed to halt the flow for crews replacing defective pipes. It approached the absurd in 1835 when men attempting to lay a new Bowery line "were obliged to close all the stopcocks in the Bowery, from Grand Street to the reservoir in Thirteenth Street. And all these failing to stop the water, they had to shut off the head of the water at the reservoir itself." Certainly, this was embarrassing. In fact, the stop-cock design was so inferior

that, in desperation, the Water Purveyor himself tried inventing a better model.[110]

Officials were slow to move against Robertson. For a while, they rewarded his incompetence with fat contracts for hydrant installations. He, in turn, responded by using defective equipment. In fact, Robertson and castings contractor T. & G. Rowe defrauded the town of thousands of dollars. But not till 1844 were they pruned from Croton payrolls. This lethargy proved costly. From May to August of 1844, the municipality paid over $2,000 for repairs to broken hydrants.[111]

In length of service Robertson and Rowe were a minority, since there was considerable turnover of contractors. Carters, trench excavaters and street pavers proved to be the least stable. By 1843, even hydrant and stop-cock specialists had changed. Only the pipe suppliers seemed tenured. Their longevity no doubt resulted from a lack of competition.[112]

Aside from contracting, other problems plagued Croton officials. The water main system itself raised great concern. Throughout the 1830's and 40's the pipe network sparked confusion. Even in 1840, seven years after its construction began, no one knew the precise location of the thirty-five miles of tubes already laid--no map existed. In addition, none could testify to the exact diameter of these conduits. As criticism mounted, an aldermanic committee angrily asserted that "if nothing else existed to

mark in what streets they [the pipes] were laid, the hydrants, placed along the lines near every cross street, would point them out without the possibility of mistake. Any fireman knows this." Though valid, such a rejoinder hardly inspired confidence.[113]

And pipe layers, themselves contaminated with this lackadaisical spirit pervading installation, contributed to the folly. Imagine the consternation of officials in 1841 when informed that a large water main extended through the Canal Street sewer. Despite the perilous threat of pollution, the Street Commissioner, John Ewen, worried more about the line's"retarding the passage of the [sewer] water through it [the sewer] from Centre Street, and diminishing its capacity."[114] But this was no lone event; in 1841, Ewen intervened to prevent workmen from running a twenty-inch diameter conduit through a four-foot-wide sewer. Yet, he acted only after a warning "by a resident in the vicinity who was apprehensive of the injury which it would occasion."[115]

The town's utilities proved equally villainous. In 1867, for example, the Harlem Gas-Light Company, eager to use a trench excavated for water mains on Third Avenue between 86th and 96th Streets, rushed to lay its own pipes there. It later took months for enraged city officials to have the line removed.[116] The companies also resorted to other tactics. Frequently, the Croton Department would lay a block-long section. Then, before hydrants could be

installed, the gas outfits would lay their tubes just five to eleven inches above Croton's, thus making the tapping, hydranting and repairing of the latter impossible.[117]

Despite these obstacles, however, work proceeded quickly. Water authorities located networks "first...in districts showing the largest population; those in which the rates to be collected would equal, or nearly equal, a reasonable interest on the cost of laying the pipes."[118] Hence financial considerations left uptowners neglected. Soon, dozens of petitions flooded the Aqueduct Department requesting service north of 14th Street. As late as 1855, officials continued feigning sympathy while retreating behind a law which restricted pipes to blocks with "buildings sufficient in number to pay annual water rents, equal to ten per cent of the cost of such pipes and laying." Unfortunately, many houses dotting uptown neighborhoods were "not sufficient in number on any street to come within the above rule."[119]

Even by the 1850's, most uptown cross streets still were not graded. As a result, Croton officials were reluctant to install mains until the Street Department determined road heights. Downtown routes often suffered similar problems. In 1850, much pipe went unlaid because "of some impediment arising from the grading of streets, or the construction of sewers, it being the policy of the department to avoid in all cases the laying of water pipes in streets where sewers are about to be built, till

they shall have been completed."[120]

Notwithstanding these setbacks, over 193 miles serviced Manhattan by 1849. Diameters came in nine sizes ranging from four to thirty-six inches. Large models measured twenty, thirty or thirty-six inches, while twelve and six-inch mains proved most popular for smaller thoroughfares.[121]

The city laid street lines, but house connections were the owner's responsibility. Town law stated that "all persons contracting for a supply of water, shall at their own expense procure the materials and labor to make the connexion (sic) with the conduit pipes." And, at that, only a licensed plumber could open the pavement and tap the duct. Any citizen attempting to "fit up" his house risked a $50 fine.[122]

As can be seen from MAP 3,[123] by 1851 most lower wards had service. The Croton Aqueduct was, in some respects, an egalitarian project. For, unlike early gas and sewer construction, water mains extended (if only partially) to all neighborhoods, rich and poor, "American" and "foreign," enjoyed supplies. Even the oft-neglected German wards found their thoroughfares criss-crossed with pipes.

But not all citizens could be satisfied. Still by 1860, many of the cross streets west of Fifth Avenue, though substantially built upon, were without networks.[124] Yet this was not the case on the east side where population was both denser and more opulent.[125] Indeed, despite the orderly appearance of downtown lines, authorities built the system

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THE BATTERY
CITY HALL
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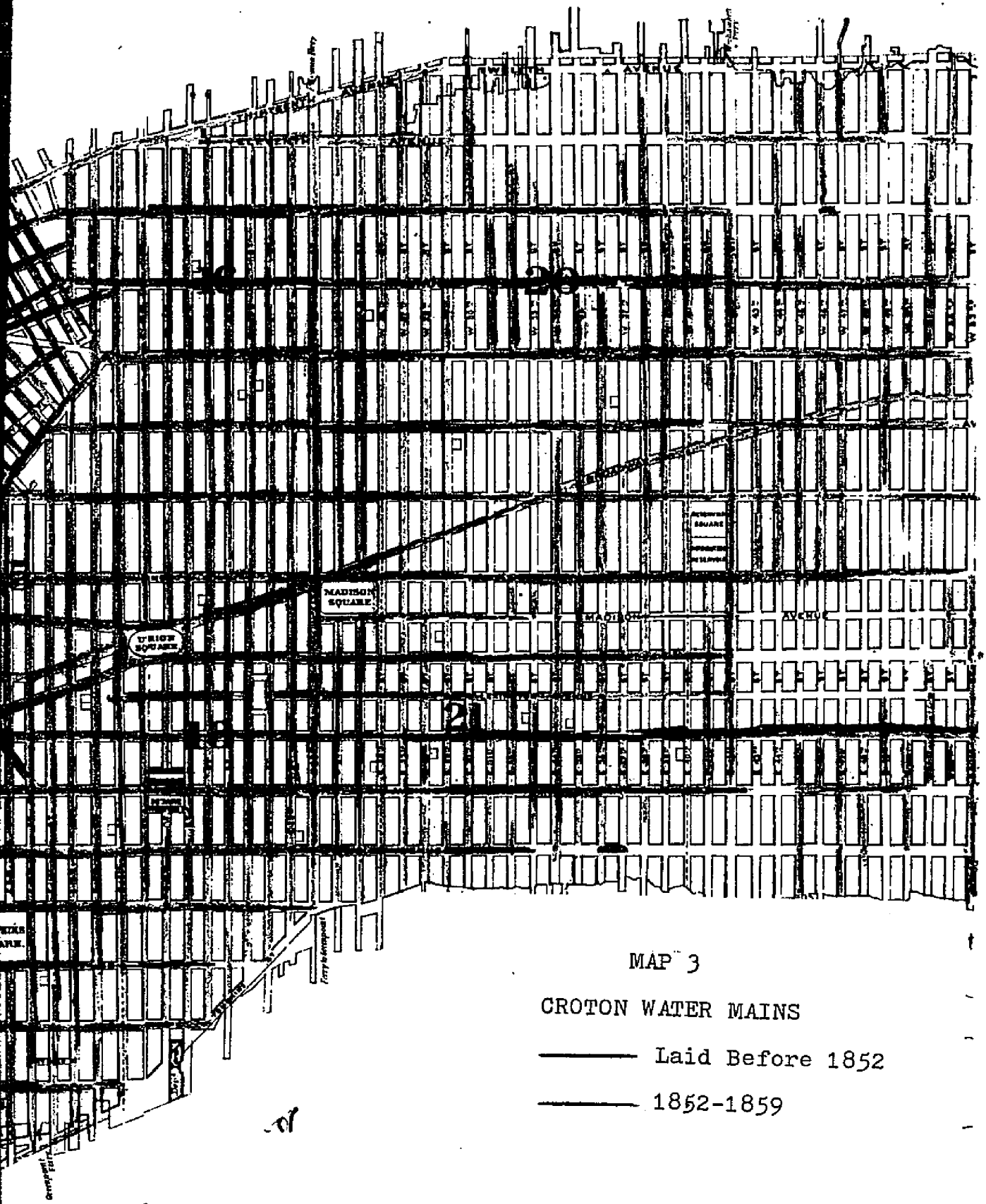
MADISON SQUARE
TOMPKINS SQUARE.
CROT

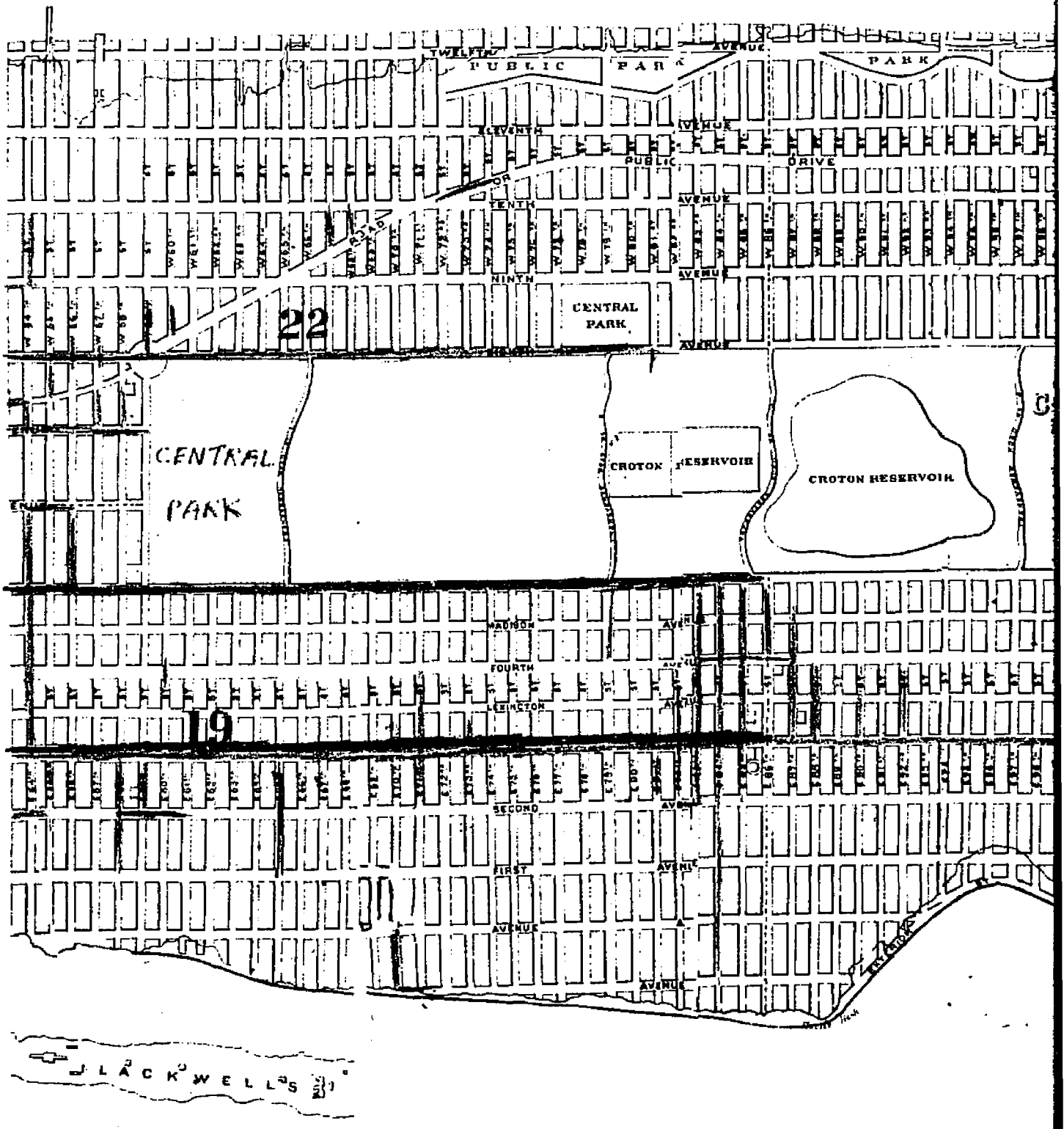


MAP 3

CROTON WATER MAINS

——— Laid Before 1852

——— 1852-1859


TWELFTH
PUBLIC
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AVENUE
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PUBLIC
DRIVE
TENTH
AVENUE
NINTH
AVENUE
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PARK
22
AVENUE
CENTRAL
PARK
CROTON RESERVOIR
CROTON RESERVOIR
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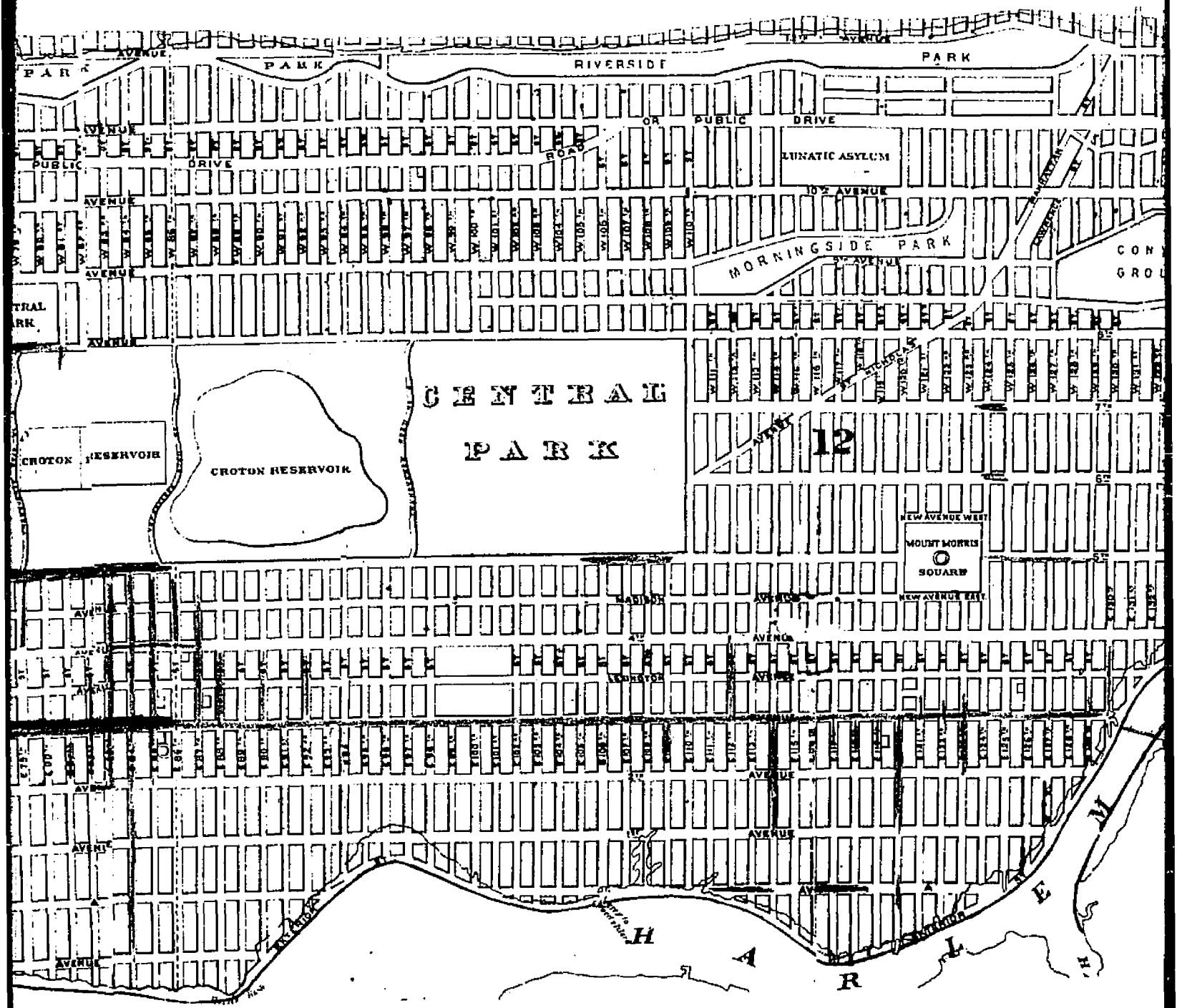
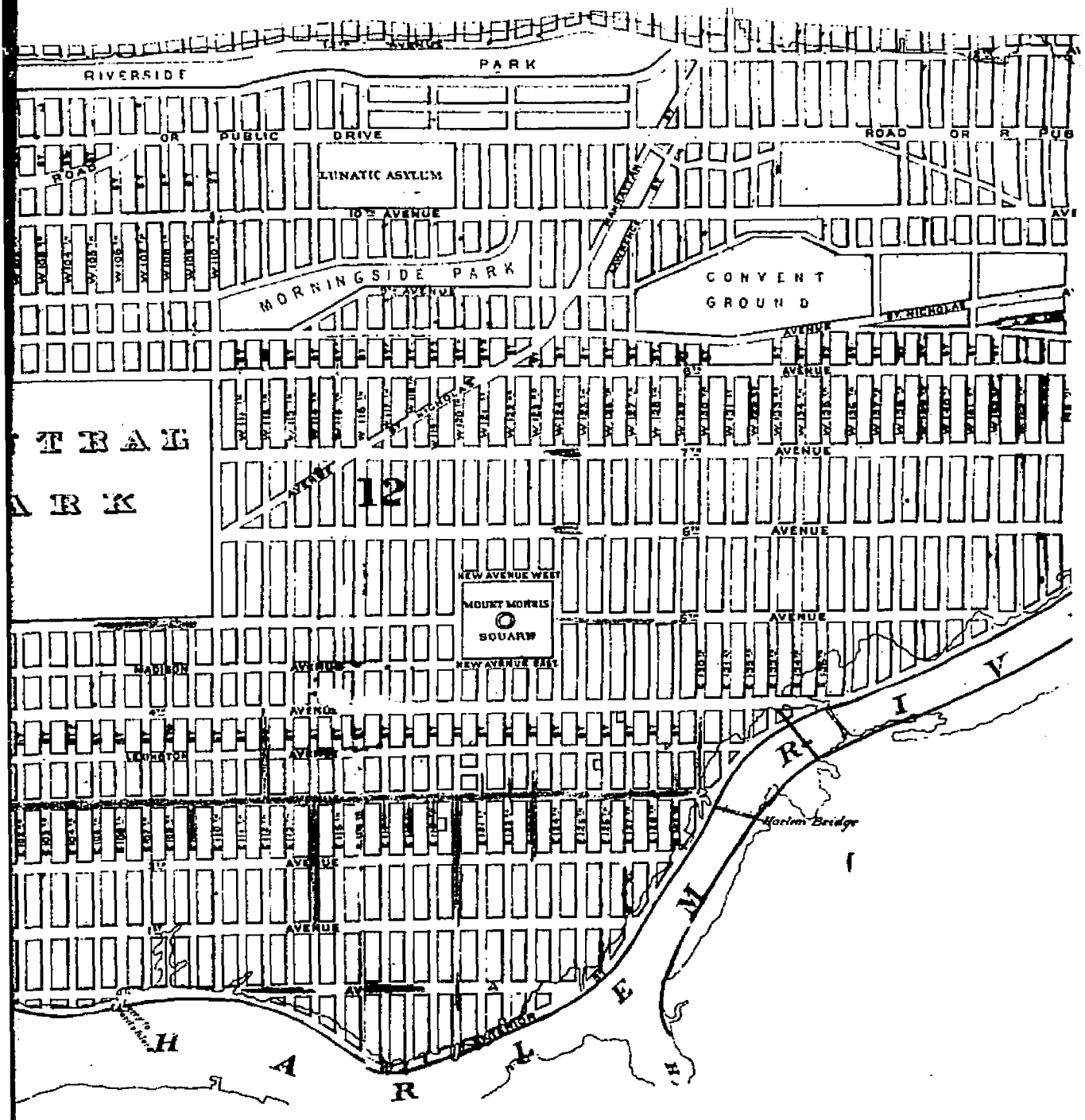

RIVERSIDE PARK
PUBLIC DRIVE
LUNATIC ASYLUM
MORNINGSIDE PARK
CENTRAL PARK
CROTON RESERVOIR
MOUNT MORRIS SQUARE
12
HARLEM


RIVERSIDE
PARK
PUBLIC
DRIVE
ROAD
LUNATIC ASYLUM
10th AVENUE
MORNINGSIDE PARK
CONVENT
GROUND
ST. NICHOLAS
AVENUE
12
MOUNT MORRIS
SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
MADISON
LEXINGTON
Harlem Bridge
HARLEM
RIVER

in a haphazard manner. Work companies, instead of concentrating labor in one neighborhood at a time, spread all around. Obviously, officials, wary of the aqueduct's rising costs, sought to make progress visible to citizens everywhere in town.

This policy resulted in pockets of installation. In 1840, for example, work crews toiled in such diverse places as Broadway, Second and Third Avenues, 2nd, 9th, Chapel, Laurens, Greenwich and Allen Streets. The map reveals numerous gaps in the network. Often mains extended only to a cluster of middle or upper-class homes. Such was the case at 38th near Second Avenue. Sometimes a road won service early while its neighbor waited twenty years. In fact, by 1851, mains extended up Seventh Avenue to 42nd, but none reached 43rd till six years later.[126] And the scene repeated itself elsewhere. But why? Was it red tape, politics, incompetent planning--who knew the reason? Every street told its own story.

Discrimination seemed everywhere. Lower wards received more pipes than upper ones, but within the uptown community itself west siders felt that eastern neighborhoods enjoyed excessive attention. Whatever, lands near the Hudson lacked enough pipeage. To alleviate the problem, engineers in 1851 laid a twenty-inch main in 38th Street from Fifth to Tenth Avenues.[127] But supply still proved inadequate. Finally, in 1855, after six months of frantic work, an Eighth Avenue line ran from the receiving to the

distributing reservoir.[128] True, most avenues had water by 1851, but the map shows connections and reservoir conduits were mostly downtown and in the minor cross streets. Mains on leading west side avenues approached 42nd, but none plugged directly into the reservoir. Thus, because of their dependence on east side networks, western neighborhoods suffered low water pressure for years.

It was crucial to residents between Third and Fifth Avenues that pipes connecting the 86th and 42nd Street storage tanks extend down one of the roads. Fifth, largely because of its central location on Manhattan's spine, won out. As a result, east side lot owners were among the first uptown to enjoy Croton water. Pressure was high and supply abundant. Then, almost immediately, engineers laid pipes along Third Avenue's entire length. Improper grading, long an obstacle for laying west side lines, hardly troubled Third; indeed, local residents would never tolerate it. No wonder by 1855, despite severe elevation problems between 62nd and 79th Streets, the whole avenue up to Harlem's edge possessed the fruits of Croton.[129]

Now with the Third Avenue main completed, accidents or repairs to Fifth's could no longer cut off water city-wide. And, as population grew, engineers hurried to add more conduits. Soon the west side gained attention. An Eighth Avenue line came in 1855, and, by 1860, authorities planned a thirty-inch tube in Ninth to be supplied at 42nd from the Eighth Avenue source.[130] But this would take time, for above 34th Street

priority would go to highly-populated neighborhoods (mostly east side) where water revenues would be substantial.

Under this policy, less-populated sections lagged behind for years. The waterfront was a case in point. Except for the choicest piers downtown, neither South nor West Street received much pipeage. But many interior roads also did without. By 1860, even Broadway mains scarcely reached 59th Street. Eventually, however, Central Park would change everything. It would catalyze land values upward and encourage a frantic building boom. Moreover, before the bust of '73 networks would traverse everywhere east of the Park. But that was yet to come.

Once the system began functioning new problems arose. Waste was a major concern. Enraged Croton officials complained that "in nearly every case in which water pipes have been laid in the suburban districts, petitions immediately follow for the erection of free hydrants."[131] Thousands sought exclusions from charges, as politicians, eager to please constituents, generously approved requests for these spouts. This ultimately led the Croton Department to insist that "any delegation of power, to the Aldermen and Assistant Aldermen, to order or locate free hydrants or pumps, would be as injurious to the public interests, as it would be troublesome and unwelcome to those gentlemen."[132]

Controversies raged on past 1900, as citizens berated the low water pressure, high interest payments on Croton stock and a dozen other things. Nevertheless, the city had triumphed over a water shortage which had threatened its health, property and prosperity. Despite staggering costs and political opposition, authorities had met the crisis directly, setting an example for other towns. Problems had been legion--contract fraud, court suits, jurisdictional disputes and pipe location, but New York overcame all. As a result, Croton Aqueduct not only rescued the metropolis from a desperate future but served as the landmark precedent for Central Park, Brooklyn Bridge and hundreds of smaller improvements.

NOTES

[1]Sidney Pomerantz, New York: an American City (Camden: P. S. King & Sons, Inc., 1938), p. 278.

[2]New York Journal, August 25, 1785 as taken from Pomerantz, p. 278.

[3]Pomerantz, p.279.

[4]Ibid., pp. 279-280.

[5]Ibid.

[6]For a brief summary of the Manhattan Company's service, see Wegmann, pp. 1-20 and Pomerantz, pp. 283-284.

[7]Blake, pp. 101-103; The Evening Post (New York), January 26, 1808.

[8]Blake, pp. 104-105.

[9]Ibid., p. 106; Stokes, V, 1505.

[10]Stokes, V, 1535.

[11]Blake,p. 106.

[12]Ibid., pp. 108-113, 123.

[13]Ibid., pp. 108-148.

[14]Ibid., pp. 111-118.

[15]Ibid., p. 123.

[16]Ibid., p. 125.

[17]Committee on Fire and Water, Report of the Board of Aldermen, Relative to Introducing into the City of New York a Supply of Pure and Wholesome Water, December 28,1831 (New York, 1831).

[18]Blake, pp. 134-135.

[19]Ibid., pp. 136-137.

[20]Ibid., pp. 138-139.

[21]Aldermen, Documents, I, #44, February 16, 1835, 323-525; Blake, pp. 139-142. For more on the "High Bridge" controversy, see Aldermen, Documents, IV, #88, April 23, 1838, 619-620.

[22]Blake, p. 112.

[23]The Commercial Advertiser (New York), March 4 and 21, 1835.

[24]Aldermen, Documents, I, #44, February 16, 1835, 395.

[25]Ibid.

[26]Greene, p. 172.

[27]The Commercial Advertiser, March 21, 1835.

[28]Ibid., Aldermen, Documents, I, #44, 524-525; Blake, pp. 121-122.

[29]J. H. Colton, A Summary Historical, Geographical and Statistical View of the City of New York... (New York: J. H. Colton & Co., 1836), p. 34.

[30]Aldermen, Documents, III, (1836), #89, 464-473.

[31]The Commercial Advertiser, March 21, 1835.

[32]Ibid; see also Blake, p. 141.

[33]Blake, p. 141.

[34]The Commercial Advertiser, March 21, 1835; Aldermen, Documents, IV, #88, April 23, 1838, 619-620.

[35]Valentine's Manual for 1851, p. 182; Disturnell, New York...in 1835, p. 107.

[36]Disturnell, p. 107.

[37]The Commercial Advertiser, May 12, 1835.

[38]Disturnell, p. 106.

[39]Ibid., p. 112.

[40]Valentine's Manual for 1851, pp. 181-183; Disturnell, p. 112.

[41]Disturnell, p. 106.

[42]The Commercial Advertiser, January 7, 1835.

[43]Disturnell, p. 14.

[44]Valentine's Manual for 1851, p. 182; Disturnell, pp. 105, 112.

[45]Valentine's Manual, p. 182; Disturnell, pp. 106-107.

[46]Disturnell, pp. 106-107, 112.

[47]The Commercial Advertiser, January 7, 1835.

[48]Disturnell, p. 14.

[49]Ibid., pp. 106-107.

[50]Aldermen, Documents, I, #44, February 16, 1835, 384-391.

[51]Ibid., p. 391.

[52]Ibid.

[53]Ibid.

[54]Ibid.

[55]Ibid., p. 385.

[56]Thorpe's Dictionary of Applied Chemistry (11 vols.; 4th ed.; London, 1962), XI, 911.

[57]Aldermen, Documents, I, 387.

[58]Thorpe's, XI, 911.

[59]Aldermen, Documents, I, 385.

[60]Ibid., p. 387.

[61]Thorpe's, XI, 907.

[62]Aldermen, Documents, I, 387.

[63]Ibid., pp. 387-388.

[64]Ibid., p. 387.

[65]Thorpe's, XI, 909.

[66]Aldermen, Documents, I, 388.

[67]Thorpe's, IV, 61.

[68]Ibid., XVIII, 418-422.

[69]Aldermen, Documents, I, 389.

[70]H. W. Dickinson, A Short History of the Steam Engine (New York, Augustus M. Kelly, 1965).

[71]Aldermen, Documents, I, 382.

[72]Blake, p. 118.

[73]Thorpe's, XI, 910.

[74]Blake, pp. 150-151.

[75]Aldermen, Documents, VI, #49, February 10, 1840, 509.

[76]Blake, pp. 150-151.

[77]Ibid., pp. 146-147.

[78]Aldermen, Documents, IV, #55, January 4, 1838, 347-349.

[79]Ibid.

[80]Ibid., V, #5, July 2, 1838, 49

[81]Ibid.

[82]See the Semi-Annual Reports of the Water Commissioners from 1849-51 for contractors in Divisions 3-5.Consult appropriate sections of Aldermen, Documents.

[83]Ibid., V, #5, 61.

[84]Neal Fitzsimons, The Reminiscences of John B. Jervis, Engineer of the Old Croton (Syracuse: Syracuse University Press, 1971), pp. 123-124.

[85]Aldermen, Documents, V, #5, 55.

[86]Ibid., IV, #14, July 3, 1837, 102.

[87]Blake, p. 149; see also the Semi-Annual Reports of the Water Commissioners for the mid-1840's.

[88]Aldermen, Documents, VI, #10, July 1, 1839, 117.

[89]Ibid., V, #25, December 31, 1838, 244-245.

[90]Ibid., IV, #88, April 23, 1838, 624.

[91]Ibid., V, #2, May 14, 1838, 27.

[92]Ibid., p. 28.

[93]Ibid., IX, #67, January 16, 1843, 632-633.

[94]Ibid., IV, #55, January 4, 1838, 429-431.

[95]Ibid., XII, #9, June 30, 1845, 95.

[96]Blake, pp. 157-159.

[97]Ibid., p. 161.

[98]Aldermen, Documents, VI, #72, May 4, 1840, 711.

[99]Blake, p. 161.

[100]Aldermen, Documents, VII, #39, January 11, 1841, 528-529.

[101]Blake, p. 163.

[102]Aldermen, Documents, VII, #59, February 15, 1841, 707.

[103]Ibid., VII, #8, June 29, 1840, 72; #59, 707.

[104]Ibid., #8, p. 71.

[105]Ibid., p. 72.

[106]Ibid., #41, January 11, 1841, p. 593.

[107]Ibid., #88, April 19, 1841, p. 912.

[108]Ibid., #41, January 11, 1841, p. 593. See also the expenditures sections of the Water Commissioners's Reports for the 1840's.

[109]Ibid., #32, December 22, 1840, p. 406.

[110]Ibid.

[111]See Ibid., VIII, #34, October 18, 1841, 226-229; XI, #18, August 22, 1844, 210. Also see the Water Commissioners's Reports for the 1840's.

[112]Compare, for instance, the contractors of 1841 with those of 1843 and later. For example, see Aldermen, Documents, VIII, #28, September 20, 1841, 203-206 and Ibid., X, Part I, #4, May 29, 1843, 55-57.

[113]Ibid., VII, #32, December 22, 1840, 413-414

[114]Ibid., X, Part I, #26, September 11, 1843, 331.

[115]Ibid., p. 332.

[116]Ibid., XXIV, #2, January 5, 1857, 17-18.

[117]Ibid., p. 18.

[118]Ibid., XIX, Part II, #47, July 19, 1852, 978.

[119]Ibid., XXII, #2, January 3, 1855, 19.

[120]New York City, Croton Aqueduct Department, Report ...for 1850, p. 10.

[121]Valentine's Manual for 1860, p. 241.

[122]Aldermen, Documents, VIII, #80, April 18, 1842, 627.

[123]Ibid., XIX, Part I. See also the annual water main location listings in the Croton Aqueduct Department sections of Valentine's Manual.

[124]Maps of the City of New York Surveyed Under Directions of Insurance Companies of Said City by William Perris (7 vols.; New York, 1852-54), VII, 88-97. Hereafter, this source will be referred to as Insurance Company Maps. Each decade into the 1890's had its own editions.

[125]Ibid., VI, passim.

[126]Aldermen, Documents, XXV, #2, January 2, 1857, 48 shows a typical year's construction in diverse locations.

[127]Ibid., XVIII, Part II, #81, December 31, 1851, 1415.

[128]*Ibid.*, XXIII, #2, January 7, 1855, 7.

[129]See Croton Aqueduct Department Reports from 1841-60 for construction data.

[130]*Ibid.*, XXIV, #2, January 5, 1857, 18, 14.

[131]Ibid., XIX, Part II, #47, July 19, 1852, 978-979.

[132]*Ibid.*, XII, #11, July 7, 1845, 122.

CHAPTER 3

CITY IMPROVEMENTS: PROCEDURES AND PROBLEMS, 1835-1860

Victory in 1783 brought peace, exultation and prosperity to Gotham. With mercantilism vanquished, New York's great destiny seemed assured. Indeed, population rose and commerce thrived throughout the post-War years. By the 1790's, new buildings and dirt roads appeared everywhere north of Park Row; Manhattan's rural frontier was in full retreat. But the boom had its drawbacks, since expansion strained services and lengthened commuting time between uptown and down. Like all cities New York was both aided and victimized by its urbanization.

As transportation became more vital, road conditions won more attention. After much debate, the Common Council, in 1798, established a Street Department, headed by two Commissioners to superintend all repairs and construction.[1] New problems, however, soon arose. Ensuing years saw politicians strain the agency by multiplying its functions, In 1799, for instance, when the state legislature empowered the Council to enact laws "for the filling up, draining and regulating of any grounds, yards or cellars within the

city that may be sunken, damp or unwholesome," the body responded by appointing several "inspectors of lots," including both Street Commissioners.[2] Within months administration merged closer and responsibility for both road building and cleaning belonged to the "Street Department."

Now the two men had to hire the sanitation force, collect all fines for litter violations and supervise the sale of dirt gathered from Gotham's thoroughfares. Matters ran smoothly as long as public works remained quiescent. But disruption came in 1802 when officials decided "to commence immediately to improve the main roads from the City by paving or as it is called turnpiking the same."[3] As duties mounted, the over-worked agency fought to rid itself of sanitation. Later in the year, councilmen finally bowed to pressure and created a Street Cleaning Department.[4]

Reform came just in time, for as New York grew after 1800, public works assumed rising importance. In fact, the 1830's and 40's saw the Street Department greatly expand its control over sewers, docks, gas and water mains. These increased activities forced several re-organizations. Therefore, as functions multiplied after 1800, administration grew more complex and sophisticated, resulting in the creation of bureaus within the agency. Each claimed its own superintendent, appointed by the council and answerable to the Street Commissioner. By 1850, a single

Commissioner presided over a large staff consisting of his Deputy, a Sale and Redemption Clerk, Copying Clerk, Inspector of Sidewalks and others.[5]

From this group, power flowed down to various offices. The Bureau of Wharves, Piers and Slips, for instance, governed the waterfront. It collected wharfages, assigned berths, issued licenses and held rights of approval, inspection and direction of all repairs and construction.[6]

The Superintendent of Pavements enforced laws concerning the regulation, digging, filling, paving and repairing of streets. In addition, he hired all Inspectors and "persons with carts and needful implements, on daily pay, to repair the pavement of streets when necessary."[7] These duties, however, related only to streets; a Superintendent of Roads cared for the Post Road, Bloomingdale and similar thoroughfares. Though one section could have easily managed all these projects, it took years for town officials to effect the merger.[8]

The Bureau of Surveying, composed in 1844 of twenty-five men (the number varied annually), aided the Assistant Commissioner in "laying out" the town's piers and thoroughfares. These employees also reported on public lots designated as building sites, and, when necessary, served as inspectors.[9]

Responsibility for maintaining public parks and squares lay with the Bureau of Lands and Places. In fact,

Surveying often teamed with the former when investigating for and reporting to the Common Council.[10]

The Assessments Division estimated awards and taxes for every street improvement in Gotham.[11] Though unpopular with the citizenry, the office, nevertheless, wielded vast power in determining how many lots and families a taxed district would encompass. Its jurisdiction, however, did not extend to recording payments. Instead, Collection of Assessments, located in still another bureau, concerned itself with the unwelcome task of door-to-door canvassing. Tensions often ran high between these agents and communities. Though normal relations between proprietors and collectors were bad enough, still larger controversies often swirled about the agency. Throughout the ante-bellum era, poor record-keeping plagued the operation. As a result, many lot owners never received levy notices, while others saw their payments lost. Such blunders cost the erroneous sale of numerous tracts for non-payment of assessments.[12] Indeed, Collections was too often the government's worst headache.

Atop this bureaucratic pyramid sat the beleaguered Street Commissioner. His high salary ($2,500 per year in 1844) hardly compensated for the problems.[13] Gradually, as his power grew, more groups tugged at his coattails, courting support for pet projects. Unfortunately, turnover of top and lower personnel was high. From 1835-1870, few Commissioners served longer than three years and this

inevitably bred discontinuity, instability and scandal.[14]

Pressure built up throughout the era, as City Hall increasingly centralized public works in the Street Department. In 1851, the Common Council consolidated gas and lamps, public markets and sanitation into one unit. Six years later, officials split the agency into two bureaus and deposited both into Streets.[15] Soon after, another unwilling guest arrived, the Fire Department. Authorities then tried to offset the latter absurdity by giving the Pavements Bureau to Croton officials. These men, however, traditionally responsible for water mains and (after 1849) sewers, seethed with anger and began a decade-long struggle to shift Pavements back to Streets.[16] Such antics invariably disturbed government. Indeed, administration remained confused until 1870 when William "Boss" Tweed finally transferred all these functions to his Public Works Department.

As road projects mushroomed after 1830, authorities faced the knotty problem of establishing, and sometimes violating precedents. For, the institutionalization of public works demanded uniform procedures. But this raised many questions. What criteria would proposed changes have to meet for city approval? Would there be standardized assessment laws? Would safeguards protect contract-letting

from scandal and monopoly?

Street openings were always controversial, because residents of neighboring routes usually objected. Sometimes even lot owners of the chosen thoroughfare raised opposition for fear of losing property or suffering unwanted assessments. Politicians, therefore, treaded carefully through the welter of intra-neighborhood conflicts, since any alteration involved thousands of dollars and votes. Authorities usually delayed street openings, extensions or new sewers until a siege of petitions justified action. But then, once buoyed by strong public support, the aldermanic Street Committee embraced any scheme no matter the size. In 1835, for example, after numerous complaints about un-opened roads north of 14th Street, the body recommended opening all thoroughfares south of 42nd.[17]

Since any alteration of the town's official map[18] involved state approval and other legal delays, City Hall sometimes resorted to a single, large-scale "opening." Once approved, such an action immediately aided lot owners. Thus, in 1835, a sypathetic Street Committee supported land holders below 42nd Street, "many of whom are anxious to erect buildings, but are at present prevented from doing so, from this inability to obtain access to their property, ...in consequence of the streets, on which their lots are bounded, not being open."[19]

Many concerns swayed the Committee, not the least

of which was real estate. Promoters undoubtedly influenced the epic decision of 1835, but so did the plight of Gotham's workers. Indeed, the Committee argued, the rising value of downtown lots have forced "persons of lesser means, to turn their attention to situations somewhat more removed from the denser parts of the city, where lots can be purchased at such moderate prices as come within their means."[20] Therefore, members asserted, ignoring petitions favorable to the opening meant "a very large proportion of these classes in society whose means of subsistence arise from their daily labor, will be compelled to locate themselves on the opposite shores of our rivers, instead of...our immediate suburbs."[21] More than once, the specter of a mass, suburban exodus stirred politicians to action.

Large-scale land developers figured very little in the 42nd Street move. In fact, records substantiate the Committee's contention that affected grounds "are at present held mostly in small parcels of a few lots, by a great variety of persons."[22] Despite the presence of some wealthy speculators, most land ownership remained diffused until the approval of Central Park. Sometimes, however, powerful real estate investors influenced the Street Committee. For months they would peck away at reluctant politicians. Celebrated names did wonders for proselytizing aldermen. No doubt the petitions of Samuel B. Ruggles in 1832 to open large portions of 24th and 27th

Streets aided the "mass opening" three years later.[23]

Decisions on such cases were crucial, because they involved large sums of money. In 1845, for example, the cost of building Madison Square approached $75,000.[24] Nevertheless, officials, once committed to a project, rarely bowed to pressure over mounting expenses. By the 1840's, leaders realized that all Manhattan Island would soon have to be cleared and readied for occupancy. Gradually, aldermen began asserting the policy that "beyond all question [it was] the duty of public authorities to provide all such resonable facilities to the citizens, as will enable them to have access to, and possession of their property."[25]

Openings inspired great controversy, often dividing the Street Committees of the Common Council's two houses. Throughout the century, angry groups of rival lot owners disrupted public hearings. The battle in 1838 to extend Centre Street from Broome to Houston was typical. All of Centre's petitioners favored the extension. But Bowery residents and others in the assessed district split on both sides of the question. Proponents of the plan searched for every argument: existing lots cut by the new route had slight value which guaranteed lower assessments; the new artery would "afford a convenient channel of communication" on the east side north of Houston Street; the area's stagnating property would be "brought into value and usefulness, and the moral character of its population

necessarily elevated."[26]

Despite these advantages, aldermen balked; 1837 was no year for ambitious projects. In fact, the current Panic had caused a "ruinous...revulsion in the value of real estate, making those, who but two years since considered themselves rich, poor." Moreover, opponents argued, "a large number of those who are bound to pay the assessments made for the...extension of Centre Street, are very poor persons, who hold short leases, and who would find it difficult at any time to raise the money."[27]

Improvements never lacked enemies. At times, a powerful corporation might rise in opposition. Indeed, each case re-defined the boundaries between public and private interests. A major test occurred in 1835, when the Screw Dock Company, a ship-hoisting outfit, resisted the "making" of South Street from Rutgers to Market Slip, because it would leave no more piers for East River steamboats.[28] Residents, on the other hand, felt the existing bulkhead presented great danger, since it ended abruptly at Screw Slip only to resume several hundred feet later. As a result, they claimed, "instances have frequently occurred, of persons being found in the slip drowned."[29]

South Street's merchants and shop owners also demanded the improvement, contending it would stimulate local business. They argued that even the "convenience

and efficiency" of the nearby iron mill would be "very much increased and promoted."[30] Matters grew sordid, as the firm, claiming to use the slip for landing steamship cargo, enlisted its workers as separate petitioners opposing the project. Lot owners angrily responded, charging the outfit with fraud--it merely hoisted and repaired vessels and never landed cargo. The issue was clear: was South Street to be a sludgy backwater or commercial entrepôt?

The Joint Committee on Wharves, Piers and Slips debated the question for years before deciding against the company. Nevertheless, in this case as others, the body showed concern for the real estate composition of the rival forces:

> In examining the petitions of those who are in favor of continuing South Street, your Committee discovered the names of persons who are owners of real estate in the 7th Ward, amounting to upward of three and one half millions of dollars and lessees to at least one hundred and fifty thousand dollars, and in examining the remonstrance against the improvement, it appears that owners and lessees of real estate...,amounting to about four hundred thousand dollars, are opposed to the measure.[31]

In the 1835 debate, Francis Fickett, Gideon Ostrander (each sizable land owners in Manhattan) and the rest of the Committee favored the extension. And, in wording its decision the group re-asserted an old principle: Screw Dock, though a "chartered incorporation," would be treated as an individual, "and the same principle is to be applied...as would be to individuals viz: that whenever the public good requires, private interest must yield."[32]

Time after time, corporate interests challenged those of residents. These clashes invariably mired the government in controversy. At stake was the perennial issue of which side the city should back, or worse did the Public Good demand still a third position? To complicate matters, every case was different. In 1853, the Street Committee over-ruled Trinity Church which opposed the extension of Albany Street from Greenwich through Trinity Place to Broadway. The elders, desperate to preserve parish real estate intact, protested that the ground was an ancient cemetery, housing the bodies of Revolutionary War veterans. To buttress their claim, they quickly erected a costly monument to the heroes. But aldermen dismissed the ploy and charged that "the mere idea that this ground in past ages was used as a burying place, is no longer relied on as sufficient objection, especially after Grace Church and numerous others have wisely removed the human remains" to approved burial grounds.[33] The aldermen had voted for progress. Albany Street demanded extension "or a large and growingly important section, in the very heart of commerce must be permanently excluded from its natural and just share in the commerce of the city."[34] In the end, councilmen, committed to furthering local growth, approved the project.

Street extensions were particularly troublesome, because they frequently pitted one group of residents and

businessmen against another. In favoring one artery with a straightening and extension, the city invariably harmed neighboring thoroughfares, since commerce chose the best road.

The proposed lengthening of Chambers Street in 1856 was a typical case. Though all petitioners favored the change, trouble arose over the route. Matters became so tangled that even the usually harmonious Street Committee divided, producing majority and minority reports. The former championed James Slip, it "being the more direct course of the two, a wide and unencumbered slip, a shorter route." Catharine Slip supporters faced the task of combating claims that their terminus would deprive Chambers of "direct thoroughfare" status--a perilous charge in a city tormented with crooked streets. In countering, proponents advocated Catharine "so as not only to secure to the Fourth Ward...but also to allow the Seventh Ward to participate in, and enjoy a portion of the benefits likely to flow from the extension of this street."[35] In addition, Catharine had the ferry to Brooklyn. Nor did the greater expense of the latter terminus deter her proponents; for, as Alderman John Briggs put it" the improvement "in all probability, is to last for centuries; and why, then, should the expense of a few hundreds or even thousands of dollars, present an obstacle?"[36] Nevertheless, a parsimonious City Council finally picked James Slip.

Street improvement plans abounded in nineteenth-

century Gotham, but City Hall was no rubber-stamp for visionaries. In 1854, for example, authorities balked at extending and widening Duane from Broadway to East River, because the road "would not be straight but tortuous, one of the chief objections to the manner in which the streets of the lower section of the island are laid out."[37] The proposed route also suffered from severe grade disruptions, causing the project's opponents, quick to embrace any defect, to charge that levels "would be heavy and difficult at the very section of the proposed opening, where ease and lightness of grade is most essential, viz: where there is heavy commercial travel."[38] Indeed, slanting was crucial to sewerage and drainage. For, if officials altered densely-populated Duane Street, they would have to re-grade every thoroughfare in the neighborhood to prevent flooding. Still another consideration required attention. Most property owners in the district already faced assessments for the extension of Bowery to Franklin Square and Chambers to James Slip. A third lien would no doubt kill property values and this violated city policy. Hence the Duane Street plan was short-lived.[39]

At times, the Street Committee used its veto to help lot owners. In 1837, petitioners in the "southwest part of the Sixteenth Ward" demanded the paving of 21st Street from Eighth Avenue to Bloomingdale Road, contending that pedestrians had "experienced difficulty in getting... through the mud."[40] But residents along the thoroughfare

opposed the plan, claiming they could not "build on their lots to advantage, until the sewer [was] built...to drain their cellars."[41] More than once in New York the question of whether to pave before sewering engendered public uproar. In the case of 21st, the aldermen, mindful of excessive assessments, ruled it "expedient" for surfacing to await the arrival of conduits.[42]

Like pavings and openings, road closings were also important. Officials, however, used the latter device to combat a different set of circumstances. Specifically, changing business and real estate patterns often turned once prosperous streets into backwaters. Once this occurred, land values could only be salvaged by merging archaic lanes with back lots to enlarge those plots fronting major thoroughfares. The greater area could then be used for stores, warehouses or office buildings. But it was crucial that the Street Committee act precisely when real estate conditions demanded the change. Moving either too early or too late might disrupt local development for years. Thus, in 1837, the Committee on Finance agreed to sell "that part of Cross Street lately closed" between Chambers and Reade to the local property owners so they could enlarge their lots. Such actions usually benefited both residents who augmented their holdings and the city, which by charging a "fair price" for the road, enriched (here by $38,500) its coffers.[43]

But again, the body judged each case on its merits

and, as a result, vetoed many closings. In 1836, it refused to close Cuyler's Alley, because " a great majority of owners adjoining said alley, are opposed to closing the same." The rule was simple: whether the petitioners be a majority of the neighborhood or a handful of scheming speculators, a route would be abolished only if it served the "public good." [44]

Often the Committee assumed the role of Solomon in adjudicating disputes among rival property groups. The proposed closing of Art Street in 1835 triggered a bitter confrontation. Advocates of the action felt the opening of 8th made Art useless. They further charged the "diagonal direction destroys the regularity of lots, prevents their being improved, and impairs their value and generally that it would add much to the beauty of the circumadjacent property if the street were closed."[45]

The proposal seemed reasonable, but Committee members, veterans of past warfare among land holders, recognized an old ploy: "None of the [petition] signers is the owner of any property on [Art] Street,...although many of them are proprietors of houses and lots on other streets in the vicinity."[46] Furthermore, those signess who favored retaining the road were "all of the owners or lessees of the lots fronting on the street to be closed, and which would be deprived of their fronts"--if the project occurred.[47] The Committee immediately switched from broker to protector. The aldermen, disdainful of the "ganging up"

tactics employed by Art Street's opponents, rejected the plan. And, to prevent further tensions and a court appeal, the body utilized its classic excuse for side-stepping future controversy. "Although it is not to be denied," members argued, "that the closing of the street might perhaps add to the beauty of a most respectable part of the city, still it is beleived (sic) to be a question strictly local, and which interests immediately only a few proprietors who are in its immediate vicinity."[48] This reasoning, a near kin to that of the Maysville Road veto, provided politicians with quick escapes in dozens of similar cases.

New street grades frequently brought more trouble than openings or closings. As stated, alterations in road height usually affected rainwater flow, sewer elevations and ground floor heights of buildings. Changes in level, therefore, entailed added expense for every lot owner in the affected and nearby arteries. Worse still, assessments might envelop the whole neighborhood. Hence there were always petitions opposing these actions. Such costly public works required sober judgment by the Street Committee; any decision needed proper timing and sufficient rationale.

Unfortunately, bitter conflicts dominated many grade changes. As a result, badly-needed alterations faced years of postponement, since high assessments bred fear in aldermen up for re-election. Nonetheless, sloppy

planning by authorities in the 1820's, 30's and 40's forced numerous grade changes anyway. In fact, it was not unusual for levels to be altered three or four times in a decade. In 1838, for instance, Second Avenue between 19th and 25th Streets required elevation because of flooding. When originally regulating the road, officials had decided against sewering it, but subsequent height changes on nearby thoroughfares had altered local draining, saturating most lots with water.[49]

By 1851, similar miscues induced the Committee on Ordinances to propose that once the Common Council "established the grade of any street or avenue, an alteration of such grade ought not to be made without the cocurrence of at least two-thirds of the proprietors of the lots fronting on the street...to be re-graded."[50] In addition, the body urged, lot owners "have a right to assume that such action is final [because] they...incur... very great expense in conforming their property to the grade so established."[51]

Often, changing the level of a street required designing "convenient slopes" in all nearby roads, since increased property values could not be realized "unless graduations of the new surfaces are so arranged as to be at all times easily accessible, experience having fully shown, that steep ascents are not compatible with the transaction of heavy mercantile business."[52]

Officials altered grades whenever public health

was at stake. In 1836, citizens eager for dry cellars memorialized for the graduation of Gold, Ferry and Spruce Streets. All but the residents of Ferry approved. The aldermen finally brushed aside opposition to the project, contending that "a proper regard for the health as well as convenience of the neighborhood require it."[53] But such changes frequently were unnecessary. Too often, authorities followed the whims of surveyors, altered grades and forced harried lot owners, once again, to raise or lower their buildings.

Sometimes, however, proprietors exceeded surveyors in their zeal for improvements. In fact, lower Manhattan residents constantly implored the City Council to straighten and widen roads. For decades, the colonial hodge-podge of crooked thoroughfares south of Grand had retarded growth. Commerce demanded broad arteries. The aldermen usually obliged the will of inhabitants. In 1835, for instance, the Committee debated several projects: the widening of Stone from William to Broad won approval, while its widening from Broad to Whitehall, opposed by a majority of lot owners, suffered rejection.[54]

On occasion, the Committee combined alterations. Thus, members, admitting that John Street "in its present situation is narrow, crooked, and not at all in its dimensions adapted to its [populous] locality," voted to straighten and widen the road. And, noting "the very steep and dangerous proclivity [at its south end] from Cliff to

Pearl Streets," the board also agreed to fix the grade.[55] Consolidating improvements always reduced assessments and minimized commercial disruptions. More than once the government widened, straightened, regulated, sewered and paved a road in one action.

The city, however, though usually cooperative, was always on guard. Sometimes, for example, lot owners used one improvement as leverage for gaining another. In 1849, John Street residents returned again to the Street Committee and urged the widening of nearby Dey. After listening to the petitioners, The Committee reported that the former "have paid large assessments for widening John..., which has been valueless to them and will remain so until Dye (sic)... is widened."[56] In this case, aldermen approved the plan, reasoning that since "there are now being erected a large number of commodious stores" in nearby Courtlandt, a broader Dey could "relieve congestion" and thus ensure the growth of business.[57]

The Street Committee rarely opposed projects benefiting commerce. In 1853, for instance, the body approved the widening of Duane from Broadway to Houston. In its report, the group concluded that since the route was "one of the most important points for the receipt and shipment of produce and merchandize in the city,...the property on the line of this street is now required for commercial purposes."[58] Enlarge Duane, the Committee assured the Board

of Aldermen, and "warehouses of the first class will be immediately erected therein, and a large business established--greatly enhancing the value of property."[59] Real estate considerations never eluded the Street Committee.

Some of Manhattan's leading thoroughfares were embarrassingly narrow. Wall Street, for example, constricted from a width of seventy-four feet at William to only thirty-four at Pearl.[60] By 1834, commercial growth dictated tearing down all dwellings on Wall and replacing them with more profitable office buildings. Lot owners soon began removing their structures while petitioning for wider roads. Here, as in other cases, residents eager for the movement freely donated their lot fronts for the action. Hence by not claiming awards, these entrepreneurs lowered assessments, almost guaranteeing public approval of the project.[61] And City Hall was usually quick to endorse such schemes, for only in the wake of fire or mass change of land use could a downtown street be enlarged or straightened.

Nevertheless, even proponents of change might clash over particulars. Aldermen and lot owners favorable to a widening argued over distance. In 1836, the Street Committee, recognizing that Cherry from Franklin Square to Catharine "is calculated to be a leading street or avenue from Corlears Hook to the...business part of the city," agreed to augment the road, but not by sixty feet as demanded by petitioners. A sixty-foot path, the Committee

argued, "would take so much from the fronts of [Cherry] Street lots, [which are now shallow] as to render the remaining valueless for building purposes."[62] Compromise ruled, as officials ordered a fifty-foot route.

Authorities had to be wary of all proposals, since lot owners often used devious tactics to gain improvements at their neighbors's expense. The Pine Street case illustrates this. Here, landholders fronting the thoroughfare offered to move their buildings back to permit widening. But once work began, they demanded awards for property loss. In the absence of signed releases, the city had to assess the neighborhood to pay original petitioners. Fortunately, by 1838, a shrewder Street Committee had tightened its procedures to prevent future repetitions.[63]

As a rule, the body approved all widenings except when they proved a handicap. Thus, in 1836, members rejected a memorial to "cut off" a gore of land in Wall Street to straighten Pearl. The plot, owned by the absentee Graham family, now had a triangular shape after three previous alterations (and assessments) that year. Aldermen opposed a fourth change, because it "would injure the lot in question to an unwarranted extent."[64] Protection of owners remained a prime concern. Barring occasional aberrations, the Street Committee always vetoed any openings, closings, widenings, regulatings or pavings detrimental to property. Only projects of over-riding public need

warranted exceptions.

Assessments were a frequent source of friction between government and people. Once the city endorsed an improvement, the billing process began. Upon their appointment, estimators began calculating amounts due those losing property to the enterprise. These expenses and others, when added to the contractor's bid, constituted the charge. Assessors then determined the affected district's size by deciding which landholders would benefit from the project. Then appraisers held public meetings to hear objections before submitting their report to the state Supreme Court for official confirmation.

Once approved, the job required the Common Council to appoint a "Collector" and three deputies (the number might vary). As work progressed, residents usually paid assessments (plus 7 per cent interest) in weekly installments beginning thirty days after confirmation.[65] The canvassers kept records, deposited revenues with the City Chamberlain and provided a weekly accounting to both the Street Committee and Comptroller. The Street Department kept all records. After a short period, authorities notified delinquents to pay or else suffer the auctioning of their property. In theory, long delays could not be tolerated, since the town had to reimburse contractors.[66] Nevertheless, postponements often occurred.

Various rules governed the process. By law, no lot owner could be charged more than 50 per cent of his property's value.[67] Thus, expensive construction forced officials to bill wider districts. Sewers, for instance, usually required assessed areas to include "all land over which all the water courses extend, that empty into the sewers comprising some ten thousand lots of ground."[68] Whenever collections fell short of expenses, the City assumed the difference. In addition, government itself contributed for improvements considered beneficial to the town as a whole. This was, of course, a matter of judgment, and altercations flared constantly as lot owners attributed city-wide benefits to the most localized projects. Imprecise laws created perennial turmoil as residents tried throwing all levies upon the public's shoulder.

For example, in the case of pavings, under existing ordinances, "a part of the expense [was] generally assumed by the city, and the remainder assessed upon the property benefited." But again, there was "no uniformity" in determining what part of the bill New York would absorb,[69] for the issue of cost was always troublesome. Many lot owners, though eager for improvements, were slow to meet obligations. In 1837, Mayor Aaron Clark estimated only half of the $366,219 in due charges could be expected.[70] Over the years, numerous cases arose where landholders attempted to defraud the town. In 1837, residents in 20th Street between Eighth Avenue and Hudson River petitioned for a sewer

"to relieve their cellars from the water then in them."[71] Authorities built the structure, and after adopting an assessment, decided to extend the conduit to Sixth Avenue. The original petitioners lauded the action, but requested a new pay schedule to include all residents from Sixth Avenue to the river. The Street Department agreed; but once contractors completed the project, no one paid their bill.

Eighth Avenue lot owners declared the extension "was not required for their property." Moreover, they now stated that 20th never needed a sewer; "though there was water in their...cellars for a short time,...it was occasioned by the wet character of the ground, east of Seventh Avenue." Therefore, inhabitants west of Eighth Avenue now proposed that those east of the road bear all costs.[72] But citizens east of Eighth also refused, claiming "their ground was dry and sandy, and that the sewer was a detriment rather than beneficial to them."[73] Still others displayed a willingness to cooperate only if "the property in 21st, 18th and 19th street should be assessed." The General Theological Seminary of the Protestant Episcopal Church occupied the wet acreage between Ninth and Tenth Avenues on 20th. But elders also declined payment, because their grounds were "consecrated to [religious training] ...,and cannot otherwise be appropriated without incurring a forfeiture." Doubtless, they felt, the powers of heaven supported their position.[74]

In 1835, a lessee in 19th Street and Second Avenue benefited by a sewer spurned collectors, because the city refused to tax his landlord, too. Later, however, aldermen ruled the conduit a "permanent advantage" to the property and ordered the tenant "bound by his lease to pay all taxes and assessments." Street openings and widenings might require splitting costs, the Committee reasoned, but with sewers, "the trouble and expence (sic) of making such assessments, would be increased by adopting the practice of apportioning the amounts between landlords and tenants."[75] In this case, efficiency outweighed justice.

In 1843, a heated battle erupted over the Chapel Street waste tunnel. Seven years earlier, officials had elevated Chapel from Reade to Canal and replaced the old pipe with a new one. Residents, however, claimed the recent model caused flooding in their previously dry cellars. They felt the municipality had built the structure "at an elevation considerably above that of the cellars of their houses." Enraged aldermen responded by calling witnesses who testified seeing flooded basements long before 1836.[76] Nevertheless, adamant proprietors still refused payment for years more.

Contractors frequently became a party to these quarrels. In 1858, two citizens spurned collectors, because the city chose the second-lowest bidder--the lowest being deemed "not a proper security." The assesses conveniently waited until the project's end before raising objections.[77]

A donnybrook erupted in 1837 when authorities, after widening part of Chapel, decided to sewer and elevate it as well. This delayed the work's completion one year past the stipulated deadline. Eager lot owners jumped upon this supposed loophole and declared the levy invalid. They also charged the builder with using "inferior earth" when raising the grade. But Alderman David Banks countered "that earth of an improper character was frequently placed in the street, during the night by cartmen unknown." To escape a bill some Manhattanites would resort to anything, even the sabotaging of a contractor.[78]

Another tactic involved land holders accusing builders of fraud. In 1855, for instance, James B. Brady was low bidder for grading 83rd Street between Avenue A and Third. Though the public surveyor had failed to report how much rock would be excavated, competitors had included this expense in their estimates. But Brady merely assigned a cost plus $25 per square yard of stone blasted. Obviously, this clause was deceitful, since 80¢ to $2 per square yard was the average price. This time watchful citizens had smoked out a scandal.[79]

Sometimes supporters of rival arteries would threaten taxation to further their ends. In 1848, the Street Committee again reported on the perennial problem of relieving Broadway.[80] Proponents recommended widening one parallel road to create a new business thoroughfare. Church Street won out, though a number of residents

opposed the expense. Promoters of nearby Laurens immediately offered help by suggesting the project be moved to West Broadway where they and other lot owners would gladly finance it. Amused by the ploy, Committee members remarked that

> the printed materials, signed by the residents of Laurens Street, indicate much sympathy for the poor occupants of Church Street, they say "It is to be feared that it [the Church Street widening] would involve many of the inhabitants in bankruptcy and want who have their all invested in a tenement to shelter their family.[81]

No amount was too burdensome for the generous Laurens group who continued imploring politicians to switch the widening to their neighborhood. Indeed, the aldermen observed sarcastically: "This is certainly most unexampled benevolence, to offer to ward off threatened calamity from their friends by offering to bring it upon themselves."[82]

When appropriate, however, the city could be altruistic. During the Panic of 1837, for example, with income falling and unemployment up, the town suspended some public works and briefly halted property auctions for assessment defaults. Builders, of course, balked at helping beleaguered lot owners. But, as prices fell, authorities reasoned that "a contract made to pay a dollar three years ago...is essentially unjust, so far as the debtor is concerned, as he is compelled to pay his debt in a currency that is nearly twice as valuable."[83] Nonetheless, holding up collections was a practice used sparingly in later years.

Government disliked cancelling payments, since it

postponed contracts, hurt construction workers and injured numerous businessmen who expected and planned for improvements. Usually, those shopkeepers, anticipating a widening or straightening of their thoroughfare, would erect a new store, expand facilities or build up inventories. Sudden termination of work always meant costly delays if not disaster. And worse, it invariably strained relations with builders.

The city, however, was no monolithic power. The Assessment Commissioners themselves, appointed by the State Supreme Court, brooked little opposition. A typical struggle erupted in 1838 over widening Anthony Street. Residents who lost property complained of puny awards, while those taxed deemed them exorbitant. The Street Committee investigated and agreed amounts were unjust. Nevertheless, the stubborn Commissioners claimed they were "independent of the Corporation" and issued their report anyway. Judges ultimately ordered a reinvestigation, but city authorities surely regretted the straining of relations.[84]

The assessment process victimized lot owners most of all. Many, often unnotified of improvements and levies, found their property sold at auction. Absentee landholders were frequent prey. Deficient recording procedures usually led to embarrassing mistakes. In fact, the government admitted in 1839 that "cases have arisen in which property, whose assessment had been paid, has been sold for the same," because collectors failed to note payments.[85]

Disenchantment eventually forced citizens to organize the Anti-Assessment Committee. In 1841, its organ, The New York Municipal Gazette, asserted that "nine-tenths of this community...are wholly opposed to the present system of making improvements, and to the enormous and most glaring abuses which have been practised (sic) in these proceedings."[86] Despite much lobbying, however, reform lagged. Indeed, the 1840's, saw injustices multiply with public works. For example, one Avenue C lot owner, unaware of a levy, sold his land to a second party and months later discovered a third man building on it--the city had issued the latter a thirty-five year lease and voided the original sale owing to non-payment of assessments.[87] And, the Gazette charged, "hundreds and hundreds of cases of the same descriptions have occurred."[88]

The journal exposed numerous improprieties. Sometimes owners suffered when a coterie of speculators tricked the Street Committee into approving a project. In one instance, only two of eighteen persons who signed a petition to regulate Ninth Avenue from 45th to Bloomingdale Road were lot owners.[89] Speculators had promoted the enterprise, but residents paid the cost. In another case, only two of eleven remonstrants favoring a Second Avenue sewer lived on the street; most inhabitants heard of the $70,000 plan only after the bid-letting.[90] But, by then, it was too late.

Occasionally, city politicians colluded with contractors and/or non-resident petitioners. In 1844,

the Anti-Assessment Committee condemned "the abuses which have been practised by public officers...under both parties."[91] As the 1840's wore on, lot owners gradually united. On February 24, 1844, tax payers of the Twelfth Ward held a "large and very respectable meeting" to discuss the problem.[92] It seemed to them that municipal government was failing.

Performance was the key issue. Landholders complained that many improvements, though paid for, never appeared. In 1838, for instance, the city collected assessments for the construction of Manhattan Square. But, forty years later, it had yet to be built. The town, however, had never returned any payments. According to former Mayor Fernando Wood, the money was "forcibly stolen... [and] restitution was never made."[93] Similar cases abounded throughout the 1830's and 40's, prompting reformers to charge that "nine-tenths of the streets and avenues for which assessments have been made and collected, [and] are yet collecting, remain in the same plight and condition as before the assessments were made."[94] Not only were projects unfinished, but some officials lost or stole tax moneys. A typical case arose in 1854, when former Collector George C. Campbell aroused suspicion for failing to record payments for 264 parcels of land.[95] And similar episodes brought renewed cries for change. Unfortunately, these crimes often went undiscovered or unprosecuted.

As early as the 1830's and 40's, mounting pressure

had pushed aldermen toward reform. Politicians groped for panaceas. In 1838, the Finance Committe proposed creating a register's office, where property owners could check liens against them.[96] Unfortunately, the agency never came about, but a new 1844 law required the Street Committee to draw and keep a map numbering every block and lot. With every parcel of land coded, levies could be more "strictly recorded."[97]

Officials struggled with advertising problems as well. The government previously had scattered assessment notices in various newspapers, thus compelling lot owners to read every daily.[98] This practice, however, only helped speculators slip projects by the Street Committee without resident opposition. Sometimes announcements never appeared at all; more often "some of the papers [gave] the notices but one or two insertions, and sometimes entirely omitting them; the sum allowed by the city being deemed by them inadequate compensation."[99]

For years aldermen played with the law. For a while, ten papers published all assessments for ten days. Later, however, as costs rose, the city designated two "official" organs. But usually one was a party sheet and this set off additional rancor. Thus, lacking a solution, the controversy raged on until the founding of the City Record in 1873. As a result of these and other deficiencies, mal-administration flourished throughout the century.[100]

Incompetence and fraud chronically plagued the Street Department. By 1855, Comptroller Azariah Flagg found the treasury almost empty. With public works mushrooming in the 1850's, New York had passed a new law which advanced to contractors a monthly sum "equal to seventy per cent of the amount of work which the Street Commissioner testifies to have been done."[101] Although this ordinance, applying to agreements over $10,000, saved builders from payment delays, it quickly denuded town revenues. Flagg offered a graphic explanation.Under this law, he reasoned, the government would have to advance $271,000 to those grading parts of Second Avenue, then "wait probably two years before anything would be collected [since assessments rarely began promptly], and then wait three or four years longer before it [the city] would realize that portion of the assessment to be collected."[102] Multiply this many times over and bankruptcy would ensue.

Though ill-advised policies sometimes governed public works, scandal too played a role. Usually, fraud (not involving assessments) thrived because of loose administration by municipal agencies. At times, the Street Department was a den of corruption. Comptroller Flagg reported the incredible case of one Street Commissioner who, in 1849, awarded John Quinn the regulation and grading of 53rd Street "without advertising for sealed bids."[103] The official, Flagg claimed, had "utterly disregarded" a city charter provision requiring that paving and regulating "shall be by contract, found on sealed bids, made in compliance with public notice for the full period of

ten days, and...given to the lowest bidder with adequate security."[104] In a further violation, none of the bids had been opened in the presence of the Comptroller. Even worse, Quinn performed no work for five years, yet still the Commissioner failed to act. Instead, he entered the agreement in Department records at double and quadruple the original prices, but wisely omitted his signature.[105]

In 1840, the aldermanic Finance Committee reported the former Assistant Commissioner, Jacob S. Warner, over $7,000 short in his accounts.[106] The agency had entrusted Warner with collecting street vault construction fees. The Comptroller and Street Commissioner, after first supporting Warner's integrity, decided to audit his books when charges arose that he lived "at an expense greatly exceeding his salary."[107] Evidence showed that he had consistently short-changed the treasury. Moreover, he deposited no funds at all for 1839.[108] Warner subsequently issued a check covering most of his 1839 debit, but his sureties reneged on the rest, claiming the city had failed to renew their $5,000 security after his appointment. In the end, the town found itself stuck for the difference.[109]

Reform came in 1859 when the new Street Commissioner, George W. Smith, urged "prompt action...to relieve the Department from the great embarrassment caused by the irregular, illegal and sometimes fraudulent manner in which the business has heretofore been transacted."[110] Smith, in a lengthy report, charged that appointments of public works inspectors had been "very liberally dispensed."[111] He also felt city ordinances

had not been "full and explicit." The Council had not given his Department "sufficient authority for the full accomplishment of...intended improvement[s]." While stymied by imprecisely worded contracts, the agency could not strictly enforce blueprint specifications.[112] Smith outlined other problems as well. He lamented the confusion occasioned by court decisions voiding agreements because final costs far exceeded winning bids. And he castigated his office's practice of permitting builders to revise rock excavation estimates so that, by project's end, the lowest bidder surpassed the highest.[113]

Smith documented numerous other "frauds and irregularities" in his report. Together, they form an accurate montage of the inefficiency and chicanery surrounding public works. A typical case occurred in 1852, when the city awarded Henry Concklin a $27,000 pact to enlarge the Battery with land fill and retaining walls. By 1858, with the completion deadline already two years past and expenses over $52,000, the mayor finally asked councilmen to suspend work.[114]

Other abuses, too, filled Smith's report. After two years, Oscar Taylor had performed $27,000 worth of regulating, curbing and guttering in 57th Street from Eighth to Eleventh Avenues. Suddenly, in 1858, the City Council reversed its original decision and declared another the lowest bidder. After much confusion, officials advertised for new offers. Taylor, no doubt the victim of political in-fighting, found his mandate voided.[115] This, however, was not unusual. In fact, the Street Department periodically re-assigned contracts after

work completion. Moreover, there were probably instances when un-authorized builders began an improvement in hopes of pressuring authorities into giving them a deal.[116]

Terence Farley, long a friend of Tammany, sued in the Court of Appeals after the Supreme Court voided his agreement for regulating part of 58th Street. Farley, with the possible acquiescence of bureaucrats, had omitted culvert installation charges from his offer. This ploy enabled him to overcharge so much for drains that it transformed his original bid from lowest to highest. In the end, Farley, though famous for such skullduggery, escaped unpunished and thrived for years more as a major, city builder.[117]

Charles Devlin's pact for regulating sections of 57th Street was a real puzzle; someone added a provision for "retaining wall, per cubic foot, 12 cents." The item, though not mentioned in the specifications, had been "inserted in a different handwriting from the other blanks filled in the contract."[118] Furthermore, this retaining wall phrase mysteriously appeared in documents of other men as well.[119]

There seemed no end to hijinks. In another case, Patrick O'Brien, with competitor John Pettigrew acting as surety, gained the right to regulate 50th Street from Sixth to Seventh Avenues. But Pettigrew, himself an alderman, might have pulled strings, because the city, after awarding the deal to John McCaulkin, unofficially gave it to the higher bidder, O'Brien.[120] But O'Brien's was no isolated case. In 1854, Terence Farley won the chance to regulate, curb and gutter 56th

Street from Broadway to Sixth. Michael Tracey's rival offer had exceeded Farley's by $3,000. Nevertheless, the city awarded the contract to Farley, but signed it with Tracey.[121] Any rule could be skirted if the need arose.

Finally, as conditions worsened, authorities grew indignant. Comptroller Flagg intervened against John Meehan for irregularities involving a Bowery grading job. Although Meehan had signed for the work, Charles Devlin, Meehan's assignee and a rival builder, received the money. Meehan, however, had never deserved to win because two others named Morris and Healy had both under-bid him. How did Meehan obtain it? The Comptroller refused payment, charging that "Devlin bought off one or more of the lowest bidders than Meehan, and that Morris, who was the next lowest bidder to Healy, was never notified to execute a contract."[122] Whatever the details, Devlin pulled off the coup.

Thus, Smith charged, from 1852-1856 in particular, fraud had thrived under Street Commissioners James Furey and Joseph Taylor. During their tenure, abuses had been legion. Among others, was the failure to enforce specifications. A typical example of this was the agreement for regulating 51st Street which specified that "no rock is to be filled or deposited on any part of the street," but, inspectors reported "a large part of the filling [was] rock."[123] In fact, conditions became so lax by the 1850's that some men brazenly added costly extras not mentioned in contracts.[124]

In addition, Smith contended, the Street Department

had allowed numerous builders to delay and suspend work for years at a time--throwing private investments into limbo.[125] In 1856, authorities awarded the regulation and grading of 84th Street between Eighth Avenue and Broadway to Owen Riley. Two years later, investigators reported "no work has been done or payments made on this contract, nor can Riley be found."[126] Twenty-four months later, however, the town had yet to re-assign the job. But this was nothing; many other projects languished for years.

Sometimes a man fulfilled his pact to the letter, but had to suspend construction or temporarily forego payment because the courts failed to confirm the assessment. Too often, poor communication between legislators and administrators plagued contractors. In 1856, for instance, the Common Council passed an ordinance for the regulating, curbing and guttering of 52nd from Tenth to Eleventh Avenues, but the Street Department omitted curbing and guttering from the document. Either by design or incompetence bureaucrats occasioned numerous delays.[127]

At times, agency behavior approached the absurd. Witness the case of John J. Griffin who submitted a bid for regulating Fourth Avenue between 71st and 79th. Upon examination, however, authorities decided that "the amount and kind of work for which he bid was described in the specifications for [regulating] Ninety-third Street." Officials later disqualified Griffin for the Fourth Avenue deal, but, not wanting to leave him empty-handed, offered the 93rd Street job.[128] Griffin actually defeated all bidders for a project he never applied for. Phantom

bidding, fraudulent contracts, falsified records--none were strangers to New York's Street Department.

The explosive growth of ante-bellum Manhattan fiercely strained local government. Police, Fire, Schools, Hospitals--every field endured some dislocation. Street problems, however, almost defied solution. Each year found politicians groping for the magic formula to equip Gotham's mushrooming network. From the beginning, re-organization emerged as the prime expedient. By 1830, the shifting of offices and juggling of power had grown commonplace. Every election invited new suggestions. Of all agencies, the Street Department suffered most, as councilmen piled on functions until it became top-heavy with bureaus. The effects were counterproductive. Not only was administration confused, but the pressure forced a constant turnover of Commissioners. Throughout the 1840's and 50's, therefore, upper management lay in a perennial transition which only hindered continuity. With things so chaotic, no wonder scandal prospered.

Still, there were accomplishments. With the aldermanic Street Committee providing needed leadership, the city had begun to meet its crisis. Numerous stimulants prompted action, promoters, realtors, investors and politicians being but a few. Often these groups coalesced within a neighborhood to lobby for needed projects. Indeed, petitions were the great barometers of progress. Their well-reasoned arguments and

supporting data were crucial both to planning improvements and revising procedures. And, on the whole, there was much progress. Between 1830 and 1860, the town recast its archaic laws and practices. Gradually, from the tangle of road cases, general policies emerged to serve as precedents for later years. Certainly there was corruption, instability, injustice and ineptness, but these were a part of the disruptive times. Of greater importance was New York's success in opening, widening, grading and paving dozens of thoroughfares in every community. Town leaders had met a key demand of expansion: public works had become increasingly routinized.

NOTES

[1]Pomerantz, p. 275.

[2]Ibid.

[3]Ibid., p. 257.

[4]Ibid., p. 276.

[5]Valentine's Manual...for 1850, p. 113.

[6]Aldermen, Documents, X,Part I, #53, January 3, 1844, 753-754.

[7]Ibid., pp. 754-755.

[8]Ibid., pp. 755-756.

[9]Ibid., p. 756.

[10]Ibid., p. 761-762.

[11]Ibid., pp.779-781.

[12]Ibid.

[13]Ibid., pp. 750-751.

[14]See Valentine's Manual for the years 1845-1860, Street Department personnel tables.

[15]Ibid. 1858 ed. Street Department section.

[16]See Aldermen, Documents, XXVI, Part I, #2, January 3, 1859, 19.

[17]Ibid., II, #36, November 4, 1835, 155-162.

[18]See the "Map of the City of New York and the Island of Manhattan as Laid out by the Commissioners appointed by the Legislature, April 3, 1807." The plan was filed in 1811 and depicts the city of 1810.

[19]Aldermen, Documents, II, #36, 159.

[20]Ibid., p. 160.

[21]Ibid.

[22]Ibid., p. 159. For additional evidence, see the relevant sections of the Re-Indexed Conveyances of the Blocks and Lots of the City of New York...Prior to 1917 in the New York City Register's Office.

[23]Aldermen, Proceedings, IV (1832-33), 222.

[24]Aldermen, Documents, XIV, #17, November 8, 1847, 262. See also pp. 249-262 for street openings during 1833-1846.

[25]Ibid., II, #6, June 22, 1835, 34. This case involved the opening of Sixth Avenue to 129th Street.

[26]Ibid., IV, #60, January 29, 1838, 463-464.

[27]Ibid., pp. 474, 468.

[28]Ibid., I, #50, April 13, 1835, 570-572.

[29]Ibid., p. 569.

[30]Ibid., #29 (1834) n. d., p. 232.

[31]Ibid., #50, 574.

[32]Ibid., p. 570.

[33]Ibid., XX, Part II, #64, December, 12, 1853, 1238.

[34]Ibid., pp. 1237-1238.

[35]Ibid., XXIII, #17, March 19, 1856, 4.

[36]Ibid., p. 5.

[37]New York City, Board of Councilmen, Documents of the Board of Councilmen of the City of New York , III, #22, June 3, 1856, 1-3.

[38]Ibid.

[39]Ibid., p. 3.

[40]Aldermen, Documents, IV, #19, July 17, 1837, 153.

[41]Ibid., p. 154.

[42]Ibid.

[43]Ibid., IV, #41, November 27, 1837, 289-291.

[44]Ibid., II, #94, February 22, 1836, 497-498.

[45]Ibid., #5, June 22, 1835, p. 24.

[46]Ibid.

[47]Ibid.

[48]Ibid., p. 25.

[49]Ibid., IV, #73, March 12, 1838, 564.

[50]Ibid., XVIII, Part II, #80, December 23, 1851, 1387-1389.

[51]Ibid.

[52]Ibid., II, #42, November 23, 1835, 185-186.

[53]Ibid., III, #17, August 1, 1836, 108.

[54]Ibid., II, #41, November 23, 1835, 180-181.

[55]Ibid., #42, November 23, 1835, pp. 184-185.

[56]Ibid., XVI, #7, July 3, 1849, 74.

[57]Ibid., pp. 75-76.

[58]Ibid., XX, Part I, #30, June 10, 1853, 578.

[59]Ibid.

[60]Ibid., I, #18, July 21, 1834, 153-154.

[61]Ibid., pp. 154-155.

[62]Ibid., II, #122, April 25, 1836, 642-643.

[63]Ibid., V, #4, June 6, 1838, 43.

[64]Ibid. II, #129, April 25, 1836, 672.

[65]Councilmen, Documents (1856), #30, 3.

[66]Aldermen, Documents, VI, #30, November 25, 1839, 354, see also 353-362 for the whole administrative process.

[67]Councilmen, Documents, II, Part II, #73, December 17, 1855, 1.

[68]Aldermen, Documents, I, #19, October 1, 1834, 161.

[69]Ibid., XXX, Part I, #2, January 5, 1863, 22.

[70]Ibid., IV, #1, May 22, 1837, 5.

[71]Ibid., V, #10, July 30, 1838, 144.

[72]Ibid.

[73]Ibid., p. 145.

[74]Ibid.

[75]Ibid., II, #56, December 14, 1835, 242.

[76]Ibid., IX, #112, April 24, 1843, 1324-1326.

[77]Councilmen, Documents (1858), #7, March 1, 1858, 3-7.

[78]Aldermen, Documents, IV, #40, November 27, 1837, 286-287.

[79]Ibid., XX, #28, August 7, 1855, 20-23.

[80]Ibid., XIV, #50, April 24, 1848, 721.

[81]Ibid.

[82]Ibid.

[83]Ibid., IV, #82, April 9, 1838, 596.

[84]Ibid., V, #19, November 19, 1838, 209-212.

[85]Ibid., VI, #30 November 25, 1839, 357.

[86]New-York Municipal Gazette (New York), March 11, 1841, p. 12.

[87]Ibid., p. 13.

[88]Ibid.

[89]Ibid.

[90]Ibid.

[91]Ibid., p. 316.

[92]Ibid., February 24, 1844.

[93]Real Estate Record and Builder's Guide, Supplement following Vol. 15, March 18, 1875, 3. Hereafter referred to as RRBG.

[94]New-York Municipal Gazette, March 25, 1841, p. 48.

[95]Aldermen, Documents, XXI, Part I, #42, May 19, 1854, 750; see pp. 745-756 for a full treatment of the issue.

[96]Ibid., IV, #56, January 15, 1838, 439-440.

[97]Ibid., XI, #36, December 2, 1844, 349-358.

[98]Ibid., IV, #5, November 15, 1838, 437.

[99]Ibid., VII, #55, February 15, 1841, 688.

[100]Ibid.

[101]Councilmen, Documents, III, #9, February 11, 1856, 7.

[102]Ibid., p. 8.

[103]Ibid., II, Part II, #73, December 17, 1855, 1.

[104]Ibid., p. 3.

[105]Ibid.

[106]Aldermen, Documents, VI, #77, May 11, 1840, 771.

[107]Ibid., p. 772.

[108]Ibid.

[109]Ibid., p. 773.

[110]Ibid., XXVI, Part I, #5, January 16, 1859, 1-2.

[111]Ibid., p. 2.

[112]Ibid., p. 3.

[113]Ibid., pp. 4-5.

[114]Ibid., pp. 102-107.

[115]Ibid., pp. 107-113.

[116]Ibid., p. 177.

[117]Ibid., pp. 113-118.

[118]Ibid., pp. 128-136.

[119]See Ibid., pp. 137-143 for more on these practices.

[120]Ibid., pp. 144-148.

[121] Ibid., p. 211; see also pp. 218-224.

[122] Ibid., pp. 299-300.

[123] Ibid., pp. 363; 359-364.

[124] Ibid.

[125] Ibid., pp. 153-156.

[126] Ibid., p. 69.

[127] Ibid., p. 285.

[128] Ibid., pp. 148-153.

CHAPTER 4

PUBLIC WORKS AND THE NEIGHBORHOODS, 1835-1860

Change marked the ante-bellum years in Manhattan. Prior to 1830, New York was a "walking city" where few people lived beyond 23rd Street. The 1820's had seen Gotham's finest residences line Broadway, Bowling Green, Park Place, lower Bowery and parts of Greenwich, Chambers, Pearl, Beekman, Laight, Cliff, Courtlandt, State, Warren and Whitehall Streets--mostly the lower four wards.[1] Later, Cherry, Monroe, Madison, Jackson, Scammel and nearby routes in the Fourth and Seventh Wards became popular,[2] while from East Broadway and Houston Street over to Chatham and Bowery "stretched the dwelling district of the ship-yard operatives and other mechanical trades."[3] Still farther north lay thousands of wood-framed homes of lower and middle-class families. New York in this era was still largely "small town," but all this would change in a decade or two. Already by 1831, the omnibus had arrived. This innovation, a horse-drawn stagecoach seating twenty, plied routes all over town. Within ten years, it broke the casements of the "walking city." By cutting travel time from home to work, it permitted settlement much farther north. Already by 1840, Gotham's suburbs stretched beyond 42nd Street.

These events were crucial to the growth of Manhattan.

In just a few decades migration, mechanization and a thousand other factors had combined to swell the metropolis. Everywhere population boomed and new buildings rose. By the 1830's, the three lower wards rapidly assumed the posture of a business district, thriving in the wake of retreating residential neighborhoods. Gradually, lower and middle-income home owners dominated land above City Hall, while piers, warehouses and run-down tenements honeycombed streets along both waterfronts up to 14th. The First Ward, once the site of elegant housing, yielded to commerce by the 1840's. Indeed, Stone and South Streets from Whitehall to Old Slip abounded in "first," "second" and "third-class"[4] stores of mortar and brick, as did Broadway, Vesey, Nassau and Liberty.[5] In addition, the square bounded by William, Beaver, Broadway and College Place was almost totally large stores and warehouses.[6]

Yet, the locale was not wholly commercial. Bridge Street from State to Broad, and, on the west side, Greenwich from Battery to Rector hosted dozens of brick abodes. Definite real estate patterns emerged as three or four tenant houses equal in height and each with sidewalk shops clustered together. Such groupings, often the result of one speculator's control of two or more adjacent lots, appeared everywhere.[7] Rarely, however, were blocks all commercial or residential. Even in the First Ward mixtures of both occurred. Thus, Washington Street from Rector to Liberty attracted both dwellings and stores.[8] In fact, most of the

block's structures were "third class."

Another common occurrence featured rows of like buildings. An entire street of three-story apartments was not unusual in New York. And "class," too, might be similar. Thus, several blocks along South Street from Liberty to Old Slip boasted excellent stores while third-class shops filled the lots bordered by Pine, Front, Wall and South Streets.[9] Indeed, one thoroughfare often marked a sharp boundary between different neighborhoods. By 1850, for instance, the land west of College Place held mostly fine dwellings while, east of the line, housing and stores of all classes prospered.[10]

Still, few patterns lingered in a town torn by change. Witness the case of Wards Four, Six and Seven. Though once fashionable centers, these districts teemed in the 1850's with Irish and Germans. Inevitably, this floodtide altered land use, as brick and stone mansions largely gave way to factories, warehouses and tenements.[11] Just a few blocks survived the dictates of profit. But nearer the waterfront most lots succumbed to the lure of industry. Already by 1850, the block bordering Pike Slip, Market, Water and South Streets contained a storage complex, oil plant, mahogany saw mill plus coal and iron yards, while second and third-class flats filled remaining grounds. And similar works also lined routes from Madison to South Streets below Catharine Slip.[12]

Further east, lumber, stone and coal yards interrupted

rows of first and second-class dwellings north of Pike from Division to Monroe. And, as new industry arrived in succeeding years, landlords converted most of their buildings into tenements for local employees.[13] Of course, in the poorer sections near Grand and Delancey Streets, east of the Bowery, frame habitations still outnumbered brick and stone. And the pattern recurred in the Tenth and Thirteenth Wards where first-class stores yielded to lesser shops and tenements. In fact, factories, warehouses and frame housing were typical of this nascent, German community.[14]

On the west side, too, Wards Five and Six though once all residential, now reflected the industrial decentralization prevalent around town. In almost every neighborhood factories and warehouses stood between rows of dwellings. Even Broadway with its many fine mansions was not immune; within twenty years, most would fall to make room for office buildings and large stores.[15] Native Americans, black and white, populated these west side communities. Even in the 1850's, the area's physical appearance still mirrored that bygone era when brick and stone houses abounded. There was little of the blight found east of the Bowery. Variety was the rule in streets west of Broadway, although one style usually dominated a block. Thus, modern buildings graced Canal from Laurens to Varick, but the pattern broke down on nearby thoroughfares where industry, commerce and residence mixed.[16]

Farther north into the Eighth Ward, brick and stone increasingly challenged wood for home construction. Here land use also varied; on almost every road residence and industry intermingled.[17] Often two sides of the same route satisfied different needs. This was the case in Stanton from Mangin to Goerck. Here, for example, fine dwellings held the north side, while brick and stone flanked a huge wool factory and iron foundary on the south. On Clinton from Rivington to Houston, the story repeated as frame habitations opposed the massive Clinton Distillery.[18] Above-average housing held sway in most wards. Indeed, the west side contrasted markedly from its sleazy, eastern rival. And this good image persisted well uptown on Hudson and Greenwich Streets.[19] Again in the Eighth and Ninth Wards, thousands of native-born, middle-class families ensured blocks of decent housing.

But things differed across town. On the upper east side a stark picture emerged. East of Third Avenue from 22nd to 42nd Streets many vacant lots neighbored coal yards and other concerns. Here real estate stagnated. But to the west, first and second-class buildings abounded. In fact, few frame structures stood below 30th Street. These events presaged the 1850's and 60's when Fashion would move up Third Avenue's spine, while First Avenue, topographically low and poorly drained, would see only tenements, shanties, small factories and dumping lots.[20]

If, in 1850, residence prospered from West 30th southward, population was scarce in districts above. From Tenth Avenue

to the river lay mostly dumping grounds, flagging lots and stone-cutting yards. Huge concerns such as the Globe Iron Works (on Eleventh Avenue between 33rd and 34th Streets) marred the district's appearance.[21] Indeed, the industrial influence above 30th encouraged frame over brick.[22]

Though uptown lots were still an investment risk, prosperity was not far off. For, as Civil War approached and immigrant waves rolled in, the town changed rapidly. Downtown, first and second-class dwellings would soon be converted to tenements. With the advent of steam power, more factories would settle in the lower wards. And, repelled by the atmosphere of congested ghettoes, middle and upper-class Americans would escape to emerging neighborhoods uptown. Increasingly, Second, Third and Fourth Avenues would win acclaim as Gotham's most fashionable, residential arteries.

As New York underwent this frantic urbanization, officials found it difficult to satisfy growing needs. The town's archaic sewer system demanded rebuilding and extension. Originally, authorities had laid conduits only to drain swampland. Thus, in colonial times officials had lined the Canal Street waterway with planks to create an open sewer. The community also fixed Broad Street and other trouble spots. But, as population and vehicular traffic increased, these open channels needed covering.

Gradually, engineers built elliptical and circular sewers of other inferior materials. As leaks occurred they were either ignored or patched. Unfortunately, maintenance was of little concern to authorities who kept few maps or records. Hence, as years passed and old builders died, pipe locations became public mysteries.[23]

Worse still, segments cracked and settled at various sub-surface levels, obstructing flow. By 1850, even the composition of these conduits had become cause for debate. Contemporaries noted the Broad Street tunnel "is said to be built of stone and brick, and it is even estimated that there is some wood still remaining in it." Yet no one knew for sure. A lack of manholes made its inspection impossible.[24] As a result of these and other factors, downtown suffered for want of good sewers. In fact, many streets lacked tubes at all. No wonder thousands of sewers flooded during major storms. And the problem persisted throughout the century, since new road construction frequently diverted underground streams from their natural routes.

In addition, land fill often clogged underground waterways, creating small dams. Eventually gravity forced the flow into new channels which invariably intersected house cellars. And, over the years, this process required thousands of property owners to install drains, while many lots remained too wet for building. This, however, hardly restrained unscrupulous promoters who concealed the truth

and victimized numerous homeowners.[25]

The city itself was slow to act. By 1840, authorities had constructed some stone drains which attempted to funnel ground water riverward. Unfortunately, stone was both cumbersome and scarce. Hence by the 1830's, town leaders had switched to brick sewers.[26] The metropolis built many miles of these, but there was no standard design. Engineers seemed torn between circular and elliptical models while diameters were of infinite variety.[27]

Form offered one problem, volume posed another. The introduction of Croton water in 1842 forced additional loads upon the feeble drains, since more water now serviced Gotham's dwellings. As one authority pointed out: "the increased house drainage was turned into the old drains and sewers, not intended for such use, not adapted to the increased demand upon them, and especially unsuited to carry a constant small flow bearing a large proportion of solid matter in suspension."[28] Flooding resulted.

Many New Yorkers felt city sewers could ease the strain. But as late as 1844, the chief function of Manhattan's tubes was still to carry off sub-surface flow not liquid wastes. For years petitioners had implored aldermen to follow London's example and grant these conduits both functions. Past reform had lagged, they said, because officials had feared that improper ventilation and flushing would hazard health.[29] By the 1840's, however, petitioners pointed to London's system of gates which released stored wastes into the Thames at specific times, thus

permitting thorough cleansing. Also, periodic apertures existed where noxious gases could escape instead of remaining underneath the city. London contrasted markedly from New York where privies choked with putrescent accumulations.[30]

Finally, in 1845, despite opposition from waterfront interests who feared this matter would clog slips with mud and slime, the government changed its policy. The city now allowed the flow of vegetable and animal matter into sewers.[31] But lack of uniform design and poor construction complicated things. Many tubes were circular in shape and wide in diameter, so that workmen could repair and clean them. Others, however, like those in Clarkson and Canal lacked these features. Moreover, numerous street connections were "rudely built, without provision to prevent the entrance of mud and dirt from the surface, and without means for preventing the escape of gases."[32] In addition, many conduits flowed against grade, forcing the use of flat-bottomed drains. Poor engineering also caused many channels to approach road level. And if such conditions disrupted a single main, imagine the havoc they played at network intersections. Indeed, as one reporter noted, when a "sewer was joined to another in an arbitrary manner,...it is not wondered at that the greatest confusion existed."[33]

Improper planning was responsible for numerous problems underground. In 1880, for instance, an exploration of the clogged Thompson Street duct revealed a sediment deposit almost two feet deep with three inches of water flowing over it. At one point, a six-inch gas pipe and twelve-inch water main

crossed inside "very near each other." Undoubtedly, the policy of running utility mains through waste tunnels was common, because investigators found many such pipes which passed "through the sewers obliquely in different directions"--obstructing flow during storms. This practice was, of course, no boon to health, since "thick deposits" of putrescent matter frequently coated lines.[34]

To alleviate these hazards, the city introduced in the 1840's rectangular, brick conduits (four feet high by two feet eight inches wide). The narrower floor channel created a deeper flow which stimulated water movement even in dry periods and thus aided flushing.[35] Still, brick and mortar, though excellent for house construction, were unsuitable for sewers. The corrosive action of water and acidic wastes ate into side walls, creating leaks. Mal-administration also heightened the problem. In fact, one leading authority felt that "the appointment of incompetent and irresponsible [building] inspectors through political influence, was filling the city with a class of work buried beneath its streets which was worse than useless."[36]

Two events improved the situation. The first occurred in 1849, when aldermen transferred control of sewers to the Croton Aqueduct Department. Potential disaster had forced the move. Up to that year dilatory officials had built only 69.3 miles of pipe, far too little for a city of 500,000. But progress lagged under this new bureau as well, for it lacked the power to determine main size and location. The law still vested this privilege with the Common Council. Unfortunately,

politicians were not trained engineers and quite naturally sacrificed the needs of the city at large to those of landlords and realtors. Under these conditions, mileage increased but no integrated network emerged.[37]

Finally in 1865, the state legislature answered cries for reform by enacting a "Sewage Act" which authorized the adoption of a general"system." Now, as population reached 750,000, almost 195 miles serviced New York. Yet, despite this increase, only a coordinated scheme could properly drain every neighborhood. This would be difficult, however, since traditional policy had awarded each block autonomy. In fact, almost every street approaching the waterfront had its own line, functioning indepently of all others. The arrangement only promoted confusion. Indeed, many residents living inland never learned which duct drained their property, while at the river, shipping interests complained about waste deposits clogging their slips.[38]

The Croton Aqueduct Department quickly used its new power to divide the metropolis into districts, each with its own proposed "system." Some streets faced costly grade changes to bring them into conformity with the master plan,[39] but engineers tried holding this number to a minimum. Still, there were other problems. To thwart mud accumulation in slips, officials suggested building huge "collecting sewers" parallel to the wharves. Here matter from a host of conduits along the waterfront could be gathered before landing in the river (see FIGURE 1).[40]

A second breakthrough came at mid-century from Scotland

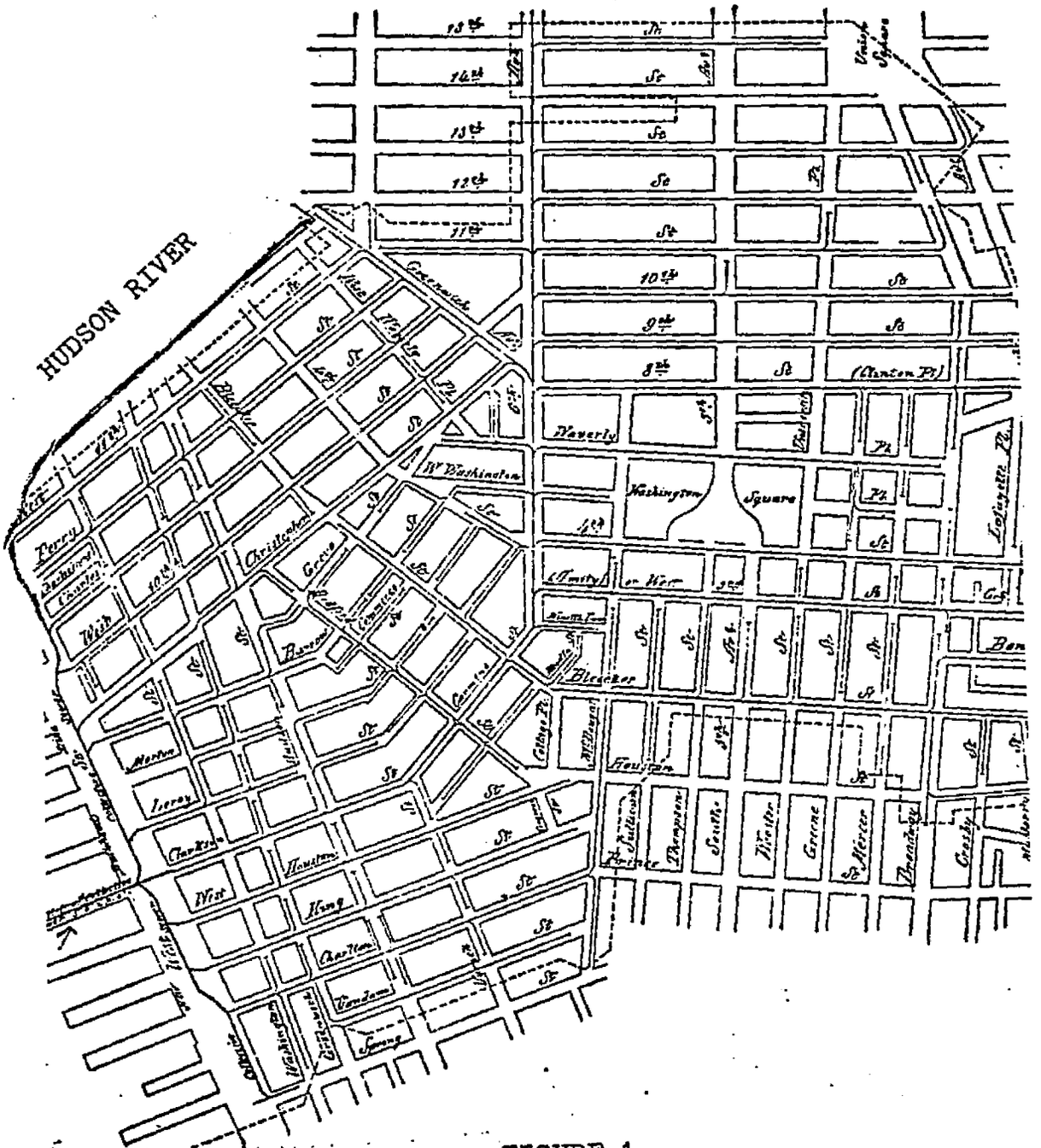


FIGURE 1

SEWER DISTRICT NO. 10

Sewered Street

Collecting sewer on West Street

where metallurgists developed a "vitrified pipe" possessing leakproof stone walls very resistant to corrosion. Such tubing was less expensive than brick, could be laid quicker and was moldable to specifications.[41] By the 1860's, New York officials, impressed with its success in London and other European cities, began laying it. In 1865 alone, the town awarded contracts for eight miles. The ducts were round and came in diameters of six, twelve, eighteen inches and larger. The conversion of public leaders was abrupt but lasting. In 1864, only six per cent of new sewers were vitrified pipe, but next year the figure jumped to 71 per cent, relegating cement to sudden obsolescence.[42]

Almost immediately the new structures won acclaim. Within four years, over twenty miles of them serviced the city. By 1868, their success led Croton officials to boast that "thus far no complaint of their inadequacy has reached us." And, as more homes hooked up, authorities cheerfully reported that "prejudices...felt in the beginning on the part of property owners, are fast disappearing."[43]

Most newer, uptown neighborhoods enjoyed the innovation since they held first priority. Older, congested sections of town, long ago furnished with brick channels, could expect no replacements. With the feverish expansion of the city northward, leaders concentrated on servicing unprovided locales. Hence, in spite of numerous petitions from lower Manhattan,[44] uptown monopolized the supply.

By 1870, control of sewer construction had shifted from the Croton Board to the new Department of Public Works.

Nevertheless, downtown still suffered. Many lots below street grade remained wet while suburban drainage steadily improved. Technological advances heightened this contrast, as newer vitrified models eliminated damage caused by tapping for house connections. Now with pre-cut apertures along every fifteen feet of main even incompetent plumbers could make the attachment without cracking the pipe. Yet again, only recent communities enjoyed these improvements; most downtown sections would wait decades for relief.[45]

The city first laid waste tunnels in locations most plagued by drainage problems (see MAP 4).[46] Canal, State, Beaver, Nassau and other low-lying grounds were, of course, early benefactors. Farther uptown, the Union Square area demanded attention. Sub-surface streams ran all over, soaking basements everywhere. Officials knew that chronic flooding would injure the residential development of both Union and Washington Squares. Thus, in an unusual display of energy, the city sewered most cross streets in the district.

On the west side, pipes in 20th, 22nd and 23rd Streets and Sixth Avenue carried water to the river while two others ran eastward. The pattern indicates that local opulence was also a factor. Indeed, the Union Square section, for years containing many first-class homes, early received numerous pipes. But, westward along 20th to the Hudson where second and third-class flats predominated, things changed; there were no lines

N
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T
THE BATTERY
CITY HALL PARK
WEST
CHURCH
1
2
3
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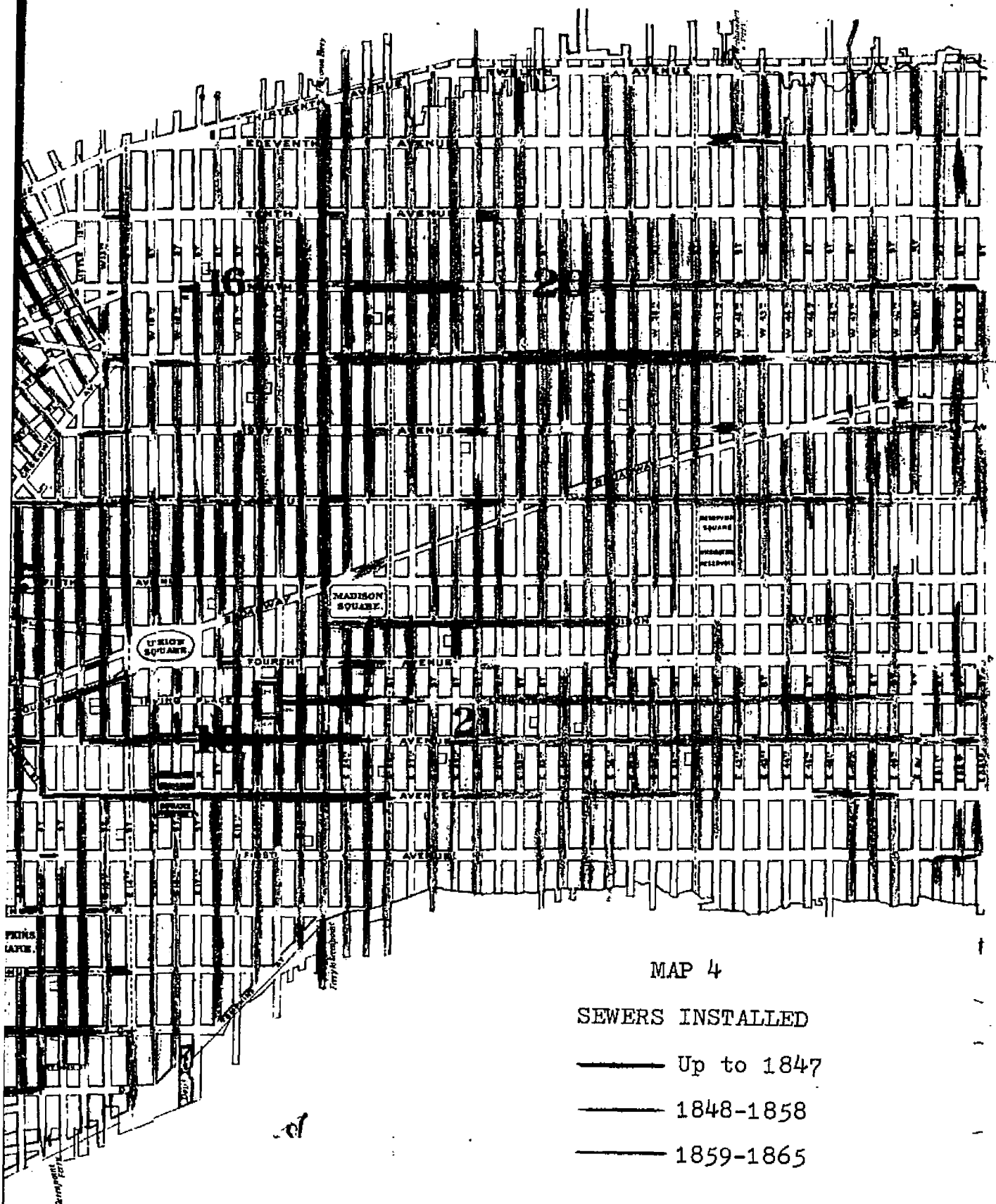
N
MADISON SQUARE.
UNION SQUARE
WASHINGTON SQUARE
TOMPKINS SQUARE.
SEW



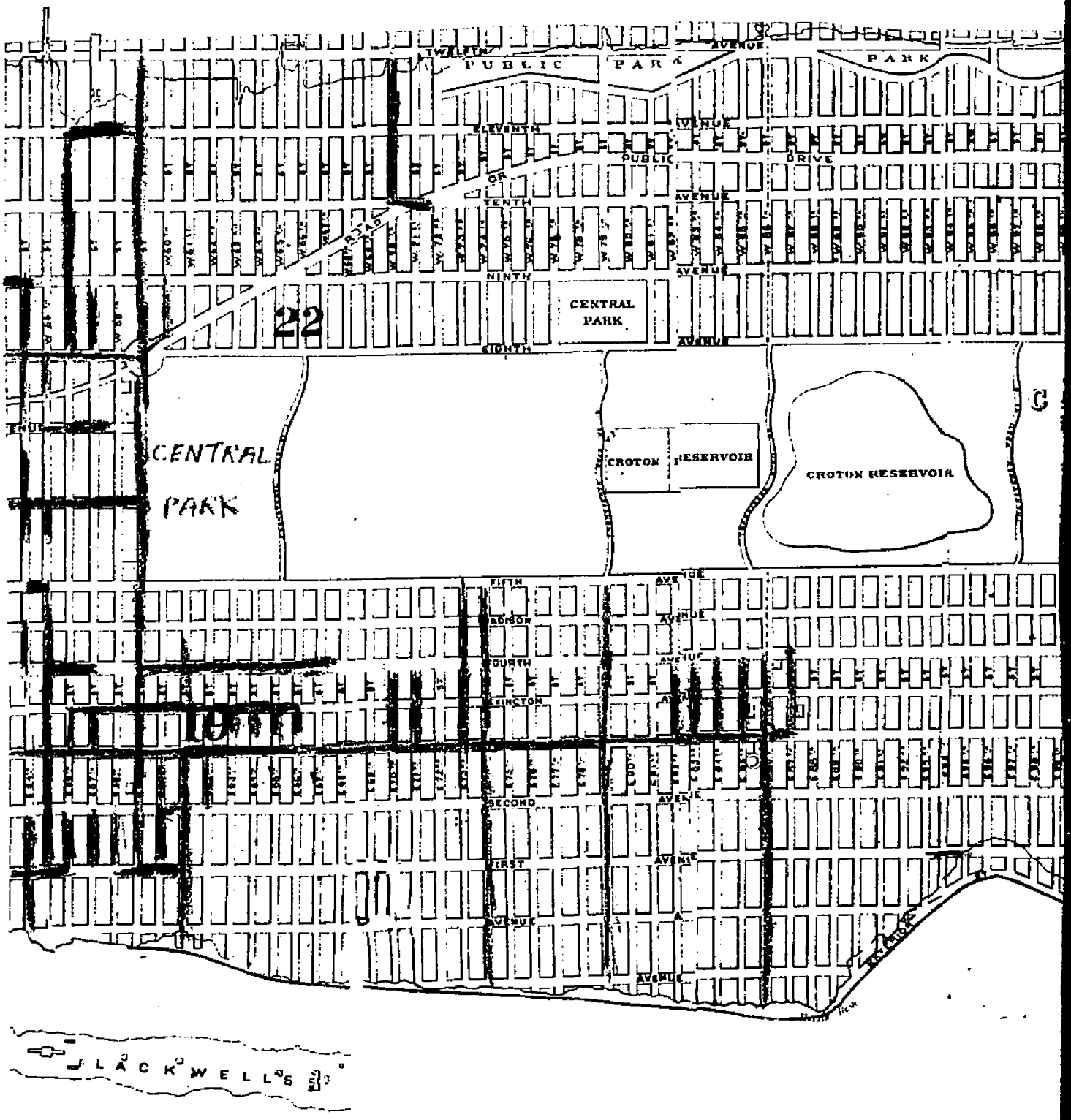
MAP 4

SEWERS INSTALLED

——— Up to 1847

——— 1848-1858

——— 1859-1865


TWELFTH
PUBLIC
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PUBLIC
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OR
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CENTRAL
PARK
22
EIGHTH
AVENUE
CENTRAL
PARK
CROTON
RESERVOIR
CROTON RESERVOIR
FIFTH
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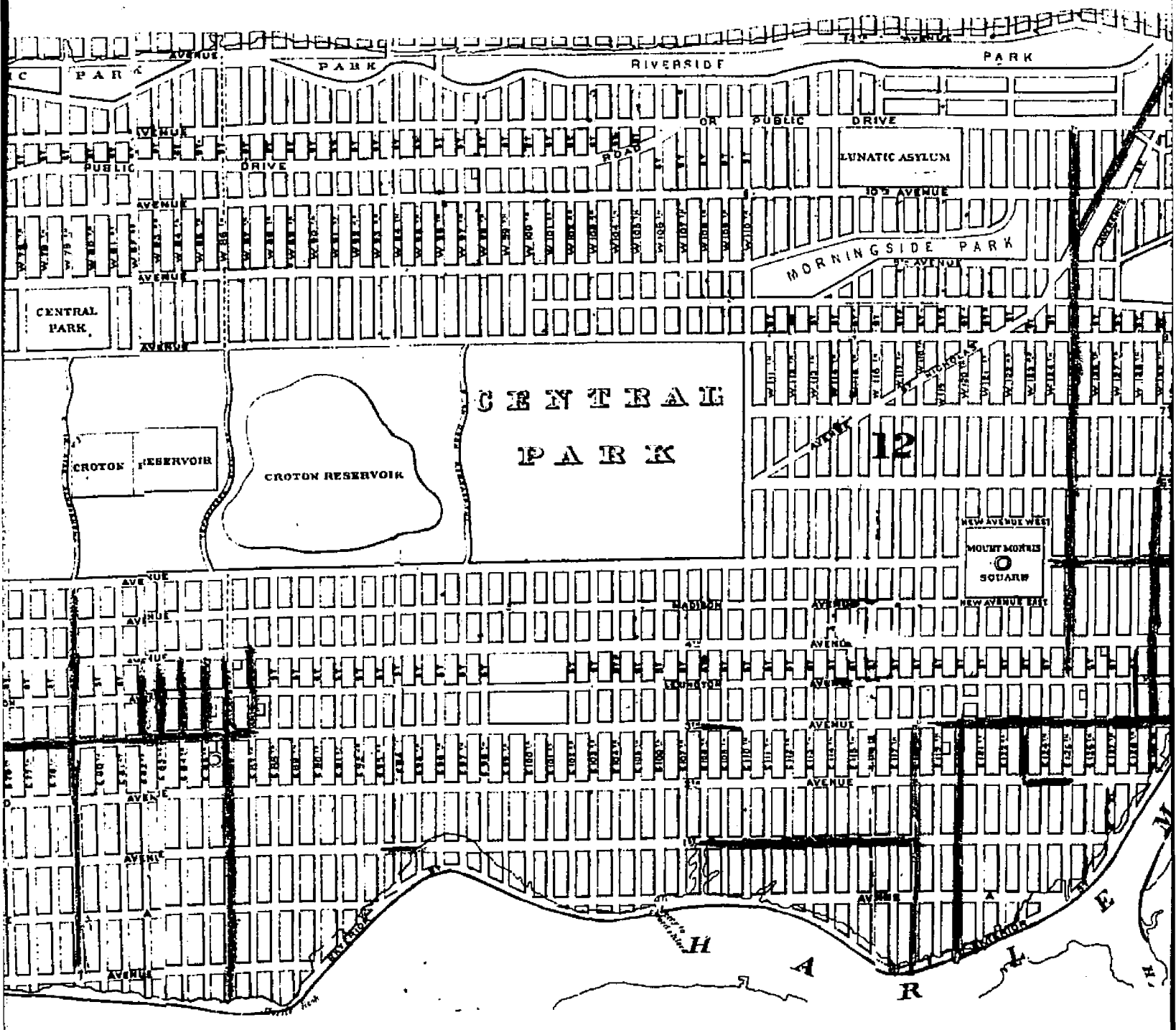
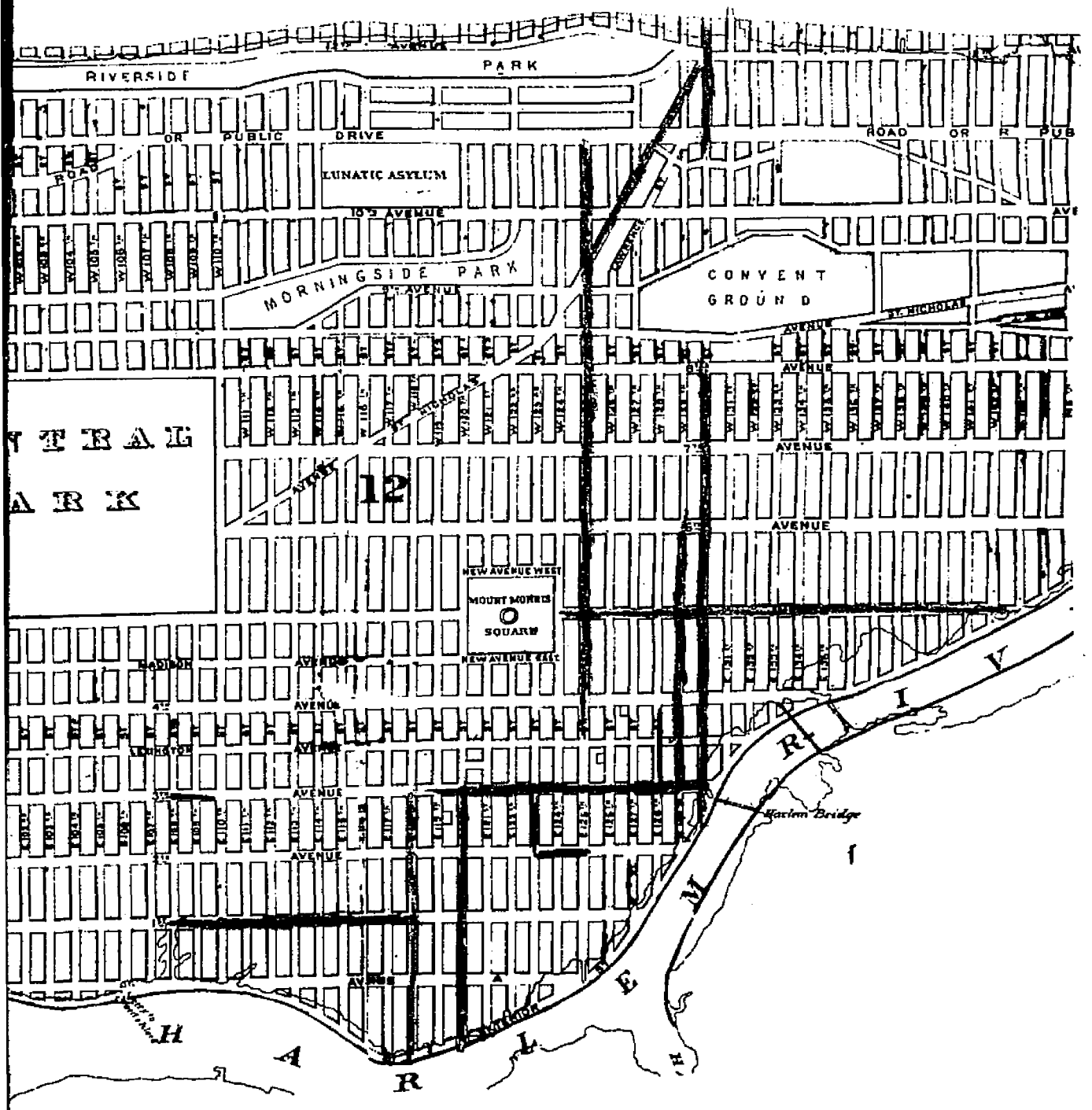

PARK
RIVERSIDE
PARK
PUBLIC DRIVE
LUNATIC ASYLUM
MORNINGSIDE PARK
CENTRAL PARK
CENTRAL PARK
CROTON RESERVOIR
CROTON RESERVOIR
12
MOUNT MORRIS SQUARE
HARLEM


RIVERSIDE
PARK
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DRIVE
ROAD
LUNATIC ASYLUM
MORNINGSIDE PARK
CONVENT
GROUND
ST. NICHOLAS
AVENUE
12
MOUNT MORRIS
SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
MADISON
LEXINGTON
Harlem Bridge
HARLEM RIVER

south to 13th and west of Sixth Avenue. Residents here were low-income and land values did not approach fashionable levels.

The same story emerged east of Union Square. Here lay factories, coal yards and dumps. Poor drainage had retarded land development. Yet, even though many lots lay inches deep in stagnant water, City Hall showed no concern. In fact, this section, like the west side, earned no attention until the 1860's. Similar events occurred at Tompkins Square where a neighborhood dominated by first and second-class homes received networks early, while Irish and German wards (from the Thirteenth southward) suffered neglect till the 1870's. Despite rampaging poverty and disease, officials apparently assigned these areas low priority.

Along the eastern waterfront and back through numerous cross streets, no facilities existed, although Front to Jackson and parts of Water and Front at Gouverneur and Montgomery Slips were filled land and no doubt wet. But drainage in most places was adequate, permitting officials to divert funds uptown to lots offering speculative promise. Gradually, however, the city corrected injustices. From 1849-1858, the Croton Aqueduct Department greatly expanded its network. Mains now criss-crossed much of the business district. Most Irish and German neighborhoods, though, received pipes almost exclusively in avenues. As a result, tenement-filled side streets remained uncared for, as sunken lots and dank, flooded cellars continued breeding disease. Again, the much-vaunted power of Irish bosses seemed absent, as these communities rivaled German for lack of sewerage.

Opulence always attracted attention. By 1855, fashionable downtown sections like Greenwich Street and intersecting roads enjoyed service, though Washington and West above Robinson (warehouse centers) trailed badly. Certain wealthy enclaves like Church Avenue and parts of Cliff, Gold and William also lagged, but these areas were not prone to sub-surface flooding. Farther uptown, the city drained many damp arteries east and west of Union Square. Officials had begun anticipating future growth in the area. It was no mystery why sewers ran so far up Lexington, Second and Third Avenues. Indeed, streetcar lines on the latter two already had intensified luxury home construction, and investors here would tolerate no sunken lots or damp cellars.

Like sewers, gas lighting proved another great task for New Yorkers. Following the lead of Baltimore, Gotham became the second American city to gas light its streets.[47] In 1823, the New York Gas-Light Company received "the sole and exclusive privilege and right of laying or placing under-ground pipes" in roads designated by the town. The company, in turn, promised that it would, by 1825, "erect, establish and complete in the said city of New York, good and sufficient buildings, works and apparatus, for the preparing and manufacturing gas...of the best quality."[48] The outfit further pledged to lay mains "constructed in the most approved manner of cast iron and of the best materials." Moreover, it agreed to illuminate "during

such times as the public lamps are now required to be lighted." All this would be done at a yearly price "not exceeding what would be the expense of lighting and supplying an equal number of the said lamps with oil of the quality generally used for that purpose."[49]

New York City bore the cost for lamps, irons, posts and "fittings up;" the utility shouldered all other burdens. But the town jealously guarded its right to regulate construction. The contract required the firm to give the Council or Street Commissioner forty-eight hours notice

> of their intention to break up, or open any street,... for the purpose of laying or repairing the pipes to conduct the Gas; and that they will replace the earth which they remove in so doing, before sunset of the day on which opening shall be made [and replace all sidewalks and pavements disturbed] in such reasonable time and manner...as the...Street Commissioner may direct.[50]

Ten years later, in 1833, the Manhattan Gas-Light Company received permission to supply areas north of Grand Street. This deal generously allowed the corporation to charge an extra amount "not exceeding fifteen dollars for supplying each of said lamps with gas, and lighting the same." There was, however, no provision for monopoly. Nothing in the agreement prevented the city from "granting the like privileges as are hereby given to any other company," or private citizen "upon...his own premises."[51]

Experience had taught the government that gas works could easily deteriorate into a nuisance retarding property growth. Hence, at the insistence of town leaders, this second agreement provided "that any gas house or works...shall be so

erected or established on the margin either of the Hudson or of the East River not south of 14th Street."[52] By the late 1840's, the New-York Company itself chose a waterfront location and moved from Orange and Hester Streets to 21st and East River.[53]

Quickly the utilities extended iron and some tin mains throughout Gotham. In the 1820's and 30's officials utilized various sizes, ranging from two to sixteen inches in diameter. J. W. Brick, later a Croton contractor, supplied much of the gas pipes. These were a most expensive item. By 1825, conduits alone had cost New-York $48,000, and the figure rose another $25,000 in the next two years. Even after 1830, this equipment represented the firm's greatest capital outlay.[54]

To meet the high overhead, the companies issued stock. In addition, they sold indoor lighting fixtures to private customers and collected quarterly revenues from both the city and consumers. The profits were modest. Except for the few years of Panic after 1837, New-York Gas-Light alone paid an annual dividend of five per cent.[55] But Directors wanted more. From 1828-1835, the organization, jealous of the higher profit margin permitted its rival, argued that the $5.34 city payment per lamp covered only a quarter of the gas supplied to public lights. But aldermen disagreed, claiming that executives offset these losses by the "enhanced price which they charge...private customers." Thus, a "partial tax" for lighting public globes fell upon consumers and not the company.[56]

High prices enraged customers. Every year angry patrons deluged the City Council with complaints about the

brightness and quality of the gas.[57] And secret company minutes sustain these charges. In 1831, for example, officials privately admitted that even with a modern gasometer in New Street output was "not in such quantities or with such force as is required when all the lights are burning in the lower part of Pearl Street."[58] Earlier, in 1829, engineers advised the Board of Directors to lay no more than two miles of mains "and those in such situations as may tend to make a more equal distribution of the gas." By 1837, they pleaded for better equipment on the city's west side to service lower Liberty and Leonard Streets which "are presently suffering on the lines of Greenwich and Hudson Streets."[59]

Protests nevertheless continued. Petitioners charged that the "mode of measuring the gas has been uncertain and incorrect." In fact, a continuous rate battle persisted throughout the nineteenth century between the utilities and consumers.[60] The city, too, objected to contract violations. By 1836, the annual cost for maintaining a lamp exceeded its oil counterpart by $2 ($13 to $11). No one would have minded if gas-lit roads were brighter, but this was not the case. In reality, many of these routes held

> little if any advantage over streets lighted with oil[.] [F]irst the frequent short supply of gas furnished for the lamps in the evening after the stores are closed, and consumption of gas consequently diminished. Secondly, the inability of the...[companies] to have such repairs as are almost daily required to some of the conductors (unless such repairs be made at the expense of the corporation) attended to with that fidelity and promptness that the importance of the case requires; and thirdly, the frequent inferiority or impurity of the article furnished by the manufactory.[61]

In addition to poor supply, company policies also antagonized town officials. In 1836, the Commissioner of Lamps objected to fees wrongly levied upon the city by New-York. The latter, for instance, required Gotham to pay for "tapping the main pipes" for public lights and "for laying service pipe from the mains to lamp posts." But only after months of haggling could the Commissioner force the organization to comply with its charter and install connecting lines.[62] In another episode, the firm tried charging 2¢ each for illuminating public fixtures. To thwart this design, the town had to rush a crew of its own into the streets. Fortunately, the move succeeded; only 444 vessels were left to company hands.[63]

Municipal leaders also disliked the outfit's approach to lamp placements. In wide avenues the utilities had been "doubling" (i. e. placing two stanchions directly opposite each other on either side of the road). Since the next couple of posts were usually eighty to a hundred feet farther away, it resulted in "an oblique ray...of about twenty-seven feet, leaving the intervening angles perfectly unlighted, whereas the same number of lights placed on an angle, would give an equal or nearly continuous body of light."[64] Still, reform was slow and debates over distances persisted until the advent of Edison's bulb.

Spurred by a liberal revision of the state's incorporation law in 1848, a third supplier, the Harlem Gas-Light

Company, organized in 1855. Soon it began filling the need (neglected by Manhattan Lighting) for maintaining thoroughfares north of 42nd Street. Numerous other firms appeared in subsequent years,[65] and, as a result, uptown service soon kept apace of the section's growth.

Despite complaints about gas, most neighborhoods eagerly sought it. As early as 1833, Third Avenue residents had the "Lamp District" (which consisted of both oil and gas fixtures) extended north to 21st Street. Three years later, property owners up to 129th remonstrated for the zone's enlargement. Aldermen, though wary of the expense, nevertheless recommended the measure, noting that many "citizens doing business in the lower wards and owning property and residing in the upper parts of the Twelfth Ward, have frequently to encounter dark nights in traveling to their residence."[66] Finally, after some delay, the Council extended the district up Third Avenue to Harlem River, and half way to Second and Fourth Avenues in the cross streets. The original lights were probably oil, but inhabitants knew this merely presaged the arrival of gas. And citizens gladly paid the Lamp Tax (a levy upon all property in the affected section) to brighten their roads and reduce crime.[67]

The companies themselves faced many problems aside from rate hikes and delinquent bill-payers. In winter, freezing mains, caused by gas condensation, kept maintenance crews busy. Such events could cut off or retard service for vast sections of the city. To restore power and avoid consumer revolts, the

firms hired additional men in cold weather to coat frosted sections with alcohol. But, at times, wintry conditions could be a boon to private customers, since the meters too were not immune from ice.[68]

Other problems plagued the utilities as well. Frequently, when two street projects met confusion ensued. In fact, power executivers were often at loggerheads with the government. In 1835, for instance, New-York Gas-Light vigorously lobbied the town council to halt the proposed widening of Centre Street which would have cut sharply into the outfit's pipes and buildings. But efforts were in vain and the enterprise continued.[69] Public and private interests clashed elsewhere, too. The installation and tapping of Croton water lines or sewers often burst nearby gas ducts.[70] But although such events might be troublesome, in the midst of explosive urban growth this was inevitable.

Of more crucial concern was the question of pipe location. The early contracts recognized that the utilities would derive most profits from private consumers. Aldermen, therefore, directed mains to be laid where "the prospect of the advantages of private custom" were the greatest.[71] Hence the wealthy enclave downtown--Broadway, Bowling Green, Cliff and lower Greenwich Streets, etc.--received first attention. But service spread quickly; indeed, New-York Gas-Light had the entire district south of Grand supplied by 1854.[72]

Rarely, if ever, did developers succeed in persuading companies to outfit vacant routes. Policy dictated that lines

serve buildings. Although there was no stated number of houses required, blocks with at least ten customers had the best chance.[73] Thus, in 1849, James Shaw, an owner of three homes on Lexington Avenue between 27th and 28th, remonstrated for service, claiming eight others would also "fit up." As with Shaw, petitioners frequently rounded up every possible resident to strengthen their bid. And, in this case, Shaw convinced the company.[74]

On rare occasions, less than eight customers would do. In May, 1849, executives ordered mains laid in 31st from Fifth Avenue to Broadway "to reach two houses already fitted for burning--provided the owner of the large double house on the south side of 31st Street will also fit and light up." The firm's Building Committee often held out the carrot, impelling potential consumers to pressure recalcitrant neighbors to "fit up." Typically, the utility approved a petition to supply 21st from Seventh to Eighth Avenues "on the condition that five houses on the line will fit up and become consumers."[75]

At times, however, important personages won exemptions. In 1849, for example, the firm readily approved service for Perry Street from Factory to West 4th. Only three houses would be lit, but John J. Palmer, former alderman and gas company executive, owned one of them.[76] Still, there were limits even to special treatment. Building Committees steadfastly refused to consider blocks having only one edifice. Hence, in 1849, Manhattan Gas-Light rejected lighting 26th Street from First to Second Avenue, because "there was nothing on the line but

Mr. Mayor's premises that would be at all likely to require gas." In the same vein, officials postponed action on the 4th Congregational Church at 16th Street.[77]

But sometimes company decisions could be reversed. Persistence was the key. Witness the case of one consumer who urged attention for 19th Street from Fifth to Sixth Avenues and found the measure delayed. Yet, the very next week saw the Building Committee accede to his request. In fact, records indicate that the body frequently changed a ruling on short notice. Members often tabled appeals only to review and approve them a short time later. They doubtless used "tabling" as a lever to force petitioners into expanding their fold. Still, from all accounts it appears there was plenty of jockeying on both sides.[78]

Sometimes, however, agreements broke down. On occasion, the Building Committee reversed itself and cancelled construction previously sanctioned. Therefore, in 1849, one week after approving his request, the body's members reneged, writing James Witherspoon that "upon two other Gentlemen in [the] neighborhood joining him in fitting up their homes, the main in Abingdon Place would be laid."[79] Though rae, such actions no doubt enraged consumers.

Since profit-making companies controlled the gas industry, it was hardly surprising that fashionable routes such as Broadway, Pearl, Fulton and Greenwich first received pipes (see MAP 5).[80] In the 1830's, only lower Manhattan was lit,

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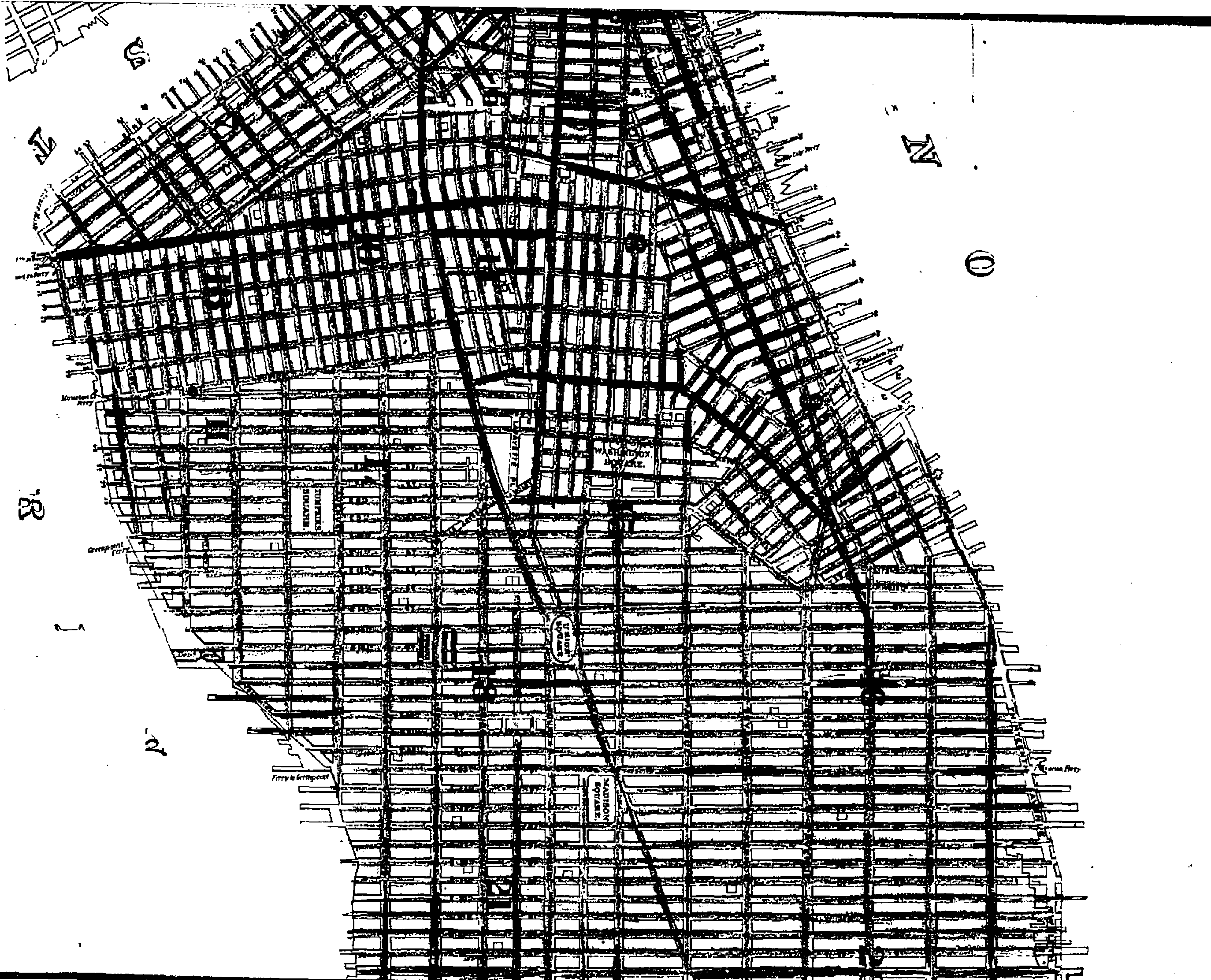
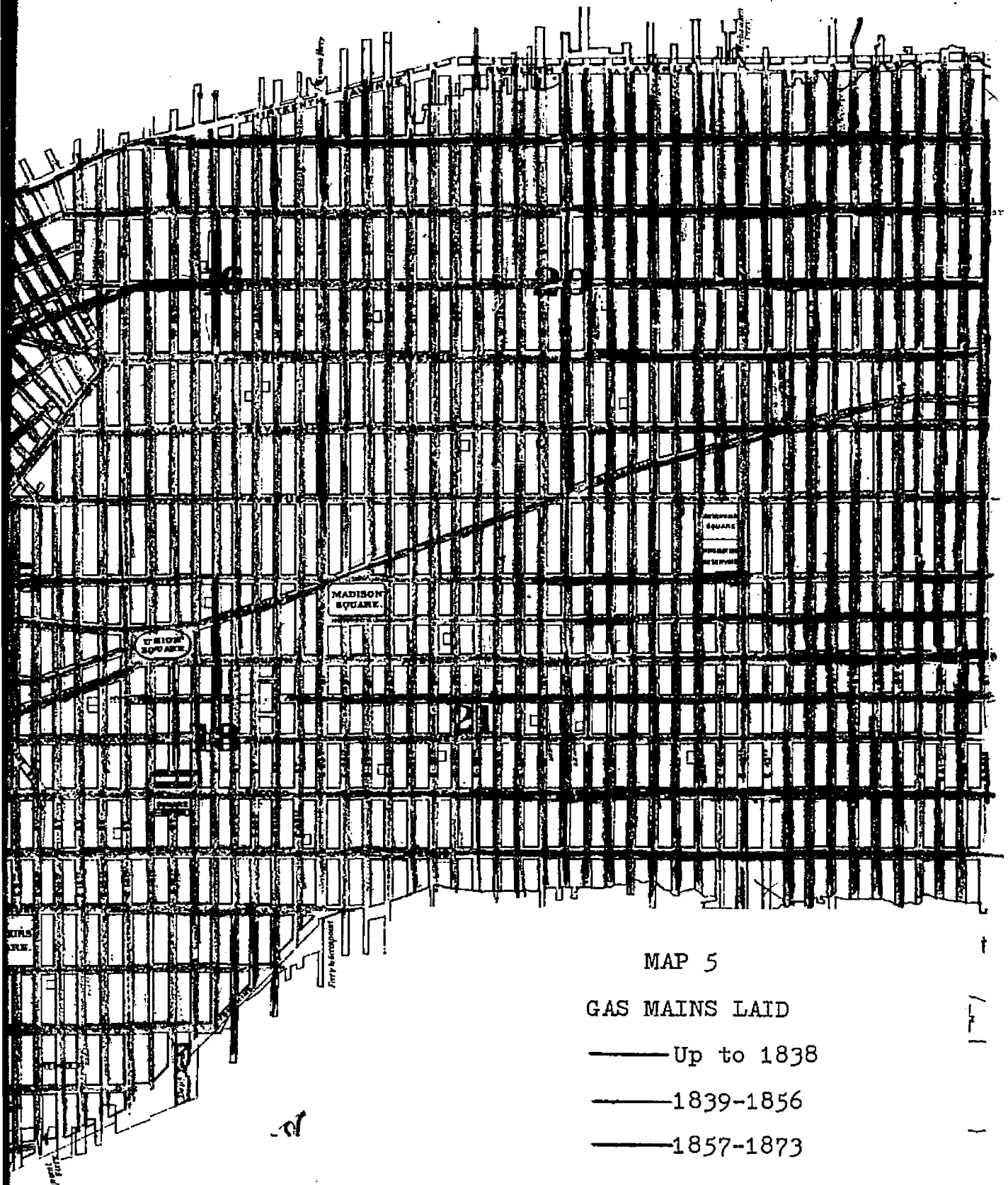
PARK



WASHINGTON SQUARE.
TOMPKINS SQUARE.
UNION SQUARE.
MADISON SQUARE.
Greenpoint Ferry
Ferry to Greenpoint



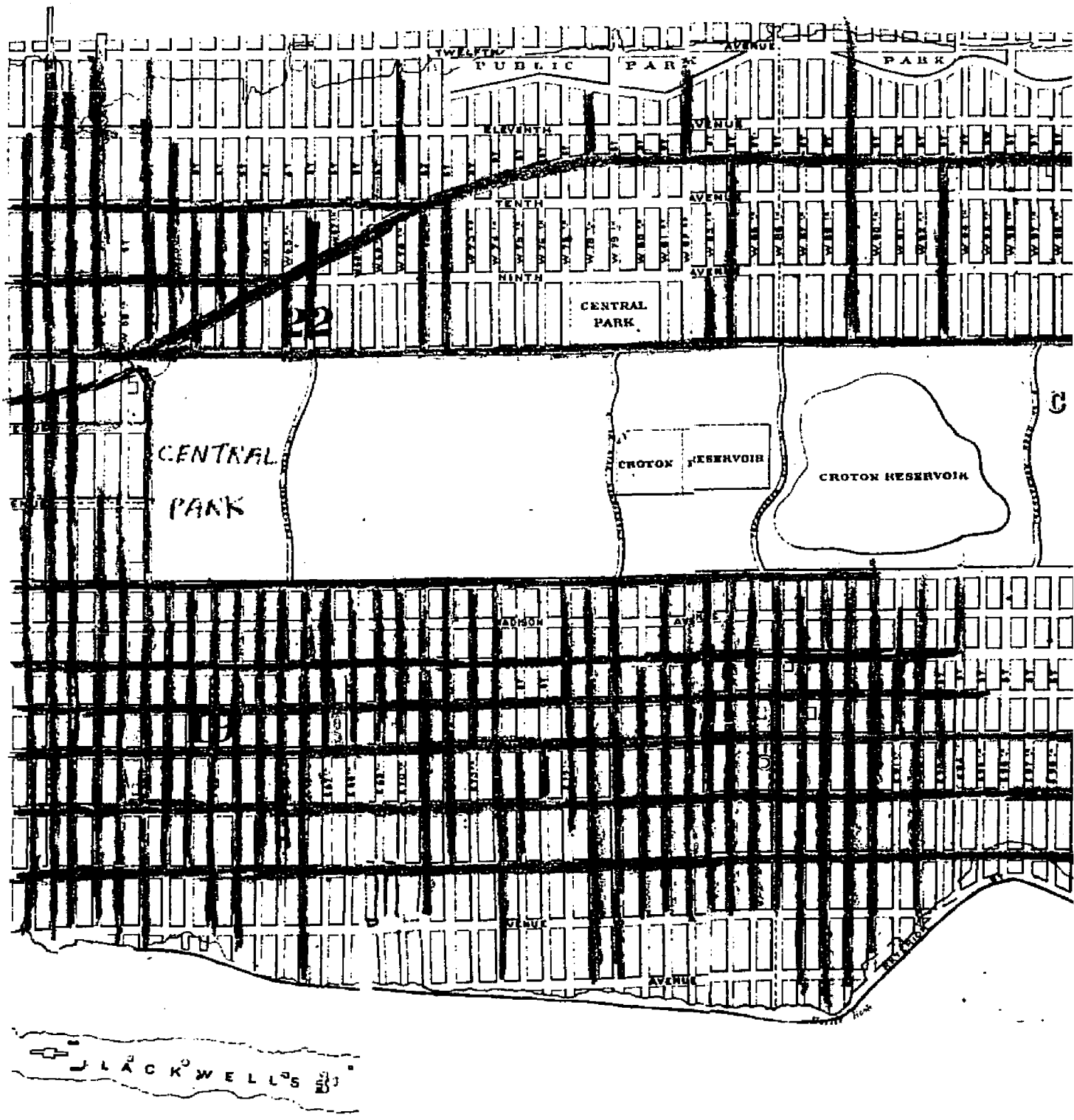
MAP 5

GAS MAINS LAID

——— Up to 1838

——— 1839-1856

——— 1857-1873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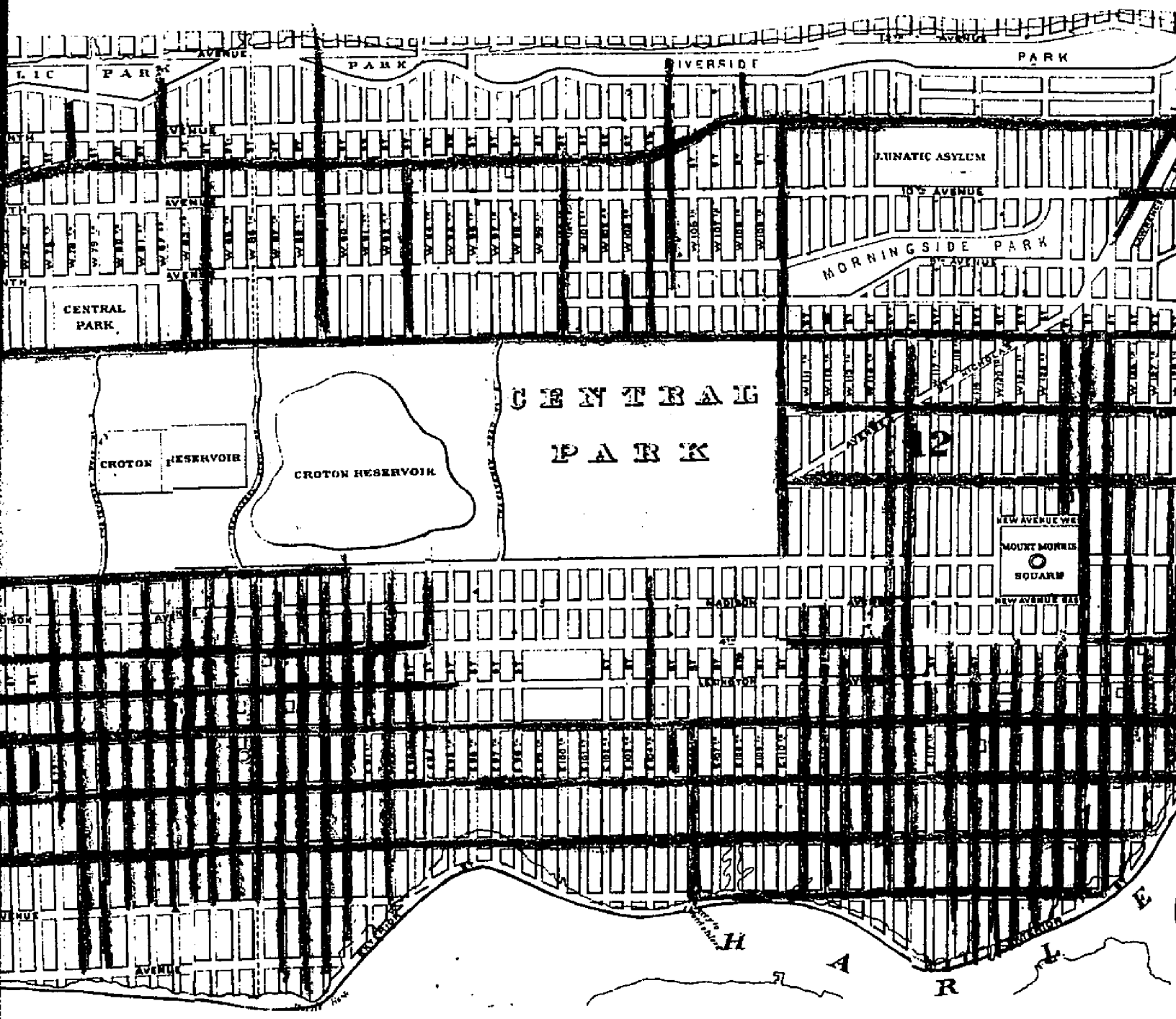
PARK
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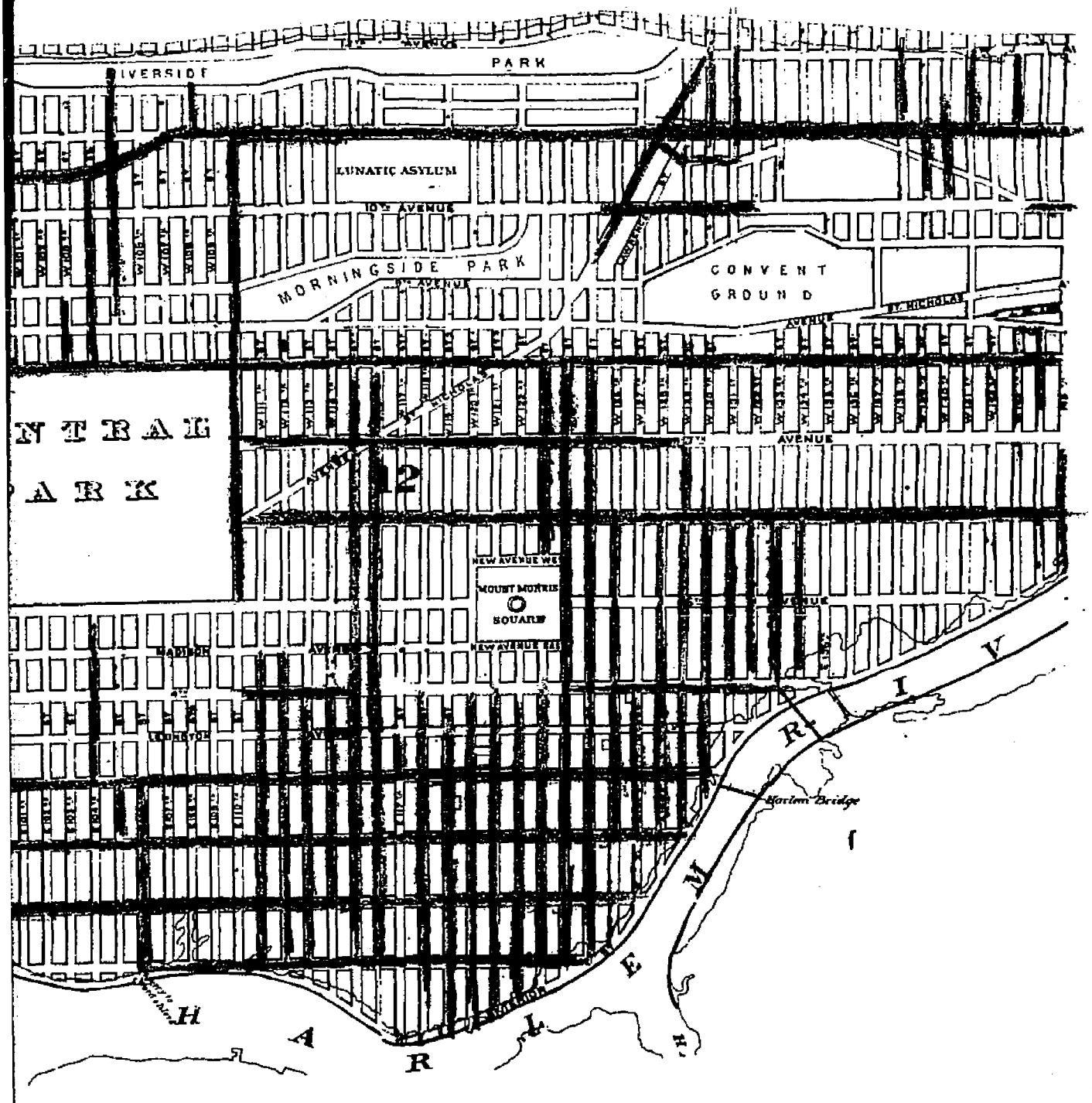
HARLEM


PARK
LUNATIC ASYLUM
10th AVENUE
MORNINGSIDE PARK
CONVENT
GROUND
ST NICHOLAS
AVENUE
NTRAL
ARK
12
MOUNT MORRIS
SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
MADISON
LEXINGTON
Harlem Bridge
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since the infant utilities lacked long-distance capabilities. Mains crossed from residential streets over to the business district which required better lighting for appearance, efficiency and security. Wall, Broad, lower William and Nassau all had lines. The only middle or lower-income families supplied were those huddled near first-class homes or large office buildings. Less wealthy districts above City Hall went neglected till the 1840's.

After 1838, as the companies improved equipment and became more prosperous, they extended networks throughout downtown. As early as 1854, every road below Grand had service. In fact, these pipes reached "low-priority" neighborhoods sooner than sewers or smooth pavement; only Croton water invaded faster. Even sections east of Union Square, though covered with factories, coal yards and third-class flats, received gas by 1857. Conduits also came to the oft-neglected Irish and German wards on the east side, although some landlords postponed hook-ups for years more. Both waterfronts, too, won attention by 1857. But, despite the lighting of piers, warehouses and loading docks, nightly pilferage still thrived along the wharves.

The utilities early realized that gas was an asset to some real estate. Witness the case of Third Avenue. Already, by 1840, pipes rushed up the thoroughfare to Harlem, adding an attractive, new feature to the sales pitch of speculators. Hence, while roads and avenues north of Madison Square remained dark or in oil, Third Avenue flourished as a site for

fine homes. Already, by 1850, it possessed more of these dwellings than any other uptown thoroughfare, and would hold the advantage for a decade more.

As new streets opened yearly, paving grew more crucial. In colonial times, the small population tolerated many dirt roads. Only Broadway, Pearl, Lower Greenwich and other major arteries won cobblestones. The latter, long the standard surface in London, predominated in Gotham until challenged by smoother rivals. Several disadvantages augured its demise. The numerous crevices between stones were no boon to public health. For, within these grooves, dirt, mud, animal excrement and other putrescent matter tenaciously caked themselves, defying removal. And, as fever nests multiplied in thoroughfares everywhere, officials agreed that the layer retained "much more street filth...than Belgian pavement" or any other.[81]

Often sections autonomously rose or sank a few inches over time. In a typical lane there might be a dozen pockets whose grades deviated from the norm, impeding "rapid and thorough drainage." Physicians explained that in "cobblestone pavement, large and small basins are found caused by the depression of some of the stones and these hold the surface water until it evaporates or is absorbed by the soil." As a result, residents had to rely on evaporation for street drainage; sewers were of little use.[82]

In addition to health, noise, too, was a factor. As population rose, the multiplying hoofs and wheels produced an intolerable din. By the 1830's, officials finally looked to London for a smoother replacement. Wood was the current English candidate, and, in 1838, the Street Committee recommended re-paving Broadway with it. Although its cost would be three times that of the present material, this was of "little importance," since timber meant "relief from the noise which stone pavement occasions in popular streets, to the annoyance of those residing or transacting business therein."[83]

Another defect of the old surface was its frequent cracking and crumbling. Due to this "instability," one critic observed, "it is frequently out of repair, thereby greatly impeding the passage of heavy loads."[84] Perhaps this was the key factor impelling the city toward smoother alternatives. Major commercial arteries could scarcely afford traffic obstructions. Already by the 1840's, competing routes struggled to rid themselves of rugged pavements lest rivals succeed first and capture local business. By the 1850's it was clear: road surfaces would be crucial to the future of any block. Even after the advent of better compositions, authorities limited them to avenues and heavily-traveled streets. And this policy held until the 1860's when New York converted wholly to trap blocks.[85]

Gotham first tested new materials in the 1830's. As stated, in 1838, the government paved a section of Broadway with wood. After months of experimenting, officials determined

that the "durability of wood pavement, compared with stone, depends upon the circumstance[s]." In a great thoroughfare like Broadway, stone often became "broken and irregular, in the course of two seasons," while planks could "preserve an even surface for several years." But there were drawbacks. Although timber required less repair than stone, it was three times more expensive. Thus, officials concluded, it might serve major arteries, but economy dictated cobblestones elsewhere.[86]

Eventually, high costs ended wood's career, forcing leaders to search for smoother alternatives. In the 1840's, Russ' pavement (named for its manufacturer, Horace P. Russ) attracted much attention. This was a hard substance made of various compounds. In 1845, the city authorized it for Broadway between Bowling Green and Duane. The contractors received about $85,000 per year for their work, but still operated at a loss. Finally, in 1850, a sympathetic Street Committee voted "to extend this improvement through the remaining two-thirds of Broadway [up to Union Square]...with all the dispatch possible."[87] But profits continued to sag.

In 1852, the Russ & Reid Company tried ousting cobblestone as Manhattan's chief surface. The firm's suggestion was enticing. It advocated covering lateral streets "with Russ pavement, at a cost to... [government] of one-third of the amount now paid for said work, the remaining two-thirds being paid by the owners of property, fronting said improvement." The reasoning was simple. With the town's charge lowered, it now would pay only twice the amount expended per foot for

cobblestone.[88] Everyone would benefit from the scheme: the contractor would reduce his overhead by increasing output, the public treasury would face less strain and lot owners would escape some expense. Yet, despite the Street Department's support, the deal fell through.

The trouble lay with the pavement itself. Though rarely in need of repair, it was too "hard and slippery," thus affording "an unsafe footing for horses."[89] As one doctor in the Fifteenth Ward reported, during any year "a large number of horses are injured by falls upon it [the Russ], and accidents also happen to equestrians."[90] Manufacturers failed to eliminate the slipperyness. As a result, the metropolis, unwilling to commit itself to so hazardous a surface, searched for alternatives.

Belgian trap blocks eventually won out (over iron planks and others).[91] The victor's basic design antedated the Revolution. Though smooth as Russ, the Belgian cover was less slippery. As with cobblestones, grooves formed between the blocks, but, owing to the larger area of each stone, there were fewer crevices.[92] By 1865, most new contracts specified Belgian layers. Its soaring price, however, triggered a mild revolt among assessees. Although lot owners had often borne the full cost of cobblestone paving, they now urged government to change its policy and share trap-block bills. A precedent already existed, for when experimenting with Russ, the town had shouldered most of the Broadway project's expense.[93] By the 1860's, inflated payments also induced City Hall to begin assuming

the cost for street repairs. And this unwanted headache only intensified the trap-block movement. Lot owners, too, favored the action, contending that the installation of a reliable surface in New York "would save expense, which it would otherwise be put to, in frequent repairs to cobblestone pavement."[94] And this became a growing consideration as streets and traffic proliferated yearly. Then too, as town authorities widened their search for a panacea, Belgian, Hamar, Nicholson, Stafford and macadam all came under scrutiny.

Though lot owners rarely bore the whole expense of Belgian blocks, the city's percentage varied considerably.[95] In 1862, for instance, government assumed the full amount for paving Broome from Broadway to Bowery, two-thirds of the charge for 29th from Fifth to Broadway, one-half for 35th from Second to Third and one-third for Second Avenue from 48th to 61st. Most of the time, the municipality split the bill with landholders, but, when covering Second Avenue from Houston to 34th, the horse-car railway contributed one-third and City Hall the rest--residents paid nothing.[96]

Along their routes, horse-car lines and railroads held great responsibility for road conditions. By law, the former had "to keep streets between the rails on either side of them paved with Belgian blocks or small cobblestones." But, as one contemporary observed, despite stringent enactments, "it does not appear that this requirement is always complied with."[97]

Throughout the century, town officials struggled to

provide the burgeoning metropolis with adequate thoroughfares. The battle, however, was ceaseless and poor planning cost the treasury a fortune. All cobblestones eventually needed replacing. But, whatever the project, waste was more often the rule than exception. For one thing, the Common Council frequently paved a mud street before grading or sewering it.[98] And when pipeage finally came, the new surfacing would have to be ripped up and re-laid again. In an age of soaring prices, such extravagances were a comptroller's nightmare.

In fact, high costs were the chief obstacle to blanketing Manhattan with trap blocks. Although Broadway had its Russ layer by the 1840's, most downtown arteries waited (see MAP 6)[99] until after the Civil War; only major routes like the Bowery, Grand and Wall or newly-straightened ones like Chambers won smooth covering. Uptown enjoyed most attention, since town policy favored the newer, unpaved streets above 40th. Universal improvement awaited the twentieth century.

Costs varied among different types of public works. Smooth-paving was the highest. In 1836, contractors charged only $2,890 to cobblestone 14th Street from Sixth to Seventh Avenues, while twenty-five years later it took $30,000 to trap-block 14th from Union Square to Ninth Avenue.[100] Indeed, the city paid $30,000 to surface Canal from Broadway to West and $80,000 for Third Avenue from Bowery to 44th.[101] Expenses for Ninth Avenue from 14th to 42nd Streets approached $85,000,

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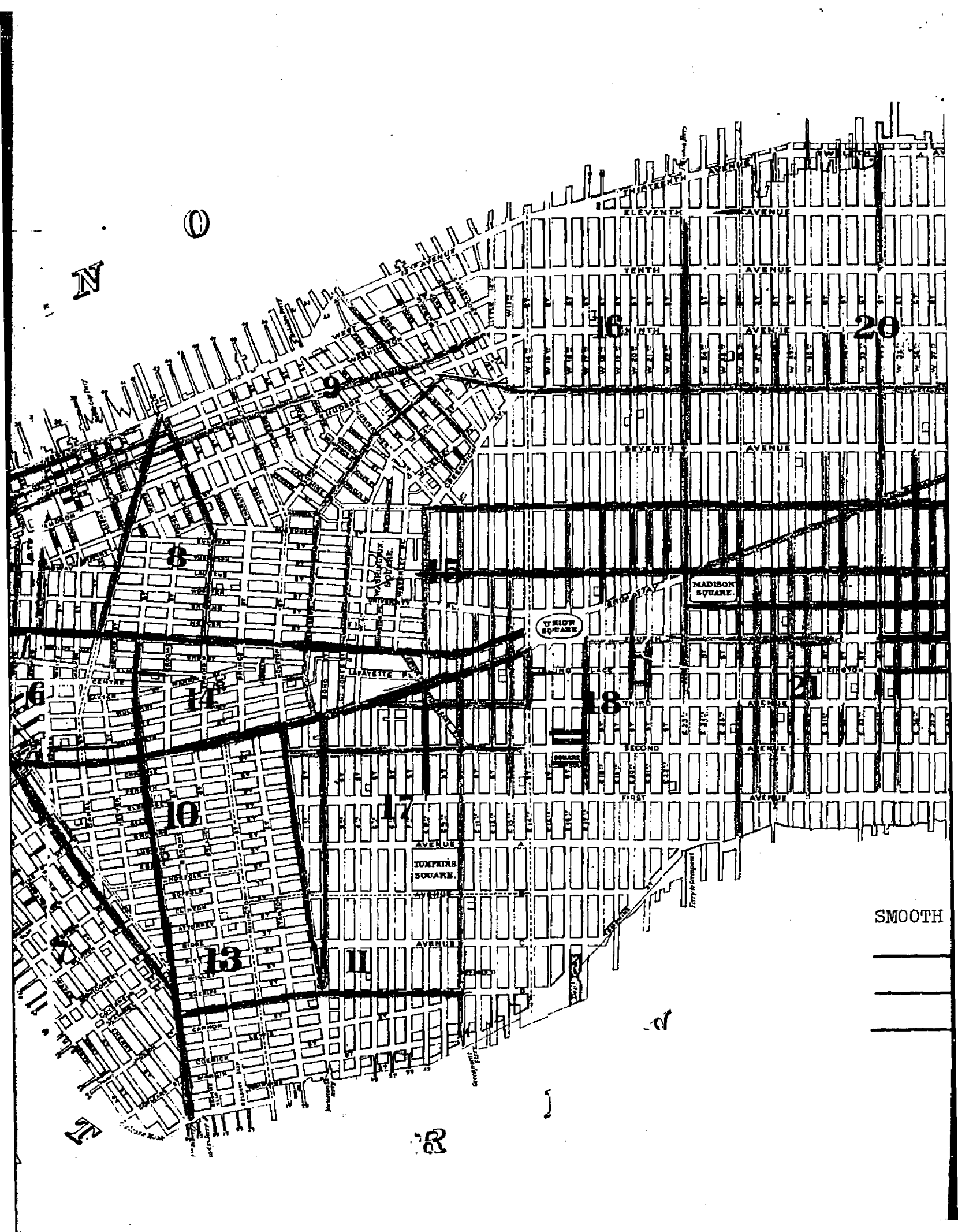
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THIRTEENTH AVENUE
ELEVENTH AVENUE
TENTH AVENUE
NINTH AVENUE
EIGHTH AVENUE
SEVENTH AVENUE
WEST WASHINGTON PL.
HUDSON ST.
GREENWICH AVE.
CHRISTOPHER ST.
WEST 4TH ST.
BLEECKER ST.
BROADWAY
MADISON SQUARE.
UNION SQUARE
LAFAYETTE PL.
FOURTH AVENUE
THIRD AVENUE
SECOND AVENUE
FIRST AVENUE
AVENUE A
TOMPKINS SQUARE.
AVENUE B
AVENUE C
AVENUE D
CANAL ST.
CHERRY ST.
GOUVERNEUR SLIP
Ferry & Omnibus
SMOOTH
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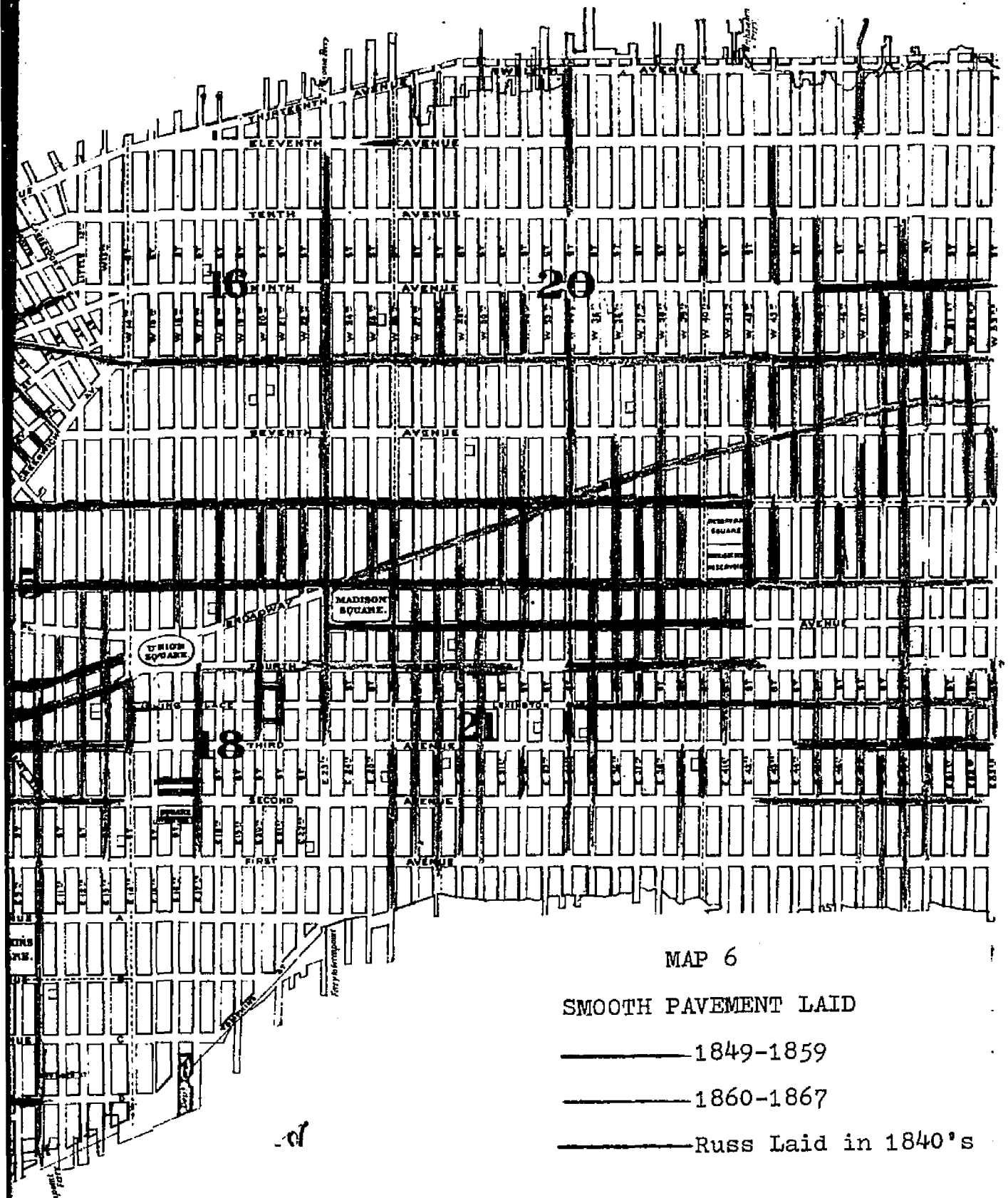


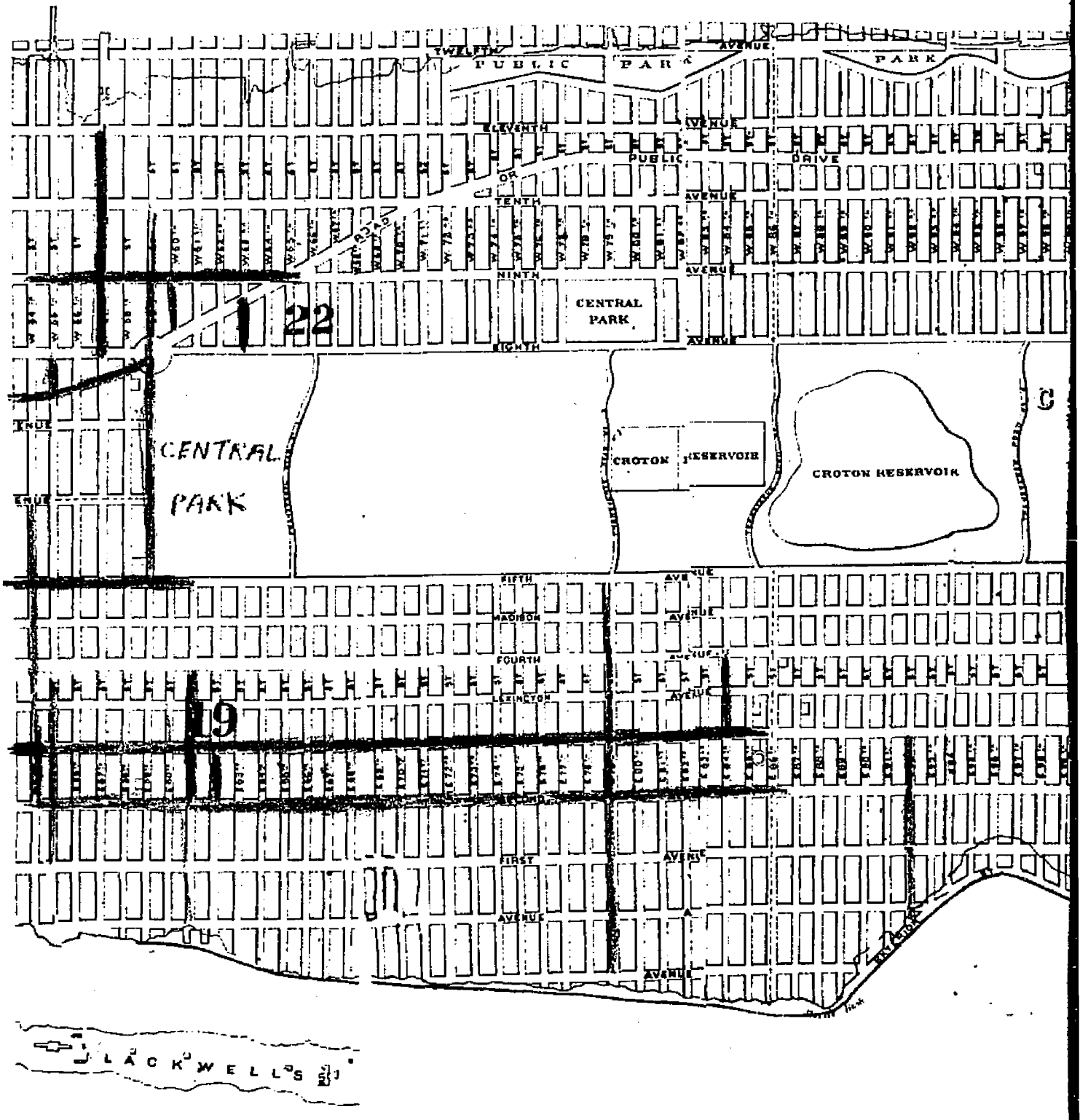
MAP 6

SMOOTH PAVEMENT LAID

———— 1849-1859

———— 1860-1867

———— Russ Laid in 1840's


TWELFTH
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AVENUE
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PARK
CROTON
RESERVOIR
CROTON RESERVOIR
FIFTH
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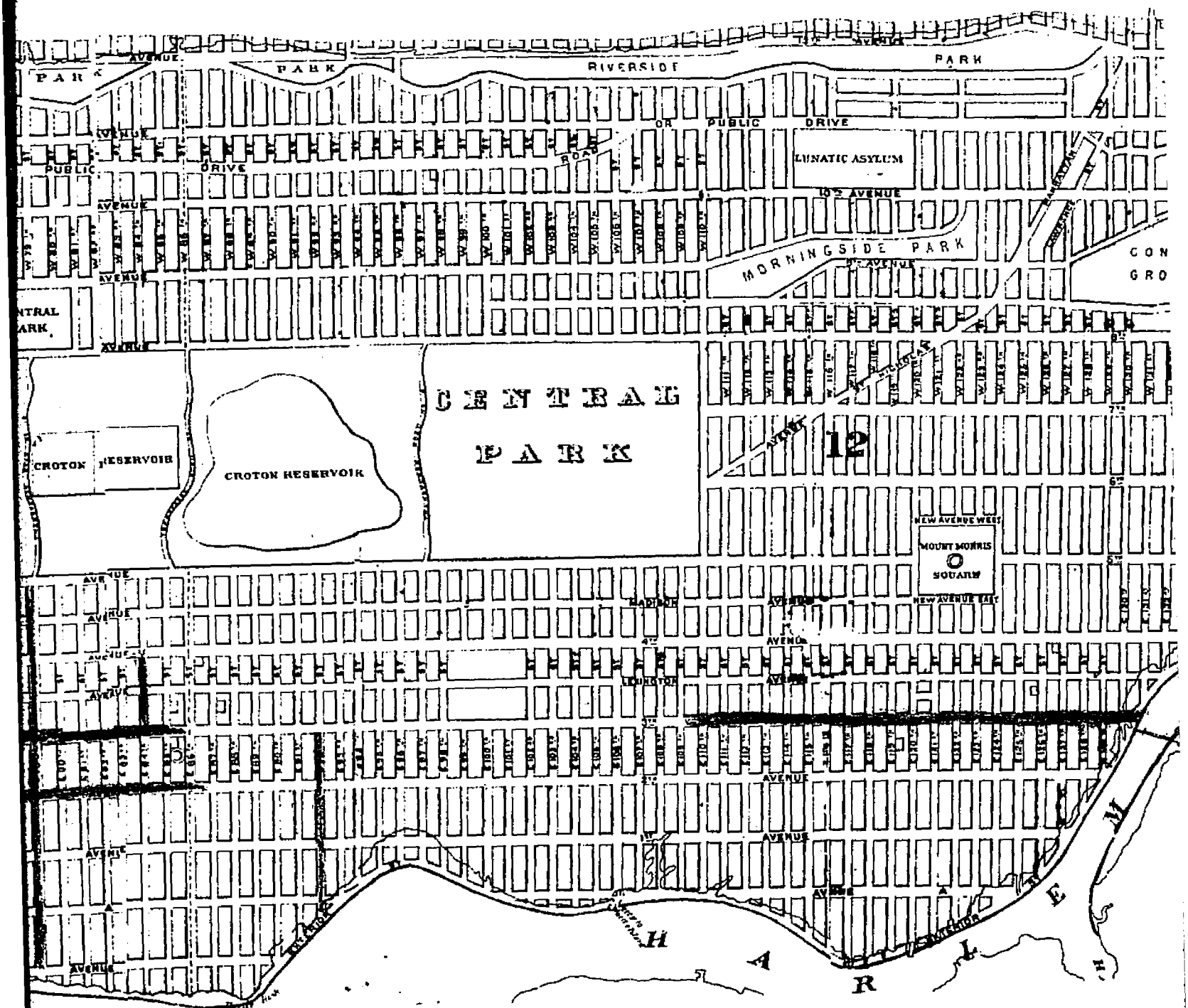
RIVERSIDE
PARK
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MORNINGSIDE PARK
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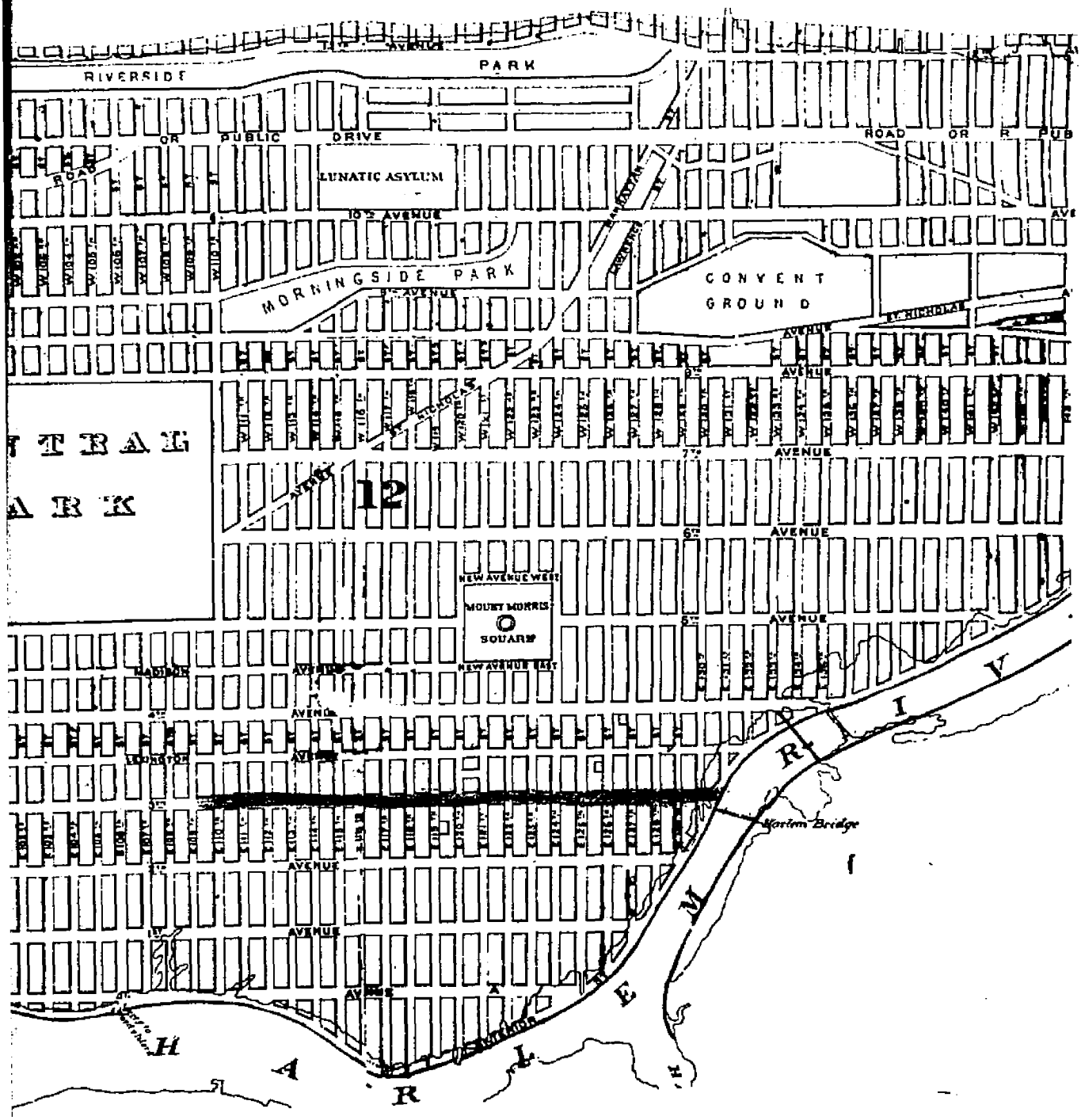
MOUNT MORRIS SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
HARLEM


RIVERSIDE
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LUNATIC ASYLUM
MORNINGSIDE PARK
CONVENT
GROUND
ST NICHOLAS
AVENUE
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MOUNT MORRIS
SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
Harlem Bridge
HARLEM
RIVER

and though considerable, several other jobs surpassed even that figure.[102]

Sewers, though more troublesome to install, were usually cheaper. In 1863, it took $22,000 to pave 23rd Street from Third Avenue to East River but only $1,100 to drain the route from Avenue A to the waterfront.[103] Still, the gap was not always so great. In 1863, the city spent $4,500 to surface 40th between Ninth and Tenth Avenues and $3,764 for waste tunnels on nearby 43rd from Eleventh to the Hudson.[104] In fact, sewer costs fell after 1840 and the introduction of vitrified pipe further intensified the trend. The 1830's, however, had witnessed high figures. In 1835, for instance, contractors charged $5.96 per square foot for the 22nd Street conduit from Second to Fourth Avenue, while on 20th between Eighth and the Hudson it was $6.25. Sewerage for Waverly Place from Fifth to Sixth Avenues, a short distance, ran over $7.20 per square foot. Indeed, most contracts usually exceeded the five-dollar level and sometimes even ten.[105] By the 1860's, however, pipes rarely surpassed five dollars. In 1863, for example, tubes in Cannon, Laight, Corlears, Jones, 46th and 79th Streets all ran less than four dollars.[106] A few projects like the one in 47th Street from Eleventh Avenue to the Hudson suffered grade problems which raised prices, but, still, no line that year reached the six-dollar level.[107]

Gas mains, on the other hand, were less expensive than most road surfaces. Even in the 1830's, when overhead was high for the fledgling industry, pipe installation never

approached sewer or paving charges. But prices varied according to the diameter of the expensive, iron ducts. Hence in 1838, the New-York Gas-Light Company paid approximately $2.67 per square foot for twelve-inch diameters but $4.33 for sixteen-inch models. And excavation inflated costs higher.[108] Metallurgical improvements fortunately kept amounts down in ensuing decades, although in some streets it became cheaper to install sewers than gas mains.

Definite trends emerge when comparing the price of different public works, but results are less clear when analyzing how improvements affected lot values. How did the installation of gas mains, sewers or smooth pavement influence bordering lots? Perhaps the most significant point is the absence of land sales before or after many street alterations.[109] Indeed, a sampling of city records seems to indicate that many lot owners, upon hearing of a nearby project, held on to property. Perhaps uncertainty swayed some men while others waited for values to rise.

Preliminary findings indicate that real estate prices did not increase significantly immediately after an improvement.[110] This was especially true of lots bordering newly-sewered roads. In 1838, for instance, officials decided to drain 20th Street from Seventh to Eighth Avenues. In August, 1838, Erastus Guernsley bought lot #52 on the block for $1,650.[111] Two years later, in May of 1840, the tube lay almost complete, yet Guernsley only received $1,700 for his land.[112] But again, the conduits involved heavy capital outlays and perhaps assessments distorted the amount.

Even in short-run situations, however, numerous factors could affect land values. New parks, police or fire stations, streetcar lines and other improvements could all exert influence within a two-year period. Such factors may have clouded a deal made on 19th Street. In 1849, Manhattan Gas-Light decided to lay mains in the thoroughfare from Fifth to Sixth Avenues. In June, lot #10 sold for only $350,[113] but, ten months later the same ground brought $2,400.[114] Was the introduction of gas the key? Probably not, since a pattern of dramatic price risesrarely followed pipe installation. In fact, during May of 1849, Lewis White purchased lot #61 on 22nd between Seventh and Eighth for $1,500.[115] Mains arrived shortly after, but in October of that same year he sold out at a loss ($1,450).[116]

Clearly, measuring the effect of public works on urban land values is a complex task requiring intensive research and sophisticated techniques. Such an effort, however, would go far toward testing the long-unchallenged assertions of Richard Hurd, Homer Hoyt and similar theorists. Still, preliminary study reveals a tentative finding: spot checks of conveyances for routes winning improvements in the 1830's, 40's and 50's show few cases when aldermen approved a project after having acquired the enhanced lots.[117] Yet, before rendering a final judgment, all public works and land records must be scrutinized--a job beyond the scope of this work.

The 1830's, 40's and 50's witnessed an unprecedented

mushrooming of projects, as the city struggled to keep pace with population demands. Urban expansion had forced politicians to abandon the traditional precepts of negative government. A thousand decisions edged City Hall toward increasing its commitment to community needs. Motives were legion: voter appeasement, enhanced property, balanced growth and greater municipal power being just a few. But, most importantly, neighborhoods everywhere benefited.

Patterns rapidly emerged from the effort. Uptown received the best sewers and pavement while downtown was first to win gaslight and water. Yet, even within these categories there was discrimination, since officials rarely distributed improvements fairly. In some cases, whole zones did without services--a perennial victim being the lower east side. But, on the whole, the century witnessed substantial progress. The seeds of this success lay in the 1820's and 30's when government endorsed more public works. True, there was doubt, disagreement and conflict, but one thing was clear: the chaotic transition from town to metropolis had forced Manhattan to tackle its problems.

NOTES

[1]Pessen, p. 172.

[2]Real Estate Record Association, A History of Real Estate, Building and Architecture in New York City During the Last Quarter of a Century (New York: Arno Press, 1967), p. 51.

[3]Ibid.

[4]"Class" was a term used by the fire insurance companies to describe the quality of a building's roofing. The latter, to some extent, was indicative of the quality of the edifice itself. "First class" signified "slate or metal roof and coped," "Second class" referred to "slate or metal roof not coped," Third, "slate and shingle roof" and Fourth, "shingle roof."

[5]Insurance Company Maps, I, 1-2.

[6]Ibid.

[7]Ibid.

[8]Ibid., p. 2.

[9]Ibid., pp. 3-4.

[10]Ibid.

[11]Ibid., II, 13. This was the case in Madison and Monroe Streets between Catharine and Market.

[12]Ibid., I, p. 12.

[13]Ibid., II, 15-16.

[14]Ibid., 20-28.

[15]Ibid., III, 30-33.

[16]Ibid., pp. 33-36.

[17]Ibid., IV, passim.

[18]Ibid., pp. 39-40.

[19]Ibid., p. 54.

[20]Ibid., VI, 76-78

[21]Ibid., VII, 89,95.

[22]Ibid., pp. 97, 88.

[23]Waring, I, 571.

[24]Ibid., p. 570.

[25]Ibid., p. 569.

[26]Ibid., pp. 570-571.

[27]Aldermen, Documents, XIV, #18, November 8, 1847, 278-293.

[28]Waring, p. 570.

[29]Aldermen, Documents, XI, #7, July 1, 1844, 129.

[30]Ibid., pp. 130-131.

[31]Ibid., XII, #22, December 8, 1845, 395-407 discusses administrative problems.

[32]Waring, p. 570.

[33]Ibid., p. 571.

[34]Ibid., p. 576.

[35]Ibid., p. 571.

[36]Ibid.

[37]Ibid.

[38]Ibid., pp. 570-571.

[39]Ibid., pp. 574-575.

[40]Ibid., p. 574. See also Aldermen, Documents, XXXV, Part I, #2, January 1, 1868, 18-26 for types of sewers built.

[41]Ibid., p. 17.

[42]Waring, p. 572.

[43]Aldermen, Documents, XXXV, Part I, #2, p. 17.

[44]Waring, pp. 571-572.

[45]Ibid., pp. 573, 584-585.

[46]For sewer locations up to 1847, see Aldermen, Documents, XIV, #18, November 1, 1847, Thereafter, consult the sewer listings each year in Valentine's Manual.

[47]The best general work on the subject is Louis Bader, The Provision for Gas in New York City, 1823-1860 (unpublished Ph. D. dissertation, New York University, 1968).

[48]Aldermen, Documents, I, #48, March 16, 1835, 552-553.

[49]Ibid., p. 555. Figures are based upon the price in New York during the previous year.

[50]Ibid.

[51]Ibid., pp. 558-560.

[52]Ibid., p. 558.

[53]New-York Gas-Light Company, Minutes, October 9, 1848, p. 243.

[54]Ibid., January 15, 1834, p. 150; January 16, 1837, p. 175; January 15, 1838, p. 185; October 9, 1843, p. 211; January 17, 1826, p. 31.

[55]Ibid., p. 144.

[56]Aldermen, Documents, I, #55, April 20, 1835, 602.

[57]Ibid., II, #131, May 9, 1836, 680-683.

[58]New-York Gas-Light Company, Minutes, January 15, 1831, p. 151.

[59]Ibid., March 2, 1829, p. 108; January 16, 1837, p. 176.

[60]Aldermen, Documents, II, #131, 680-681. For gas rate controversies, see the New York Times, August 19, 1864; February 5, 1865 and September 5, 1867.

[61]Aldermen, Documents, II, #83, February 3, 1836, 421.

[62]Ibid., pp. 422-423.

[63]Ibid.

[64]Ibid., p. 425.

[65]See Louis Stotz, History of the Gas Industry (New York, 1948), pp. 48-61 for a discussion of later companies.

[66]Aldermen, Documents, II, #108, March 14, 1836, 575-577.

[67]Ibid., p. 576.

[68]New-York Gas-Light Company, Minutes, March 2, 1829, p. 108; October 9, 1848, p. 243.

[69]Ibid., January 10, 1835, pp. 158-160.

[70]Ibid., p. 243.

[71]Aldermen, Documents, I, #55, April 20, 1835, 603.

[72]Stotz, pp. 48-49.

[73]Manhattan Gas-Light Company, Minutes of the Building and Executive Committees, 1849-, passim. Also consult fire insurance company maps as a counter check.

[74]Ibid., July 16, 1849, p. 16.

[75]Ibid., June 7, 1849, p. 7; June 11, 1849, p. 9.

[76]Ibid., November 10, 1849, p. 28.

[77]Ibid., November 15, 1849, p. 32; October 17, 1849, p. 25.

[78]Ibid., pp. 19-23.

[79]Ibid., October 30, 1849, pp. 27-28.

[80]To find gas main locations one must consult a variety of sources. See Aldermen, Proceedings from 1835-1871. Though helpful for the period after 1855, these papers are very incomplete for earlier decades. The New-York Gas-Light Company's Minutes are good up to 1849, while the Manhattan Company's Minutes are best from 1849-1856. Also of use are the occasional reports of the Gas and Lamps Committee in Aldermen, Documents, from 1835 up to about 1855. Due to very incomplete records, this map was the most difficult to put together.

[81]Sanitary Condition of the City, p. 4.

[82]Ibid., pp. 128-129.

[83]Aldermen, Documents, IV, #49, January 3, 1838, p. 321.

[84]Sanitary Condition of City, p. 4 and p. 207.

[85]Ibid., compare pp. 207 and 327.

[86]Aldermen, Documents, IV, #49, 321.

[87]Ibid., XVII, Part II, #79, December 19, 1850, 1253

[88]Ibid., XIX, Part II, #58, November 17, 1852, 1453.

[89]Sanitary Condition of City, p. 4.

[90]Ibid., p. 129.

[91]Ibid., passim. Look at "streets" section of each district's summary.

[92]Ibid. Sanitary officials favored trap blocks over cobblestones and Russ.

[93]Councilmen, Documents, (1858), March 1, 1858, #7, p. 5.

[94]Ibid.

[95]There were exceptions to this rule. See Aldermen, Documents, XXXI, #2, January 5, 1863. 78, 5-15.

[96]Ibid., pp. 67-69.

[97]Waring, p. 565.

[98]For example, compare paving and sewering for Broadway. See Maps 2 and 4 above. Also consult Aldermen, Documents, IV, #19, July 17, 1837, 153-154 for a discussion of the problem on 21st Street.

[99]Ibid., XXXV, #2, January 6, 1868, 110-119 for paving up to 1867. For 1868-1870, see the paving section of each year's Valentine's Manual.

[100]Aldermen, Documents, V, #45, March 25, 1839, 464; XXX, Part I, #9, March 23, 1863, 68.

[101]Ibid., XXX, Part I, #9, 67.

[102]Ibid., p. 68.

[103]Ibid., pp. 67 and 73.

[104]Ibid., p. 69; XXXI, Part I, #2, January 4, 1864, 86.

[105]To obtain these figures, divide the total cost of the sewer (found in Ibid, V, #45, March 25, 1839, 491-494) by its distance (found in Ibid., XIV, #18, November 8, 1847, 278-293).

[106]Ibid., XXXI, Part I, #2, January 4, 1864, 86-87.

[107]Ibid.

[108]New-York Gas-Light Company, Minutes, January 15, 1838, p. 185.

[109]New York'City, Register's Office, Re-Indexed Conveyances...Prior to 1917, passim. One must be careful in judging the effect of public works on land sales. Frequently, an owner might have sold out for personal reasons. In addition, research is made more difficult by the fact that relatively few transactions occurred just before or after an improvement. Furthermore, one can never be sure how early residents learned of impending projects.

Moreover, there is an additional complication. Especially after 1850, it was occasionally the case that grantors and grantees conspired to place an incorrect dollar figure on their deeds. For more on this, see RRBG, XVI, December 12, 1875, 826.

[110]Ibid.

[111]Ibid., Vol. 86, Liber 389, August 6, 1838, p. 177, Lot # 52.

[112]Ibid., Liber 406, May 21, 1840, p. 125. Lot #52.

[113]Ibid., Vol. 92, Liber 520, June 6, 1849, p. 474, Lot #10.

[114]Ibid., Liber 540, April 26, 1850, p. 376, Lot #10.

[115]Ibid., Vol. 86, Liber 522, May 10, 1849, p. 194, Lot #61.

[116]Ibid., Liber 526, October 24, 1849, p. 545, Lot #61.

[117]See the Re-Indexed Conveyances for the years 1830-1850, passim.

CHAPTER 5

THE WATERFRONT

New York's destiny as a great port seemed assured from the beginning. Its boosters claimed a harbor "not excelled by...any city in the world."[1] Two major waterways girded the island permitting access for ocean-going vessels. By 1800, only the northern channels required dredging, though alterations later opened these as well.[2] In fact, most waterfront development occurred after 1800. The colonial period saw piers built mainly along the lower east and west sides. As commerce prospered, investors built wharves. By 1790, nearly forty serviced shipping. Most graced the East River where for years vessels sailed up to Coffee House, Whitehall, Old Slip and neighboring landmarks. By 1807, the East River hosted over thirty wharves while the Hudson claimed fifteen.[3] And as population and trade boomed after Napoleon's fall, New Yorkers reponded with more docks. A new auction law, more British trade, the Erie Canal and other events all combined to trigger the boom.[4]

Prosperity changed municipal policy. As waterfront values rose, the town stopped selling these lots to private

investors and, instead, began developing the property.[5] Authorities first had to fill acres of swampland along both rivers before adding docks and bulkheads. The work was slow, usually inferior and always expensive. By 1835, it cost over $20,000 to erect a pier at Coffee House Slip,[6] and the next fifty years saw most prices triple.[7] But, despite this inflation, faulty construction persisted, resulting in frequent repairs, higher overhead and stunted growth.

Indeed, repair costs mounted annually. An 1868 investigation reported "hardly an instance known where the cost of building a Pier has been received by the City in rents, before it is necessary that it should be rebuilt."[8] Such conditions had persisted for years. In fact, nineteenth-century dock construction rarely approached acceptable standards. In spite of written stipulations to the contrary, builders frequently left cross-timbers unbolted. While, on many occasions, piles and decking violated contract specifications or, worse, cross-beams were merely "thrown together and covered over."[9]

At times, piers would rot or collapse within a few years of erection. In 1868, city authorities claimed the West 47th Street quay "fell almost before the workmen left it," and that newly-repaired No. 54 was ready to sink. With the latter, proper bolting was impossible, since its cross-timbers measured "eleven inches square, when the contract called for fourteen."[10] In addition, the renovator never

replaced the old braces, though they were "worm-eaten and rotten." Worse still, the spikes (wooden peg nails) were "much smaller on the head than the contract called for, thereby taking away the great support for the deck of the pier." And similar cases of fraud filled reports throughout the century.[11]

A major cause of these problems was poor competition. This condition was most accute in the early years. Lewis B. Griffin and William Hockman controlled most waterfront improvements.[12] Several factors aided monopoly. First, few rivals could afford the huge capital outlays required for such enterprises. Then too, the town's policy of paying by installment forced catastrophic delays upon marginal firms. Moreover, wharf construction was high-risk public works, because high winds and swirling currents often played havoc with pile foundations. And a structure, once collapsed in the river, could be adjudged a broken contract, leaving the builder open to suit. At the least, he had to clear all debris at his own expense.

On rare occasions the government was compassionate. In 1853, for instance, the Common Council reimbursed Philip Mabie for additional land-fill when his nearly-finished bulkhead slipped fifty feet into the river. But this occurred only after inspectors blamed the accident on an adjacent city project. Surely, the four new acres of land created by the added ground prompted the sympathy.[13]

More often, mistakes hurt the builder. In an 1835 case,

John McIntyre agreed to erect a pier two hundred feet long at Market Street. Unfortunately, he could not complete the last fifty "by reason of the extreme velocity of the tide." Although he secured this "outer block" to the river bed, tidal action "prevented his giving it the usual protection." Later, while the upper portion approached completion, a vessel swept through the works, thrusting the far deck under water. McIntyre convinced City Hall to accept a 150-foot pier. But the hapless contractor, after finishing eighty per cent of the dock and paying for that lost to the river, received only two-thirds of his original charge. Such risks must have kept bidding to a minimum.[14]

As a result, competition grew slowly; by 1850, only four new major builders had appeared. But for an industry often plagued with disasters like McIntyre's, even this increase was significant. Profits spurred these men; Gotham's insatiable need for wharves outweighed financial hazards.[15] Therefore, in the face of commercial prosperity, dock construction surged. By 1853, over fifty piers graced each waterfront and East River building thrived till the 1860's when Hell Gate channel obstructions prevented work farther north. Fortunately, however, Hudson facilities counterbalanced the loss; by 1853, new structures extended from the old frontier at Perry Street up to the West Fifties.[16]

After 1835, despite increased wharfage, berths were still at a premium. No amount of construction could

appease the demand. The resultant boom not only fattened town coffers, but gave City Hall leverage in dictating lease terms. In 1838, for instance, the New York and Boston Transportation Company, which used the municipal pier fronting Marketfield Street, applied for a five-year pact but settled for one.[17] Key occupants, however, won exemptions. Hence with firewood scarce in 1838, officials granted a five-year permit to the Delaware and Raritan Canal Company for unloading Pennsylvania coal.[18]

Ferries fared better than most tenants. As the city expanded after 1800, many residents fled across water to distant suburbs. By 1835, numerous lines serviced Brooklyn, Queens, Staten Island and New Jersey. As compensation, New York had rewarded these outfits with long-term deals at reasonable rates. In 1839, the Fulton Ferry (to Brooklyn) paid $12,000 annually for its twelve-year agreement as did South Ferry (to Staten Island).[19] Other firms, too, enjoyed low rents.[20] But this gradually changed as the Aldermanic Committee on Ferries began viewing the waterfront as a pyramid of priorities.

Many events presaged the future. For years these vessels had enjoyed favorable locations, but in the 1840's and 50's politicians assigned them less desirable sites. A typical case occurred in 1856, when the town sought to remove the Bridge Street Ferry from Gouverneur Slip. Originally, the line had sailed from Jackson but temporarily moved while authorities cleared shallow rocks from the berth.

Once repairs ended, however, the Company fought re-assignment to Jackson, because the Gouverneur terminal was closer to Wall Street and thus more lucrative. The issue touched off a lively debate with competing petitions engulfing City Hall. But authorities, realizing the thirty-foot deep water at Gouverneur Slip would prove valuable for heavy shipping, returned the boats to Jackson. Politicians defended the action, noting the "great want of increased accommodation for heavy shipping along the East River."[21]

With commuters trapped along sizable waterways, officials knew they could land ferries anywhere. Surely, government reasoned, the best and deepest slips deserved steamers and large sailing ships. These ocean-going giants with their expensive cargoes already brought huge profits in dock fees and leases. And newer facilities could only attract greater trade, enhancing Gotham's reputation as a world port. This was a prime consideration, since leaders feared decaying conditions would divert ocean commerce to rival towns. In 1837, the Committee on Wharves, Piers and Slips advised constructing steamboat basins from Pike to Rutgers Slips. Members asserted that New York's "commercial interests [would] be best promoted and the public be best secured by providing suitable piers and basins, sufficient for all the steamboats navigating the East River."[22]

Earlier, in 1835, a Joint Aldermanic Committee had recommended the "making" of South Street from Market to Rutgers

Slip by moving the bulkhead fifty feet into the river. Although it would oust the Screw Dock Company, an outfit engaged in ship repairs, members felt the project vital to the port's growth. For too long, large vessels had found "it difficult in the lower part of the City to procure berths, and in many instances,...[were] compelled to wait several days to get alongside the wharf."[23] East River congestion often had forced ships to unload across others.[24] Such conditions only ensured the diversion of commercial traffic elsewhere. As a result, aldermen insisted that "no part of the water board from Whitehall to Corlear's Hook, can be spared for any purpose than...receiving or discharging cargoes."[25] Therefore, members voted to dismantle Screw Dockworks and extend the sea wall. In subsequent years, town policy boldly attempted to zone the waterfront, moving "all permanent fixtures and machinery for raising or repairing vessels...from the crowded business part of the City."[26]

The government hastened improvements by planning new piers. On occasion, authorities invited private entrepreneurs to share funding, but cooperation was rare, since few wanted the town for a partner. Thus, in 1835, after water lot owners ignored a public notice asking "whether they would or would not unite with the...City in building" a wharf east of Market Slip, the municipality proceeded alone.[27] That same year, it erected a large lumber dock for $70,000 and appointed a superintendent to administer wharfage.[28]

When finished, the structure's popularity among builders and citizens was such that it encouraged the Corporation to further investments.[29]

In supporting new construction, aldermen frequently bucked fierce opposition from private, water lot owners. By 1839, wharf congestion had convinced officials that East River piers had "become excessively crowded and the landing and reception of cargo attended with great hazard and inconvenience."[30] The remedy seemed clear: lengthen Nos. 8-14 to that of Coffee Hpuae Slip and assess each landlord his proper share.[31] But private interests rebelled. Margaret Ten Eyck and Elizabeth Gautier, owners of Nos. 8-10, each claimed their "life estate" in these properties embodied veto power over any changes. And both women, being "advanced in life," dismissed the project's "long-term benefits" as nonessential.[32] Others, however, favored compromise and agreed to extend their East River decks to the length of No. 15.[33]

In fact, the era saw many proprietors initiate public works.[34] In 1838, for instance, Peter Schermerhorn and associates petitioned to complete West Street from Rector to Cedar, "thereby placing the waterfront on a public instead of private property, as to present, and rendering the same at all times approachable" by shipping.[35] The Wharves Committee approved the new bulkhead, and, since two municipal slips lay near, members recommended a partial assessment of the town.[36]

But these and other actions, though helpful, were

not enough to postpone chaos.[37] By 1850, authorities feared that increased crowding at East River berths threatened the port's survival. Since the shipping zone was too small and harbor traffic too concentrated, travel was perilous. In fact, one observer noted that it was common to see ten or more ferries plus "many small boats and lighters at the same time sailing on the river." Steamers further complicated matters. Everyday saw these two-thousand-ton monsters swerving through the rest at speeds approaching twenty miles per hour.[38] Gradually, accidents became more commonplace. But town leaders and shipowners were not solely to blame; merchants, too, were a factor. During the 1850's, for instance, many flour and grain wholesalers refused to switch operations to the Hudson River. Although the latter was more navigable, less congested and safer, tradition bound the industries to East River quays.[39] Such thinking, however, only prolonged the crisis.

The roots of the problem lay in government's past failure to exert control over the waterfront. Not till 1844 did authorities halt the sale of water lots to private investors. By then, however, the city owned only two-thirds of all piers and bulkheads. And of these, only three-quarters were available for commercial use, the rest served as rubbish dumps.[40] Still, once reform came, it was effective. That same year saw the municipality tighten its control of leases. Now, with few exceptions, most tenures ran less than five years; twelve months was the

standard pact. The move was crucial, because the town could now enjoy yearly renegotiations in a burgeoning market. As a result, public revenues grew steadily. Profits were greatest downtown where docks averaged between $1,000 and $5,000. Farther north, however, gains fell into the hundreds. By 1855, the demarcation line was Perry on the Hudson River and Delancey on the East.[41] But future prosperity would shift this border farther uptown.

By acting in the 1840's, New York had not only boosted its income but had retained its position as principal wharf owner. This should have facilitated port improvements, but numerous factors hindered progress. Indeed, as East River conditions worsened, aldermen searched for a remedy. Most agreed that Manhattan needed more dockage from Corlear's Hook to Kipp's Bay.[42] But obstructions clogged the river bed, forcing authorities to require a new, exterior sea line from the Hook to 38th Street before construction could begin. Earlier Navy Yard improvements inadvertently had dammed the upper river, creating eddies and sediment deposits from the Hook to 21st Street.[43] As a result, engineers reported "[in] sufficient water in [the] channel to float one of our ordinary packet ships from Grand to Fourteenth Street."[44] The only solution, the Wharves Committee concluded, lay first in "erecting a sea wall or bulkhead to bring back the current and force off the ebb and flood tides along the New York shore" and then add dockage.[45] There followed a series of

patchwork solutions. Except for the improvements mentioned above, little was done on the East River. Unfortunately, such omissions were disastrous, because, with commerce growing yearly, New York harbor needed comprehensive planning not hand-to-mouth policy-making.

The government was not only slow in blueprinting change but also in policing maintenance. Hurt by this failure, public berths deteriorated steadily. The Street Commissioner or Ferry Committee might personally inspect them, point out violations and assess tenants for repairs, but collecting funds was another matter.[46] For years administrative machinery broke down, permitting numerous lessees to escape renovation costs. Finally, in 1859, the Superintendent of Wharves advised the city to undertake the task, "as great difficulty is found under the present system in collecting the expenses incurred for repairs to these piers and slips from lessees."[47] But appropriations never approached required levels, and public docks continued rivaling their private counterparts for decay.

The apathy which paralyzed improvements also encouraged crime. Aldermen repeatedly vetoed police requests for harbor patrols. In addition, officials disregarded claims that cargoes lay "exposed to depredation by day and night, while the police force, with the facilities they now possess is wholly inadequate to afford the necessary protection."[48] Despite numerous theft complaints by merchants, dock and shipowners,[49] the town neither built police stations nearby nor

girded the wharves with gates and fences. Yet, to some extent, private wharf owners were also to blame, because, unlike their Brooklyn counterparts, they provided no nightly vigilance.[50]

In addition, the district was among the last downtown to win gas. Indeed, darkness always blanketed the area, leaving it vulnerable to pilferage. Worse still, crime spilled into nearby streets, leading the Police Chief to moan that thieves "even rob the stores along South and West Streets."[51] As a result, these neighborhoods were probably the roughest and most dangerous in the city. And the hazard was not limited to crime, for lack of gas produced other horrors. More than once, seamen fell to their deaths from darkened quays plagued by gaping holes, broken sections, rotting timbers or smashed fencing.[52] Yet, with all the mayhem and tragedy, the locale remained un-lit till 1853.[53]

Despite speeches to the contrary, politicians seemed unwilling to spend the thousands necessary for up-grading. In 1866, the state legislature tried to help by appropriating $600,000 for renovations, but the Governor vetoed it.[54] By this time, New York port faced crisis, as more shipping yearly deserted to rivals. In response, Gotham's boosters replied positively: the waterfront was a great city resource; if municipal piers alone could be properly extended, their value might reach $20.4 million on each river![55]

This financial argument was compelling. Already by the 1860's, city-owned wharves possessed great worth. No. 31 at Duane Street was assessed at $110,000,[56] while its market price neared $350,000. And, with repairs, officials estimated its potential value at $450,000.[57] In fact, few Hudson quays below No. 52 at Charles Street went for less than $100,000.[58] But a reverse situation existed on the East River. Here, due to topographical and economic factors, uptown docks boasted higher figures than those nearing Whitehall.[59] For instance, No. 1 near the Battery amounted to $35,000, while, farther north, the east side of No. 20 (even in disrepair) was worth $60,000. No. 41 at Hoboken Street went for $90,000 as did No. 25.[60]

For many, extension was the key to prosperity. A lengthened No. 25, one survey contended, would earn $130,000.[61] The same applied to No. 30 at West Street. Appraisers figured that, if repaired amd enlarged, its selling price would jump from $25,000 to $75,000.[62] And planners claimed that improvements could do the same for other wharves, too. For some the appreciation would be astronomical. Authorities, for instance, predicted that an augmented pier at East 28th Street would result in $30,000 to $150,000 in appreciation.[63] Clearly, large public works would bring profit; unfortunately, action was slow coming. Throughout the 1850's and 60's, a curious ambivalence persisted: commerce grew; water lots and dock values rose, but maintenance deteriorated along both rivers.

New York's decline was unwarranted, since the port enjoyed unprecedented growth throughout the century. By 1854, total tonnage entering the harbor had risen from 171,000 in 1821 to 1.9 million. And in the same period, "clearing" figures soared from 154,000 to 1.5 million.[64] But, in the midst of this burgeoning growth, Gotham's waterfront decayed.

As conditions worsened, more voices joined the reform chorus. In 1866, a ship owner's association joined other groups to decry conditions. These men asserted that "in every particular...New York falls behind not only the great commercial centres of Europe, but even the lesser maritime cities of America."[65] Critics focused on inferior building. Three years earlier, an aldermanic committee favoring stone docks had berated the short-sightedness of past architects. "The construction of the present wharves and piers is faulty in the extreme," officials had argued; "they are entirely too small...[and] were put up only when the demand for them rendered it absolutely necessary." Worse still, contractors often had built them "at an unfavorable season and without a suitable examination of the bed of the river."[66]

In 1855, the State Harbor Commission had reported structures "sadly deficient both in character and extent" and had urged "immediate action" by authorities. Of the Hudson's

fifty-four docks and bulkheads, investigators had found only six in "good order" and five in "fair condition." Large holes marred the planking of seventeen, while twenty-two others needed "patching." Severe foundation problems plagued eleven. The timbers of five were decayed and rotten, and the end-planking of three lay broken in the river.[67] The East River owned a worse record: of sixty-five jetties and twenty-four bulkheads, only one stood in good order.[68] The Commissioners concluded that "an uncontrollable apathy if not criminal neglect" has governed the waterfront's development. City authorities too often had approved piers that were "positive obstructions to the navigation of adjacent waters."[69] Moreover, sediments blocked slips, solid wastes polluted basins and driftwood floated everywhere.

In addition to faulty construction, poor sanitation also proved troublesome. Pollution posed a health problem, as numerous sewers and drains emptied their contents off shore pipes. In time, noxious fumes drifted off the rivers and prevailing winds blew them back over neighborhoods. Nor did the east side escape the prevailing westerly breezes. Indeed, a select committee of the State Health Board noted that "any person who will take a walk now or an evening even as cold as the present time is, along our East River docks, will find an odor arising from them which will be offensive to the nostrils."[70] Besides creating a stench, these wastes also filled many slips,

depriving deep-draught vessels of dockage.

Dirt, too, abounded off South and West Streets. Piers everywhere lay mired in filth thanks to smoke, litter, abandoned cargoes and animal dung. An inexcusable laxity too often pervaded waterfront activities. As a result, abuses were legion. Carters were among the worst offenders. A typical practice involved dumping the rubbish used for ship ballast across the wharf and into the slip.[71] Winter brought further woes. In most years the city removed ice from the streets by contract. Unfortunately, few regulations governed the process, leaving carters free to dump snow and mud into Gotham's most convenient receptacles, its slips.[72] These deposits invariably combined with sewage to form thick sediments which private dock owners had to dredge at their own expense. But problems arose here, too, because scows usually dropped their contents out in the channel, where tidal action eventually pushed it back to shore.[73] Thus, in the absence of strong government action, unsanitary conditions prospered. And, by 1850, the resultant decay seriously hindered maritime operations along both rivers.

But while some shippers fled to Brooklyn and Jersey, others stayed to fight for reform. One organization sought the creation of a state commission "authorized to extinguish the title of present owners of piers and wharves [and] to devise plans for permanent rebuilding with full powers of control and supervision."[74] The proposed agency would issue bonds to pay for additional berths--the perennial panacea of ship owners. Indeed, many of these men felt that

lack of wharfage had plagued the port for too long, producing fierce competition among companies.

By the mid-1850's, group antagonisms had reached fever pitch. Steamship interests in particular blasted facilities. Their reasoning was clear: nearly 300 of these craft annually served New York, and since one such vessel equalled four sailing ships in cargo capacity, the former deserved top priority. In fact, industry spokesmen estimated that if steamers, barges and railroads disappeared overnight, the port would immediately need 6,000 sailing vessels.[75] Therefore, lobbyists warned the state legislature, "the necessary expenses of a steamer are so great, that to deprive her of a berth immediately on her arrival at port, would be to render her unprofitable, both to her owners and the consignees of her cargo."[76] New York had to protect this fleet.

But these proponents were not alone, the canal boat interest also complained. About 300 of these craft arrived daily in fair-weather months. In the 1850's and 60's, they accounted for half the port's commerce and controlled most inland trade.[77] Yet, public officials assigned them but seven of Manhattan's 130 piers. Overflow traffic either laid at anchor or squeezed between moored steamers. To this, canal boat owners objected violently, insisting their craft were "in danger of being crashed or injured" by the bigger ships. To be sure, such collisions had long afflicted the industry.[78]

Wharf owners, on the other hand, fearful of a state commission revoking their property titles, lashed out at the city. Specifically, they blamed decaying conditions on harbor masters who were "supreme in power to permit the occupation of wharves by vessels." In particular, powerless landlords faulted these agents for allowing stevedores to discharge cargo upon the decks "to such an extent as to break them down."[79] Such abuses were especially serious, because an average day saw over 250 tons of material landed on a pier.[80]

Still, unloading of shipments was but a part of the problem, removal was another. Merchants usually were slow to cart away cargo. The law encouraged this procrastination. Daily fines totaled only $2.50 and followed a "grace period" of forty-eight hours.[81] But many traders escaped even these feeble sanctions through the help of a friendly harbor-master. Lack of enforcement bred contempt for the rules. As a result, violations were legion. In many instances, unloaded freight sat on piers for a month or more while merchants leisurely cleared their warehouses.[82] The practice invariably clogged wharves and disrupted operations. This, in turn, meant lower profits for many dock owners, since the huge shipping volume demanded efficiency. But with private quays usually cluttered, rival ports in Brooklyn and Jersey captured overflow traffic.

No wonder Gotham's wharf proprietors were in such a state. Under the current system, they asked, how could they

maintain facilities or dispossess unruly tenants? Worse still was the double standard, for when trouble invariably resulted, the dock owner was "held liable not only to repair the damage at his own expense, but also for the property lost or damaged thereby."[83] Moreover, authorities had failed to protect facilities from the "boring of piles for blocks, and the cutting of the surface planking by sharpshod horses used for hoisting in and out cargo." By custom, shippers never asked permission to drill holes for hoisting derricks and rarely used existing apertures. In many places it was common to see a dozen such openings within a square foot.[84] Then too, renovation charges often exceeded legal wharfage rates, because the average structure needed frequent rebuilding.[85] Planking, for example, lasted only ten years even "with repairs from year to year." Besides this, pier owners were responsible for clearing any abandoned ship. And this could be expensive; by 1855, the cost of raising a submerged vessel approached $1,200.[86]

These men also attacked the corruption flourishing along the rivers. To secure berths on the crowded waterfront, ship owners had to bribe the omnipotent harbor master.[87] The latter allegedly took pay-offs right down the line. Thus, consignees or cargo shippers eager to land vessels near the offices discovered they, too, "must pay someone who has influence in the right quarter."[88] And graft extended to wholesalers as well. Parties engaged in warehousing

merchandise found that to ensure deliveries "at wharves convenient to their stores, they must pay for the accommodation or not obtain it."[89] No one escaped the corruption; even private dock owners and lessees of public piers (not appropriated to steamship lines), "found that without some outlay of money...their wharves were almost invariably used for the accommodation of small vessels that pay but poorly in comparison with the large ones."[90]

Private landlords also fumed over special advantages enjoyed by city quays. The big steam or packet lines, seeking the exclusive use of new municipal jetties, paid annual rents often triple the amounts "the same property would yield at the legal rates which the private wharf owner is limited to receiving."[91] Better still, public structures not only earned the highest profits on the waterfront, but were also beyond the harbor master's control. Hence with costs rising and abuses mounting, no wonder smaller interests felt trapped.[92]

In 1866, the controversy reached a state senate investigating committee. The three proprietors of the "north east half of Pier 8" (East River) testified that their wharf had "been taken for the use of canal boats and barges for a good part of the year, and to our great loss of income." The commerce yielded only $500 in revenues for 6½ months, of which $370 went to local taxes, leaving $130 to meet the previous year's $3,500 repair bill.[93] These rugged vessels, lacking the dainty construction of

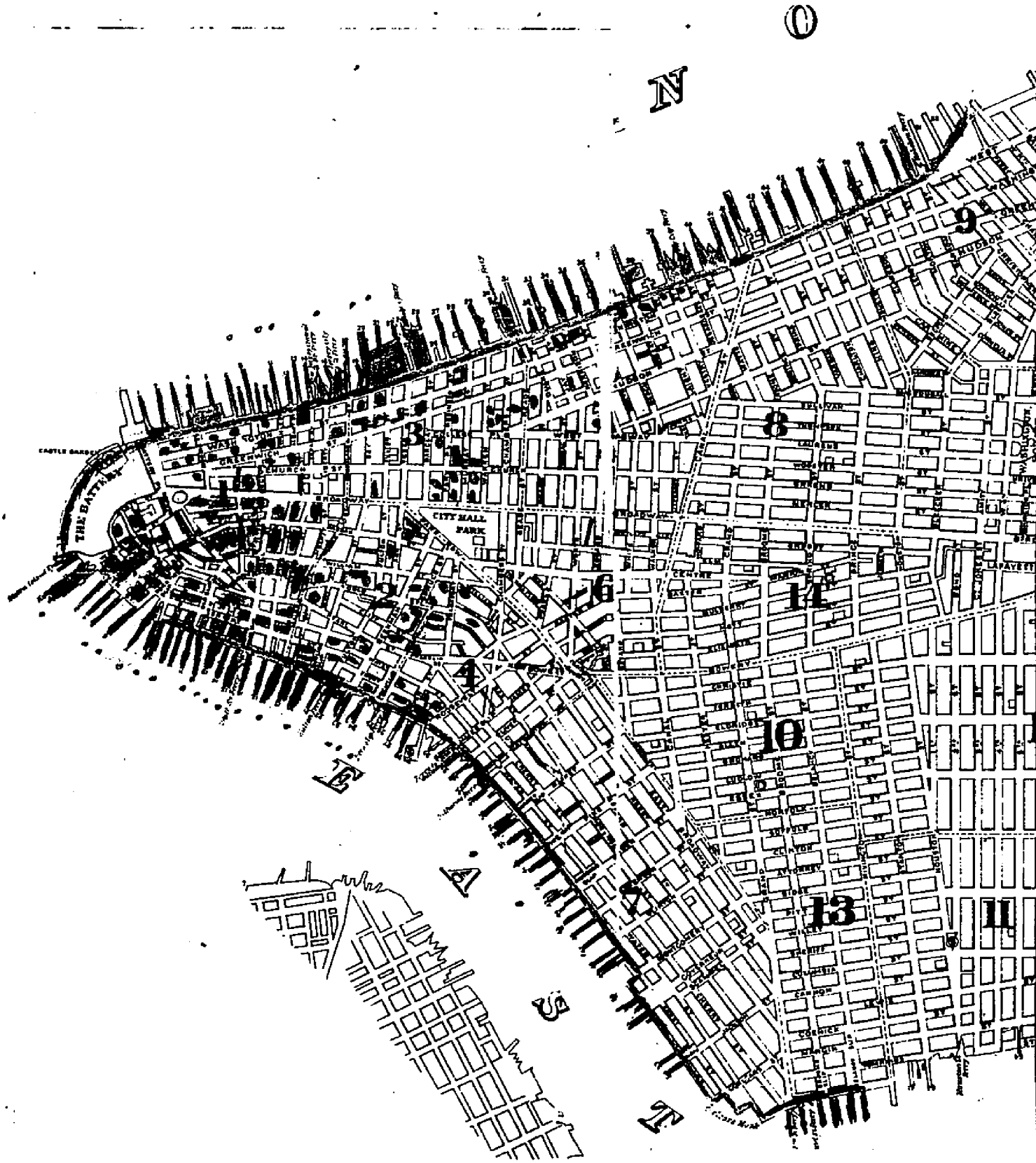
steamers, banged and mauled wharves daily. Repair costs ran high; in fact, No. 8's owners claimed "the wear and tear is so great that [another $3,500]...will be required every two or three years to keep it [the wharf] in a passable condition."[94]

But such was not the case on the southern half owned by the town. Here, the three charged,

> The city has leased its half of this pier to a company doing an immense business, and we have to stand the wear and tear of that business by paying half the repairs; and few, if any wharf in the city receives, during the year, more produce, the most of it landed on the city's half, and preventing business in a measure from being done on our side, to our great loss.[95]

Despite the injustice, public authorities forced the north side men to handle overflow traffic from the "Canal District." Thus, with municipal policy discriminating against private competitors, repairs lagged and the waterfront lay moribund.

The Civil War, in particular, had worsened conditions. As population and especially business soared, carts clogged streets near the rivers. Without designed port facilities, wholesalers traditionally had built their warehouses near Manhattan's retail arteries.[96] Analysis of MAP 7[97] shows that by 1850, most storage centers were far downtown. Only a few stood north of City Hall. Riverfront areas above Chambers Street contained mostly coal and lumber yards. Yet, many vacant lots dotted these neighborhoods. Sound planning would have dictated building clusters of storehouses in these low-rent sections for merchants landing their cargoes on high-numbered piers. But, lacking this, tradesmen by War's end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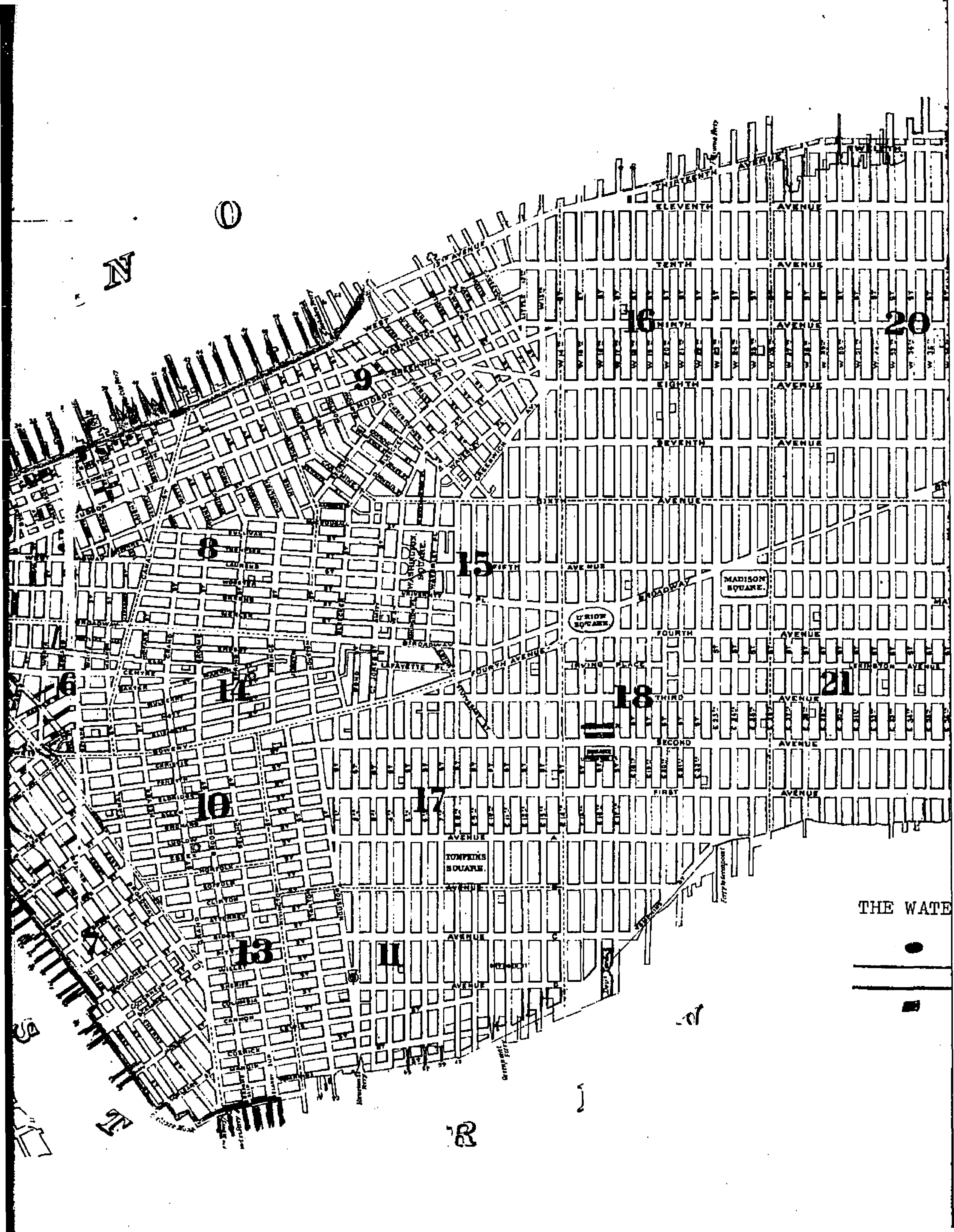

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LEXINGTON AVENUE
IRVING PLACE
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MADISON SQUARE.
UNION SQUARE
WASHINGTON SQUARE.
TOMPKINS SQUARE.
LAFAYETTE PL.
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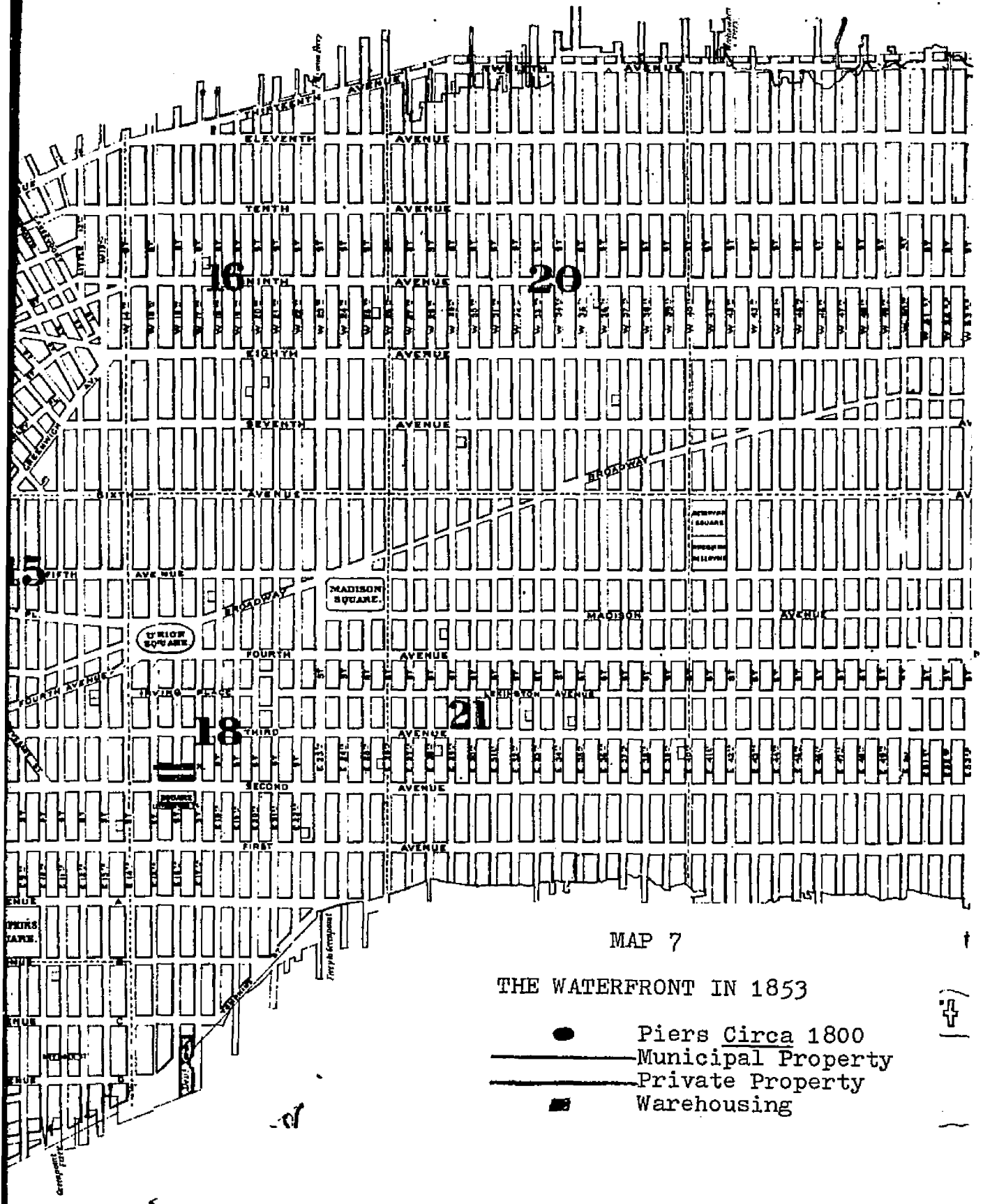

MAP 7

THE WATERFRONT IN 1853

- Piers Circa 1800
- Municipal Property
- Private Property
- Warehousing

faced a four to six-day delay in transporting freight from ship to warehouse.[98] Many doubtless saw their goods landed near Jefferson Street, then carted to a downtown building before arriving at their retail outlet. Such conditions invariably led to higher prices and damaged merchandise. Indeed, by 1865, cotton shipments suffered a three per cent loss in value due to "accidents," while coffee's reached two per cent.[99] With the truck era still decades away, something had to be done.

Port boosters everywhere searched for an answer. A major step came in 1849 when Burrows Hyde, an engineer, devised a workable "plan" for the waterfront. First, he favored constructing a "solid wall of masonry" around existing banks. Sewers, of course, would proceed through the structure, dumping their contents into the river. The bulkhead would serve as a deflector, which would "not only carry off the sewer water, but also the mud brought by the complex current from the Hudson and East Rivers."[100] This action would retard silt formation in the slips and ensure rapid waste disposal seaward. No longer would shallow waters be depositories for pollutants filling "the atmosphere with poisonous and intolerable odors that not only render the air at times insupportable at the wharves, but lamentably influence the sanitary condition of the population."[101]

Next, Hyde proposed building spacious, iron piers from the sea wall. Unlike their wooden predecessors, these

metal ones would be sturdier and more resistant to decay and fire. And, to protect cargo better from flames, each dock would be equipped with steam-powered fire hoses.[102] Hyde also felt decks should provide more loading space. In addition, he decried the "absence in New York of any special system of warehouses for the storage of merchandise."[103] As a remedy, he proposed building a five-story center for each wharf to eliminate cartage downtown.[104] At the same time, he recommended large sheds to protect newly-arrived freight. Bad weather had long taken a forbidding toll on vulnerable items. By 1865, Gotham's merchants already averaged $300,000 per year in expenses for sheds and tarpaulins, but still destruction ran high.[105] A major cause of loss was the unloading procedure. To facilitate this process, Hyde favored the installation of modern, steam-powered hoisting cranes.[106] The innovation would demand much water, but surely the Croton Aqueduct could provide enough.

Loading had long been a major problem. Since colonial times shippers had relied on horsepower,[107] but the method had its drawbacks. For one thing, it usually took five or more animals to unload a ship. Worse still, the process not only reduced the life of wharf planking by five years, but prolonged the landing of cargo.[108] With horses, it took eight men two days "of fair weather" to unload a two-hundred-ton canal boat laden with grain. By the 1800's, there was an easier way. Steam-powered hoisting

cranes would permit four men to perform the same task in two hours, saving both time and expense.[109] No wonder Hyde assigned these machines such importance.

Hyde dealt not merely with building design but safety as well. He favored gas-lighting the entire waterfront, adding more watchmen and closing all docks nightly with gates. This, he felt, would "break up those pernicious nurseries for larceny and other crimes, now general along the piers, and which felonies are perpetuated night and day to a most alarming extent."[110] Hyde guaranteed these improvements would promote efficiency, cut transportation costs, attract more commerce and stimulate waterfront real estate.

For years, however, his plan lay victim to government vacillation. Finally, in 1865, after receiving numerous petitions from shippers, insurance companies and lot owners, the state legislature incorporated the New York Dock and Warehouse Company to implement Hyde's proposals.[111] Several engineers, including Croton's Alfred Craven, favored the scheme,[112] but the reform movement stalled before opposition from Brooklyn and Manhattan "warehouse interests."[113] Despite strong support from Cornelius Vanderbilt and other notables,[114] waterfront renewal faced five more years of delay. Only with the advent of a Docks Department, created by the new City Charter of 1870, could port boosters glimpse a bright future.

The 1870 charter specified that a Board of Commissioners govern the agency.[115] An enabling act vested them with "the exclusive charge and control...of all the wharf property belonging to the city of New York...and water adjacent thereto, and all the slips, basins, docks, waterfront land under water and structures thereon." It also gained the "exclusive government and regulation" of all private facilities.[116]

The Commissioners immediately surveyed matters. They found many piers needing to be "wholly or partially rebuilt, their condition being such as to render them totally unfit for commercial purposes."[117] As for remedies, the Board welcomed suggestions. In June,1870, it urged "all persons interested in the improvement of the waterfront, and the establishment of permanent wharf accommodations for special commercial interests to submit written proposals for a "proper system of wharves and piers."[118] That summer, officials held five public meetings and set an October 1 deadline for all plans providing "the best method of improving the waterfront and harbor."[119]

The response was immediate. Egbert Viele, the great topographical engineer, the New York Pier and Warehouse Company and a host of others offered opinions.[120] These proposals, though eventually rejected, helped reinforce the Department's plan. Indeed, authorities felt the "chief value" of the propositions lay not in their originality, but

in the "additional weight they [gave] to the conclusions reached by the Commissioners." After analyzing British facilities, city engineers filed a report. Attention focused on London and Liverpool. For centuries shallow rivers had plagued both cities forcing them to use "lighters" (boats of slight draught) at low tide when transferring cargo from big ships to wharves. It worked, but with freight costs inflated, commerce went elsewhere. In response, the towns built "enclosed wet docks," consisting of large river walls with gates opened only at high tide. No arrivals or departures occurred during ebb. Hence a high-water line could be maintained at all times. Moreover, the wall built up the sea level to heights which daily converted lowlands to harbor.[121]

Engineers felt this scheme would also help New York. But rather than construct wet gates, they preferred dredging present frontage and extending some bulkheads to deeper water. Unlike the English rivers, New York's were deep, giving the city substantial waterfront mileage.[122] Therefore, the original plan called for building "a permanent river wall of masonry carried out from the present bulkhead line a sufficient distance to make a river street 250 feet wide on the North River and 200 feet wide on the East (except around Corlear's Hook).[123] The structure would be twenty-four feet high and run from West 61st Street to Grand.[124] Along the line officials would place docks "at such intervals as will give the greatest accommodation for shipping." These new

models would outdistance their obsolete predecessors and thus carry sewage farther out to swift currents.

Wharf composition rivaled number and length as subject for debate. Despite booster campaigns for iron and concrete, officials chose wood. High costs were the reason, but quality, too, was important. Authorities felt "preserved wood" offered piers "a far more substantial and durable character than those now constructed." On another front, leaders also resisted the pleas of city promoters that Manhattan be completely ringed with sea walls. Instead they favored only enough masonry "to give ample wharf facilities for the present commerce of the city." Additional sections could be added "as the increasing commerce required accommodation."[125]

Work began downtown on the project in 1871. From the beginning, however, numerous petitioners fought government efforts to remove their sheds and obstructions.[126] Yet, while the right-of-way battle proved troublesome, defective construction posed the greater threat. Indeed, there were several cases of contractor fraud. The most serious occurred in 1876, when investigators discovered weak cements in bulkheads connecting King and Canal Streets. The defect allowed water to seep through the wall and foundations. Officials also attributed the masonry's crumbling to excessive weight on the piles. The episode forced a suspension of activity for several months.[127] Only after a new Chief Engineer re-designed the segment did progress resume.[128]

Few troubles nagged the line from Canal to Warren Streets, because "most of the property [there] belong[ed] to the City." With private interests so weak, there was less opposition than anywhere else. In addition, with most piers municipal, the town would enjoy the bulk of all revenues.[129] Thus, officials pushed for the district's completion. By 1878, with downtown sections nearly finished, more men joined the effort above Canal.

Though matters ran smoothly here, difficulties arose the following year along the route between Warren and 20th. Here, authorities lamented, construction would terminate because public ownership of water lots was "not continuous enough to justify any work on the new plan." They concluded it would be "manifestly absurd to try to carry out the plan in little shreds and patches."[130] Besides private opposition, other problems arose. In 1879, the new Engineer, George Greene, discovered miscalculations in the line's blueprints. Worried Commissioners again halted work while he re-surveyed the project. In his revision, Greene proposed drastic changes to enlarge wharfage, including alteration in number, location and size of the district's piers. Eventually, officials accepted most of his suggestions. But Greene left them uneasy, for his exposure of previous blunders raised doubts about portions already built.[131]

Despite these setbacks, the Commissioners managed the enterprise admirably. Throughout the 1870's, they

avoided over-extending themselves. In fact, as the cost per linear foot of wall approached $200 by 1878, they bravely resisted needless expansion.[132] Instead they insisted on proceeding with "improvements as rapidly as there is any business demand," and maintained the policy despite petitions to the contrary.[133] In 1880, for instance, "residents doing business" in the Nineteenth Ward remonstrated for more docks along the East River from 60th to 79th Streets. The lobbyists implored the Chief Engineer to investigate "the inadequate facilities existing for the discharge of vessels seeking that portion of the waterfront."[134] A month later he responded with a pleasant letter. Unfortunately, he explained only two east side roads had "suitable grades" for new piers; thus, he regretted, "until the river street...shall be built in that vicinity, adequate provision for the commercial wants of the locality referred to, is not within the power of this Department to supply."[135] Actually, the district lacked sufficient wealth and commerce to justify pier construction; any road would be part of the sea wall.

Greene's standards might have been less stringent had funds been forthcoming. Inter-agency squabbling, however, retarded progress throughout the 1870's. Although, in 1871, the Sinking Fund Commissioners agreed to a $1 million bond issue, they never disbursed the full amount. In fact, by 1872, Dock Commissioners had yet to receive half their allowance.[136] As a result, despite many prior commitments to contractors, these officials were "left without any definite idea as to

whether any further amount of funds would be placed at its disposal for carrying on its work."[137]

The Tweed Ring's fall in 1871 scarcely altered the crisis. According to law, the Department's budget was $9 million for its first three years. Yet, by 1873, Sinking Fund managers had provided but $2,150,000 and impounded the rest. The Dock Commissioners must have been aggravated, since the sizable revenues they annually collected in wharf leases helped redeem outstanding debts. More new piers would only have brought added profits, but matters never improved. Instead, financing sagged throughout the 1870's, as post-Tweed suspicion of large public works slowed disbursements to a trickle, leaving sea wall construction months behind schedule.[138]

Besides managing this enterprise, the Commissioners licensed all private building on the waterfront. During any year numerous items crossed their desk. In 1879, for instance, these officials considered many petitions, including the Mutual Ice Company's to erect an ice bridge, scales and weighing office at West 46th Street, Richard Heather's to install a coal derrick between Pier Nos. 41 and 42, the Hoboken Land Improvement Company's to pave the Hoboken Ferry approaches, Hencken & Co.'s to repair masonry between 4th and 5th Streets, J. L. Brown's to rebuild upward from low-water level along 22nd and 23rd Streets, Tremper & Coykendall's to erect a shed on Dock No. 34 and T. C. Townshend's to lay eight-inch

drainpipes through the 32nd Street bulkhead. Board approval was essential to all.[139]

Such power made the Department waterfront's watchdog. In this role, the agency investigated all accusations against private owners or lessees. Punishment varied with the offense. Often, authorities merely reprimanded the guilty. In 1880, for example, they threatened the occupant of Pier No. 50 with a $25 fine if he continued throwing "straw, sawdust and dirt...into the river."[140] In 1879, they ordered the Union Ferry Company to fix damaged face timbers on its side of Wharf No. 2.[141] When negligence endangered public safety, action came quickly. Thus, in 1878, the Department scolded Decker & Rapp Company for the "unsafe condition" of its bulkhead near the Bethune Street quay and required immediate repairs.[142]

Though the Commissioners usually exercised sharp control over affairs, occasionally they faltered. One example occurred in 1881, when the Iron Steamboat Company asked for and received permission to construct "a large shed" on Pier No. 1. But instead of a mere storage hut, the outfit erected a two-story building, the bottom floor of which housed offices and the upper a restaurant, tavern and concert area! The firm, called the second floor of its "shed" "The Pavillion" and charged a fifteen-cent admission fee. Although the Department approved the blueprints, Sinking Fund Commissioners objected, pointing out that "it can hardly be said that a restaurant, beer saloon and music hall come within the definition of 'sheds for the protection of property received or discharged.'"[143]

The agency often had to intervene when conflicts raged between competing groups. In 1879, for instance, several interests opposed the city's plan to construct a dumping board at Bank Street "to accommodate builders and others desirous of getting rid of cellar dirt and other material."[144] Cragin & Co., a wholesaler, protested, asserting that "present wharf conditions in that section of the water-front were insufficient for the transaction of business." Already, vessels delivering cargo to this firm "were frequently delayed three to five days before a berth could be obtained." Furthermore, Cragin argued, with a similar slide presently bordering 12th Street, another "would be a great detriment to persons doing business in that locality."[145]

Local machinists also fought the project, since the bulkhead straddling Bank and Bethune hosted a steamship repair yard. Mechanics feared the dump would eliminate berths and the dust "would seriously damage the machinery and cabin furniture of the steamers."[146] In addition, Knickerbocker Ice Company resisted the enterprise because of dust "settling upon the ice." The problem was a typically controversial one, and after hesitating, the Commissioners postponed construction indefinitely.[147]

To a great extent, the Department managed its diverse functions well. As the city's waterfront representative, it acted fairly with tenants. As landlord, it fulfilled all obligations, even dredging those slips whose low-water mark slipped below lease-stipulated levels.[148] And dock revenues

reflected this good service; indeed, income rose throughout the 1870's. On the whole, administration was sound. Bill payment was typical, with the agency collecting its daily $5 wharfage charge monthly in advance.[149]

But along with successes, the office had failures. For years City Hall felt that pier income, though substantial, was below expectations. Part of the problem lay with the Department's lethargy in executing leases. In 1881, for example, out of "188 parcels of city property in wharves and bulkheads," the Commissioners had signed only twenty-nine leases. And investigators could find no reasonable cause for this delay.[150] Such events only deflected tenants to rival ports.

Other embarrassments also plagued the bureau. At times, account books failed to balance. A shocking scandal occurred between 1875 and 1878 when W. W. Burnham, a clerk, rigged revenue figures to conceal the $38,427 he embezzled.[151] Then too, auditors found the Department delinquent in prosecuting tenants in rent arrears. Though several lessees had refused payment during the years 1870-1875, the agency had delayed legal proceedings until 1881.[152] Perhaps Sinking Fund officials impounded allocations in reprisal. But other action, too, raised eyebrows.

For one thing, the Dock Commissioners sometimes acted strangely when granting wharf leases. In 1880, they orally awarded a ten-year pact for "Pier New 41" to the Cunard Steamship Lines before the Knickerbocker Ice Company's term had expired. Authorities had rebuilt the structure during the

latter's tenure and assumed it could not meet the new rent ($30,000 per year). This action left the city dangerously vulnerable to litigation, and the matter's absence in official Minutes raised further suspicions of collusion.[153]

Despite these failings, however, the Docks Department did much to restore the harbor. Trade pressure had forced its creation following years of chaos. Indeed, New York's quick transformation after 1800 from colonial to world entrepot had caught many by surprise. Public and private interests had flourished together, as the Industrial Revolution spurred foreign and domestic commerce to unmanageable proportions. In desperation officials had thrown up new piers in haphazard manner and patched over old ones half in the sea. But these "solutions" were futile for an antiquated waterfront. Finally, after years of delay, the city replaced rotting docks with modern facilities. Engineers developed a scheme which both augmented wharfage and catered to warehousing.[154] Thus, only in 1870, when government turned to planned public works, did the port's great destiny seem once again certain.

NOTES

[1]Waring, I, 558.

[2]For vital statistics on New York harbor, see Ibid., pp. 558-559.

[3]See the map of New York in 1791 in the frontispiece of Valentine's Manual...for 1851.

[4]Albion, pp.v-ix.

[5]In 1838, the selling price for public water lots was 12½ cents per foot on the average. See Aldermen, Documents, IV, #66, February 19, 1838, 515-517. By 1840, the city had resorted to renting instead of selling its water lots.

[6]Queens College Documents Collection, Voucher #1904, in packs marked "Docks and Slips," September 28, 1835.

[7]Eleventh Annual Report of the Department of Docks, Minutes, February 23, 1881, pp. 14-15. Of course, expense varied with the depth and composition of the structure. By 1855, figures were at an all-time high. Piers built of piles ran at $20 per lineal foot with cribs at 5¢ per cubic foot. These were the sturdiest models, but they required a ten-foot-deep mud foundation. Where rocky floors predominated, contractors erected docks with cribs usually 40X45 feet connected by thirty-five-foot-long bridge sections. The former priced at 4½¢ per cubic foot and the latter at $35 per lineal foot. Bulkheads, too, were costly, running at about 4½¢ per cubic foot.

[8]The Wharves, Piers and Slips Belonging to the Corporation of the City of New York (2 vols.; New York, 1868),I, 3.

[9]Ibid.

[10]Ibid.

[11]Ibid.

[12]See vouchers listed under "Docks and Slips."

[13]Aldermen, Documents, XX, Part II, #38, August 4, 1853, 983-1005.

[14]Ibid., IV, #11, June 19, 1837, 78-79.

[15]See vouchers for 1841 listed under "Docks and Slips."

[16]Aldermen, Documents, V, #42, March 11, 1839, 448.

[17]Ibid., IV, #78, March 26, 1838, 583-584.

[18]Ibid., V, #18, October 29, 1838, 207-208

[19]Ibid., V, #39, March 11, 1839, 427-437.

[20]Valentine's Manual...for 1858, p. 200.

[21]Councilmen, Documents, (1856), III, #35, October 10, 1856, 2-3.

[22]Aldermen, Documents, IV, #4, July 21, 1837, 165-167.

[23]Ibid., VI, #50, April 13, 1835, 229.

[24]Ibid.

[25]Ibid.

[26]Ibid.

[27]Ibid., II, #32, October 7, 1835, 134-135.

[28]Ibid., IV, #2, May 22, 1837, 17-24.

[29]See vouchers in packs marked "Docks and Slips" for the 1830's and 40's' Aldermen, Documents, passim.For example, see Ibid., XX, Part II, #62, December 12, 1853, 1233-1234.

[30]Ibid., V, #42, March 11, 1839, 448.

[31]Ibid.

[32]Ibid.

[33]See Ibid., V, #42 and #43 passim.

[34]Ibid., IV, #87, April 23, 1838, 611-613.

[35]Ibid., p. 612.

[36]Ibid.

[37]There was also private bulkhead construction on the Harlem River. See Ibid., III, #14, September 1, 1836, 95-96. Local residents fought hard to make the river navigable; see Ibid., V, #36, Februaray 11, 1839, 369-396.

[38]New York State, Report of the New York Harbor Commission of 1856 and 1857 (New York, 1864), p. 273.

[39]Ibid., p. 286.

[40]Ibid., p. 260.

[41]Ibid., pp. 261-263, 231.

[42]Aldermen, Documents, XXIII, #45, December 4, 1856, 2-3.

[43]Ibid., pp. 3-4.

[44]Ibid., p. 5.

[45]Ibid.

[46]Ibid., III, #23, September 12, 1836, 131-132.

[47]Ibid., XXVI, Part I, #9, January 31, 1859, 22.

[48]Ibid., XVIII, Part I, #42, May 29, 1851, 731-732.

[49]Ibid., pp. 732-734.

[50]Harbor Commission, p. 253.

[51]Aldermen, Documents, XIX, Part II, #2, October 8, 1852, 1026.

[52]Ibid., #52, October 8, 1852, pp. 1010-1021.

[53]Stotz, pp. 48-49.

[54]Wharves, Piers and Slips, I, 1.

[55]Ibid., II, 1-8.

[56]Valentine's Manual...for 1864, p. 189.

[57]Wharves, Piers and Slips, II, see Pier No. 31 section.

[58]Ibid., II, passim.

[59]Ibid., I, passim.

[60]See Ibid., I, 5-15.

[61]Ibid.

[62]Ibid.

[63]Ibid.

[64]Piers and Wharves of New York, p. 21.

[65]Ibid., p. 53.

[66]Aldermen, Documents, XXX, Part I, #9, March 23, 1863, 2.

[67]Piers and Wharves of New York, p. 36.

[68]Ibid.

[69]Ibid., p. 35.

[70]Ibid., p. 44.

[71]Harbor Commission, p. 286.

[72]Ibid., p. 267.

[73]Ibid., p. 235.

[74]Ibid., p. 54.

[75]Ibid., pp. 55-56.

[76]Ibid., p. 56.

[77]Ibid., pp. 15-19.

[78]Ibid., pp. 17,19.

[79]Ibid., p. 57.

[80]Harbor Commission, p. 267.

[81]Ibid., p. 285.

[82]Ibid., p. 268.

[83]Piers and Wharves of New York, p. 57.

[84]Harbor Commission, p. 268.

[85]Piers and Wharves of New York, p. 57.

[86]Harbor Commission, p. 233.

[87]Piers and Wharves of New York, p. 57.

[88]Ibid.

[89]Ibid.

[90]Ibid.

[91]Ibid.

[92]Ibid., p. 58.

[93]Ibid., p. 31.

[94]Ibid.

[95]Ibid.

[96]Insurance Company Maps, Vols. I-III (1852-54).

[97]See the Map of New York in Valentine's Manual for 1854. Docks circa 1800 can be found in the map located in the Manual for 1851. Warehouses are in the Insurance Company Maps.

[98]Piers and Wharves of New York, p. 104.

[99]Ibid.

[100]Ibid., p. 61.

[101]Ibid.

[102]Ibid., pp. 62-63.

[103]Ibid.

[104]Ibid., p. 62.

[105]Ibid.

[106]Ibid., pp. 62-63.

[107]Harbor Commission, p. 267.

[108]Ibid.

[109]Ibid., p. 286.

[110]Ibid., p. 63.

[111]Ibid., p. 64.

[112]Ibid., p. 67.

[113]Ibid., p. 64.

[114]Ibid., p. 75.

[115]Valentine's Manual...for 1870 has an excellent section on the history of city charters. For Docks, see the appropriate section of the 1870 Charter, pp. 49-54.

[116]First Annual Report of the Department of Docks, p. 10.

[117]Ibid.

[118]Ibid., pp. 10-11.

[119]Ibid., p.. 11.

[120]Ibid., pp. 12-13.

[121]Ibid., p.. 30-32. The Harbor Commissioners in the 1850's also proposed wet docks for certain portions of New York's waterfront; see Harbor Commission, p. 41.

[122]Ibid., p.. 32-33

[123]Ibid., p. 14.

[124]Facts relating to the Department of Docks... (New York, 1877), p. 2; Waring, I, 575.

[125]First Annual Report of the Department of Docks..., p. 14.

[126]Second Annual Report, pp. 19-20.

[127]Sixth Annual Report...,pp. 16-23.

[128]Ibid., pp. 49; 12-13.

[129]Eighth Annual Report..., p. 14.

[130]Ninth Annual Report, p. 19.

[131]Tenth Annual Report, pp. 114-115.

[132]Eighth Annual Report, p. 10.

[133]Ibid., p. 16.

[134]Eleventh Annual Report, Minutes, December 29, 1880, p. 102.

[135]Ibid., January 5, 1881, pp. 106-107.

[136]Second Annual Report, p. 14.

[137]Ibid.

[138]Third Annual Report, p. 85.

[139]Ninth Annual Report, pp. 143-145.

[140]Eleventh Annual Report, Minutes, September 22, 1880, p. 61.

[141]Tenth Annual Report, MinutesMay 14, 1879, p. 9.

[142]Ninth Annual Report, Minutes, May 22, 1878, p. 11.

[143]Report of an Examination Made by the Commissioners of Accounts into the Affairs of the Department of Docks from May, 1870 to April 30, 1881 (New York, 1881), pp. 26-27.

[144]Tenth Annual Report, Minutes, May 16, 1879, p. 9.

[145]Ibid.

[146]Ibid.

[147]Ibid.

[148]Ninth Annual Report, May 22, 1878, p. 11.

[149]Tenth Annual Report, Minutes, May 24, 1879, p. 10.

[150]Report...of the Commissioners of Accounts..., p. 7.

[151]Ibid., pp. 8-25.

[152]Ibid., p. 33.

[153]Ibid., pp. 29-31.

[154]The 1870's, of course, saw only limited sea wall construction. By 1880, modern facilities extended only from Canal to West 10th Street. Later years, however, saw new sections added throughout lower Manhattan. Waring, I, 575.

CHAPTER 6

POLICE, FIRE AND HOSPITALS

Crime, an unwelcome companion of urban growth, has plagued New York throughout its history. Since colonial times, mayors and councilmen have struggled to organize an effective defense. Several times the solution seemed at hand only to collapse under the stress of expansion. Prior to 1800, leaders experimented with several police systems. The Dutch oscillated between paid and voluntary "watches." Private officers usually held sway in peaceful years while the military patrolled during wartime. In the 1860's, the English utilized civilians,[1] but, within ten years, switched to four paid "bellmen" (so-called because they rang their bells on rounds).[2]

Still, a booming metropolis demanded better protection. The Montgomerie Charter of 1731 finally provided for permanent service in districts south of Fresh Water Pond (Tombs Prison site). Under this system, aldermen provided duty lists from which local constables picked eight men nightly.[3] By 1756, however, the French and Indian War posed new dangers, forcing officials to supplement regulars with soldiers. A paid crew later served from the Treaty of Paris until 1776 when British troops took over.[4]

Following the War, New Yorkers created a Department of several hundred men.[5] The decades prior to the reorganization of 1843 had seen the Mayor and voters divide responsibilities: the former, who doubled as Police Chief, appointed all marshalls and "day officers" while the people elected ward constables.[6] After dark, the "Watch Department" stood guard. By 1843, twelve Captains, twenty-four Assistants and 964 men protected Manhattan from 8 P. M. (9 P. M. in summer) until "the break of day." An "upper" force tended northern sections and a lower downtown. Police divided the city into six districts, each with its own "watch house."[7] Doormen flanked each station's entrance; "postmen" occupied stands throughout the zone and "roundsmen" roamed the streets all night supplementing the postmen.[8]

Nevertheless, crime increased, prompting demands for reform. To silence critics, the Mayor in 1844 hired 120 new officers and created thirty more "watch-posts." But still, police performance sagged, as political debts not competence governed employment practices. Moreover, a Night Watch "composed of citizens who pursued their trades or vocations during the day and patrolled the streets at night," was clearly out-dated.[9] New York was no longer a colonial village of lanes and alleys. Indeed, with immigrants pouring in and paved roads multiplying yearly, the town needed a large professional force mobile enough to fight urban crime.

In 1844, the Common Council finally responded with a sweeping reform which abolished the Night Watch and

liberated dockmasters, lamp-lighters, street inspectors and other public employees from police duties. Now a paid force operated around the clock. Despite these changes, however, Tammany politics still dominated the Department.[10] To offset this, the Republican legislature passed the Metropolitan Police Act of 1857 which placed the function in state hands.[11] Confusion ensued. For a while, New York had two rival agencies until the militia enthroned the "Metropolitans" later in the year. The latter held power till 1870 when Gotham finally recovered control.

Throughout the 1840's and 50's the city lacked full commitment to a modern approach. On the whole, organization was good; an 1854 law reduced Manhattan to three "Districts," each with a court and office. An expanding bureaucracy, however, demanded more working space, but the town shunned new facilities. Authorities instead preferred renting old buildings to house operations. Thus, the city located the Second District Office in Jefferson Market and the Third in Essex.[12]

Similar penury resulted in personnel shortages. Under the new set-up service was uneven. The business district enjoyed fine protection (see MAP 8).[13] In 1845, the First Ward, comprising much of Gotham's commercial center, boasted fifty-five men--despite a population of only 1,256. And the Fourth and Fifth, both having under 2,000 people, enjoyed fifty-five and fifty officers, respectively. But "foreign" sections fared worse. Seventeen's 32,000 inhabitants

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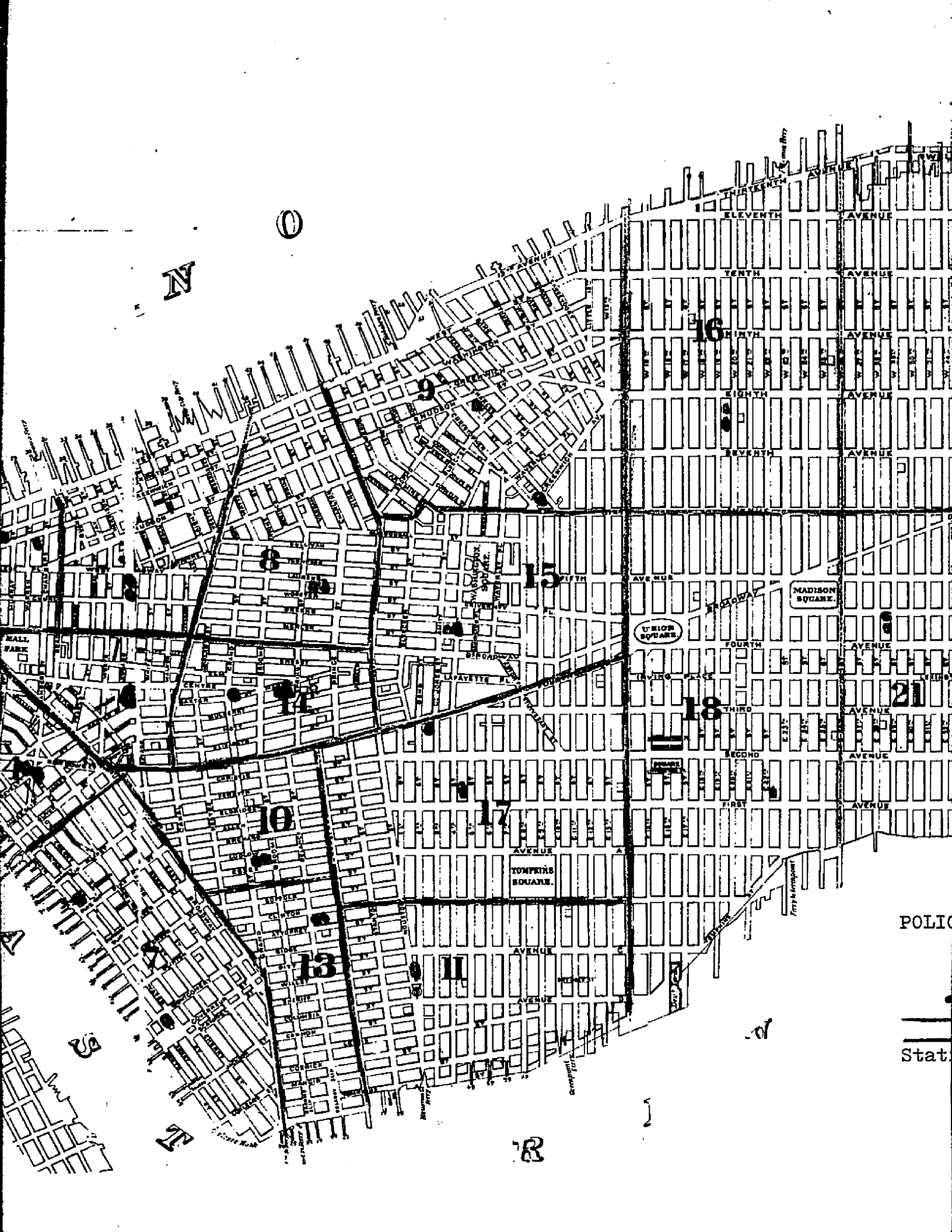
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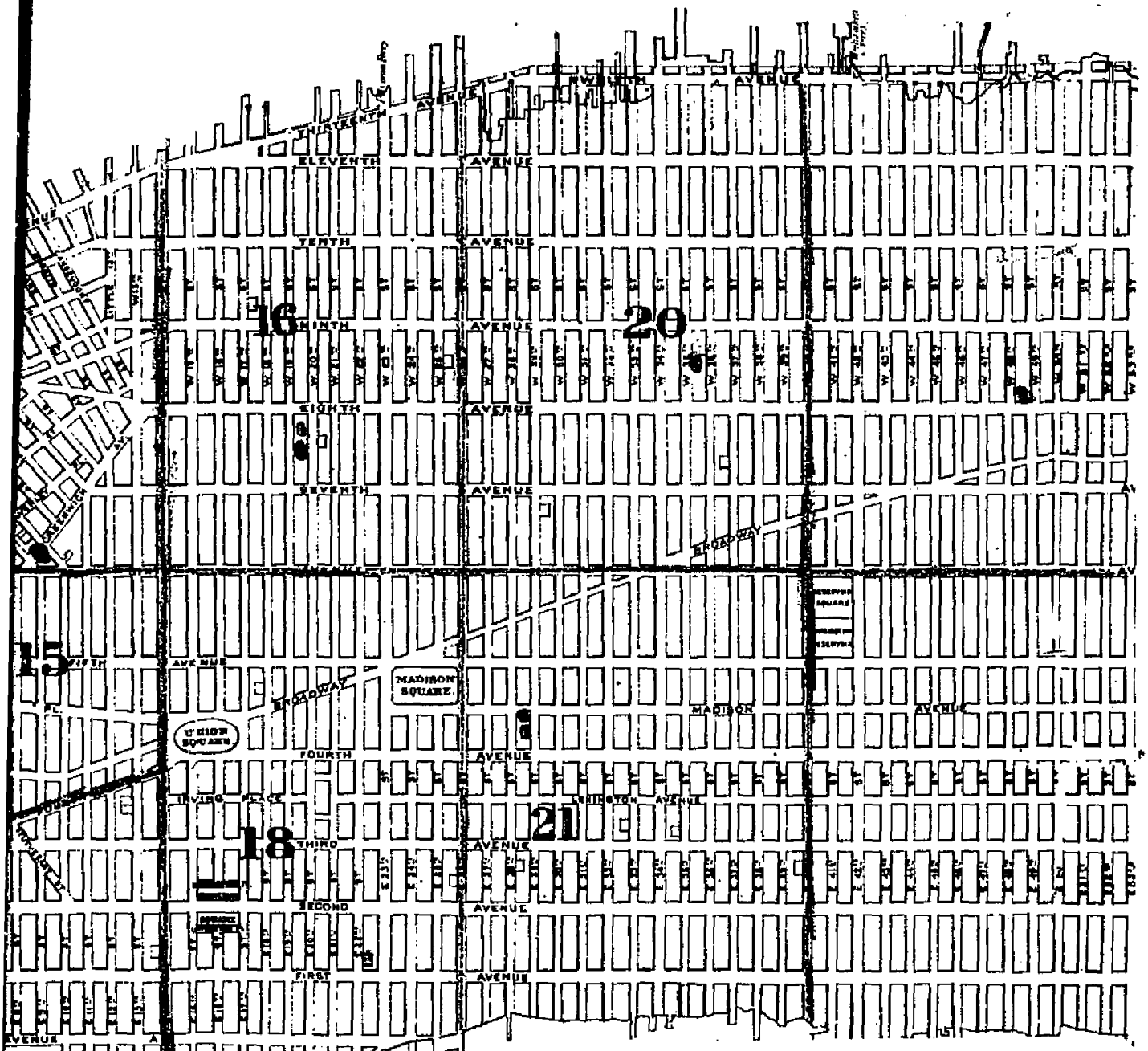
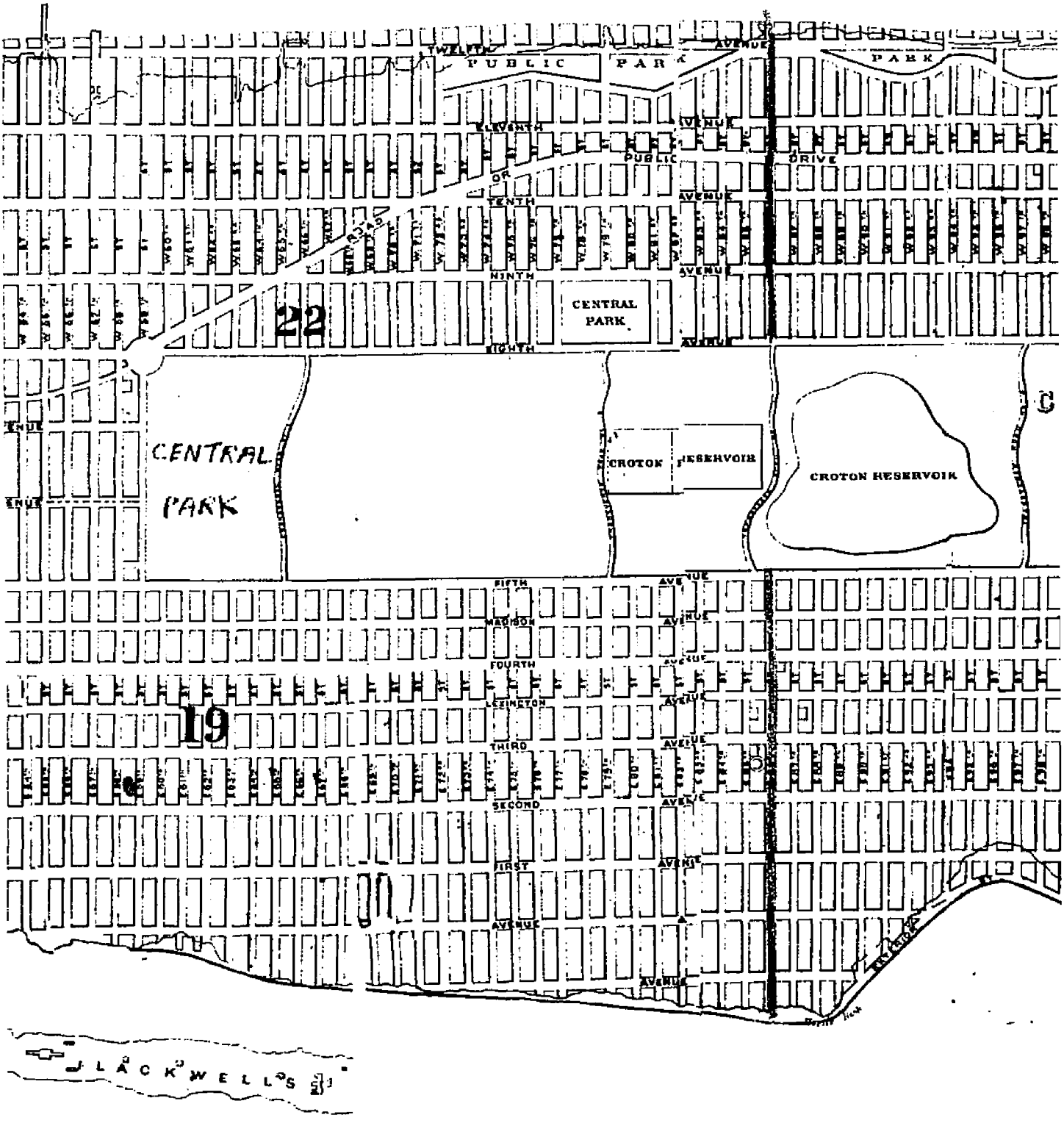


MAP 8

POLICE STATIONS, 1848 AND 1858

Houses in 1848
Houses in 1858
Same House
Ward Boundaries, 1848
Ward Boundaries, 1858
Station at Tenth and 155th not shown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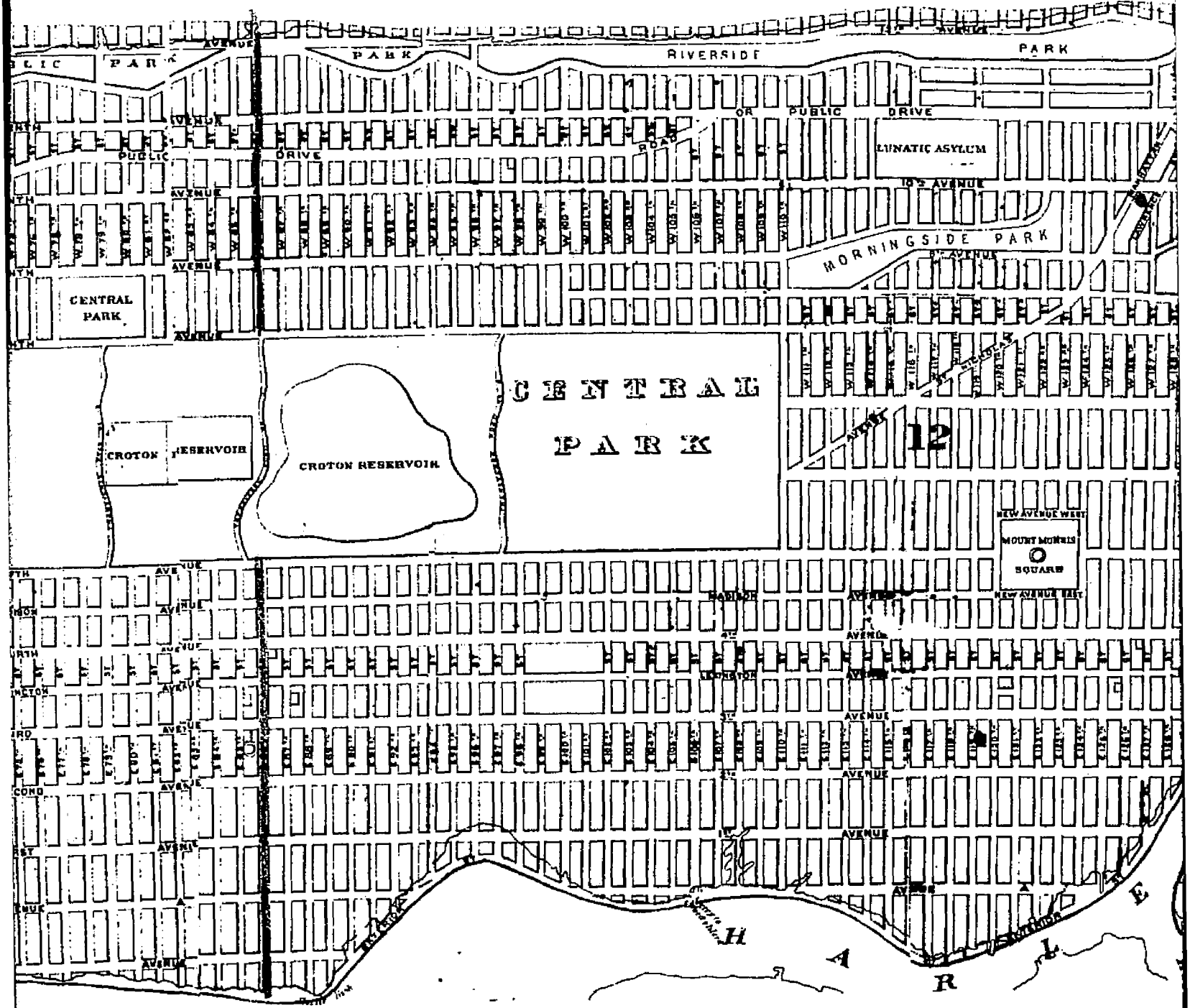
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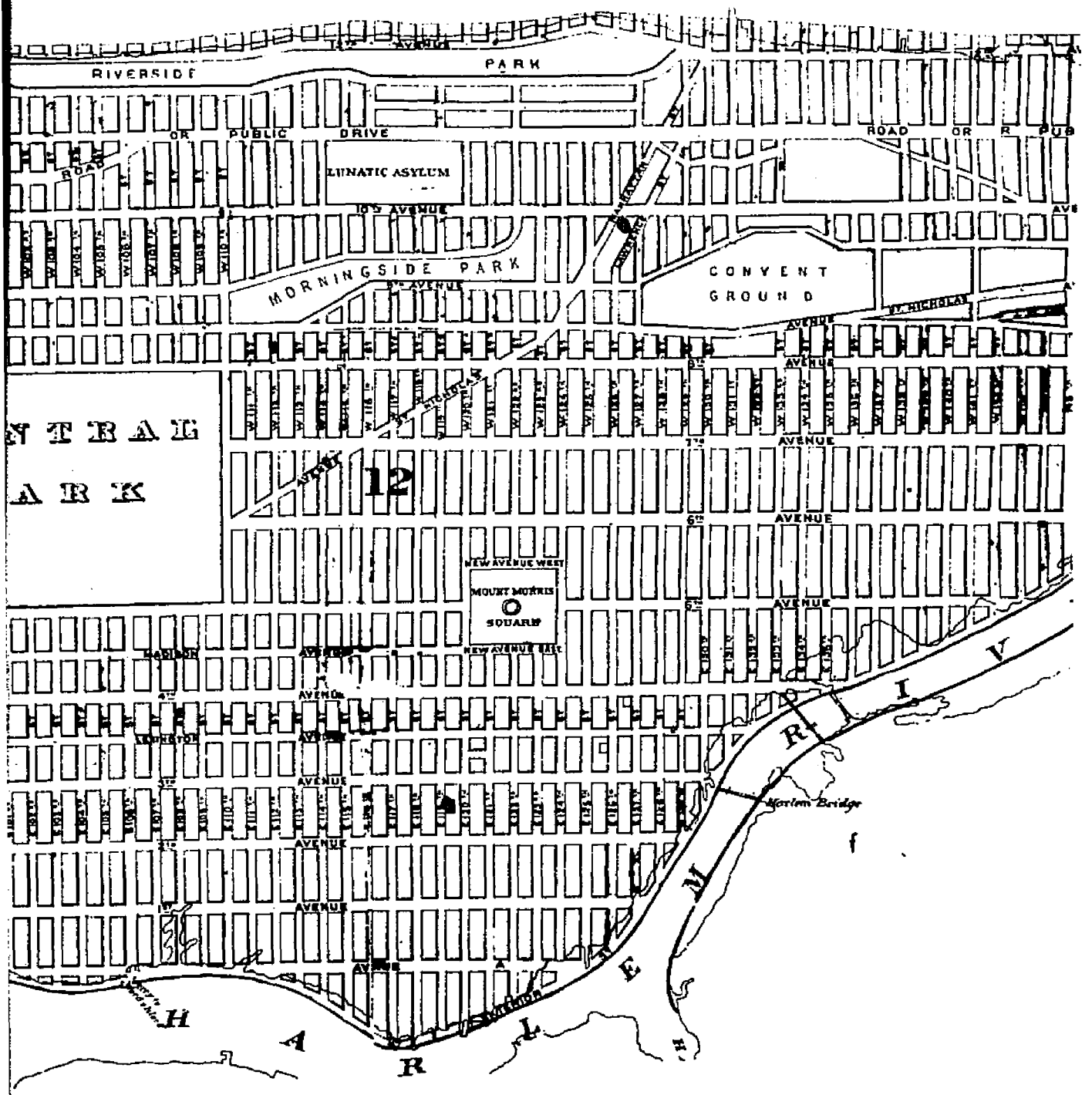
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NEW AVENUE EAST
Harlem Bridge
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had only forty-five "cops." While, nearer the waterfront, Ward Eleven had the same amount for its 25,000 residents, although the squad suffered the added indignity of having no headquarters at all.[14] This latter omission posed a serious threat to the public, because it lengthened the responding time for help. Worse still, the long trek gave arrested suspects more chance to escape. Surely the area's patrolmen had difficulty monitoring local crime and organizing rounds from facilities outside the neighborhood.

But the Eleventh Ward was not alone; the Seventeenth encountered similar trouble since its police precinct hugged its western boundary. With postmen leaving their stands intermittently, citizens near Tompkins Square had far to go when emergencies arose. So too, the largely "Protestant-American" Ninth Ward on the west side faced the same problem: its house straddled the zone's eastern frontier. Although perennial crime nests, waterfront sections often were far from help. Stations should have been located nearer the geographic center of each ward; instead, they abutted New York's fashionable thoroughfares, especially the Bowery and Broadway.

When locating such buildings authorities usually favored downtown over suburbs. By 1845, there was still no barracks between 30th and 125th Streets, even though parts of the region including present-day Central Park teemed with run-down shanties of gypsies, tramps and thieves. Darkness, ever the ally of crime, pervaded the area at night.

since much of it lay outside the "Lamp District." In spite of this, however, City Hall made no attempt to erect emergency posts; uptowners would have to await their turn.

By 1858, things had improved under the "metropolitan" regime. Ward Eleven finally got its headquarters as did communities below 125th. Moreover, officers in Nine and Seventeen had moved to more centralized locations (see MAP 9).[15] Progress came, too, in administration; most notable was the division of the town into smaller "precincts."[16] No longer would political boundaries and police zones be coterminus. In addition to these reforms, the Department hired more personnel. By 1859, the total force stood at 1,700, more than double the 1845 figure.[17]

But the agency required more improvements. The dilapidated condition of facilities symbolized the low priority assigned to crime prevention. The problem won automatic mention in annual reports. Thus, in 1851, the Chief declared the need for "suitable Station houses...should command immediate attention."[18] He further charged that "some of [those] at present occupied by policemen are totally unfit for such use and should be abandoned without delay."[19]

A prime example was the basement of Tombs Prison at Centre and Franklin Streets. In earlier times the Collect Pond had covered the site. Now water seeped constantly up through the fill. A local doctor, commissioned to inspect

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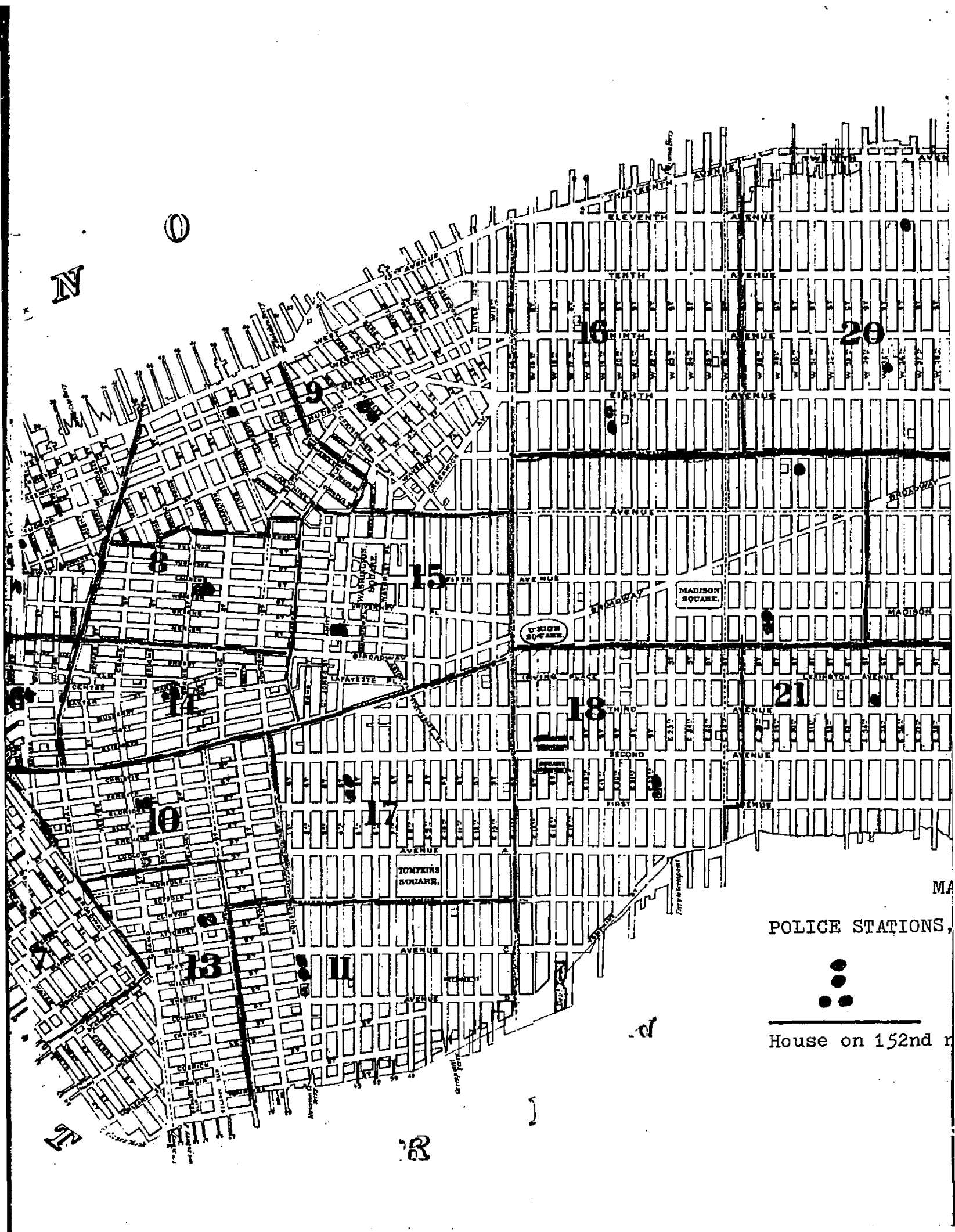
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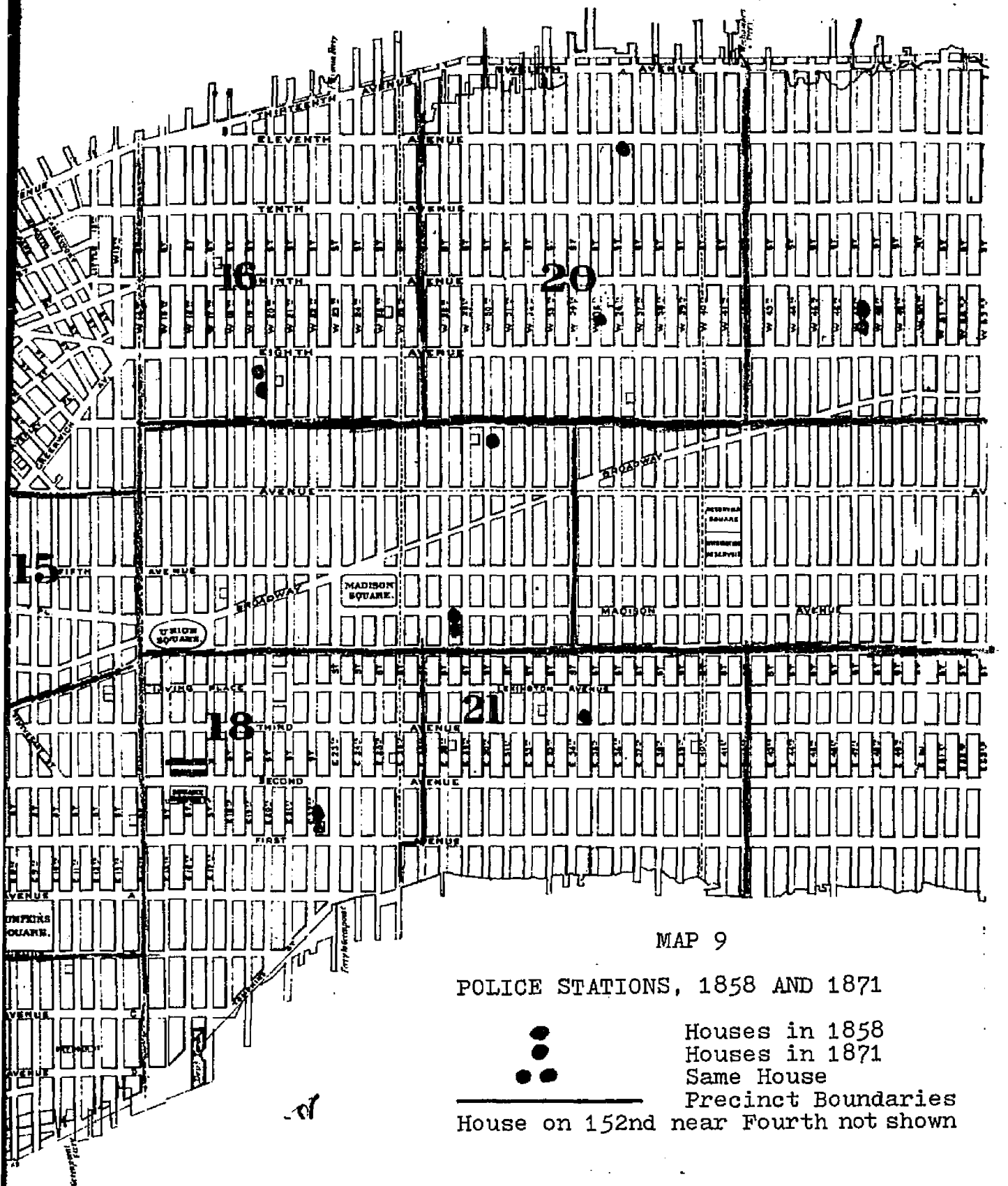
POLICE STATIONS,
House on 152nd

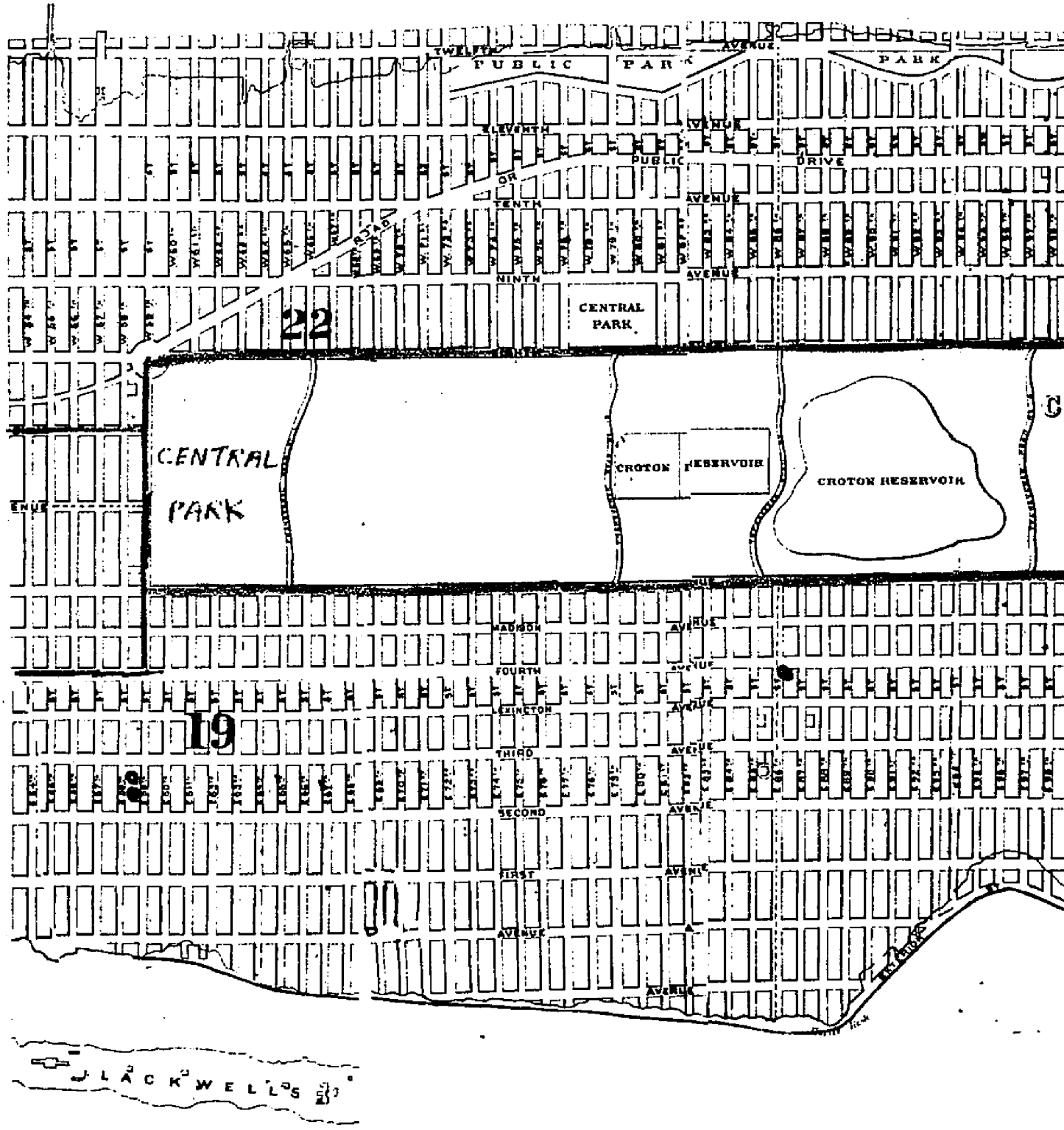


MAP 9

POLICE STATIONS, 1858 AND 1871

Houses in 1858
Houses in 1871
Same House
Precinct Boundaries

House on 152nd near Fourth not shown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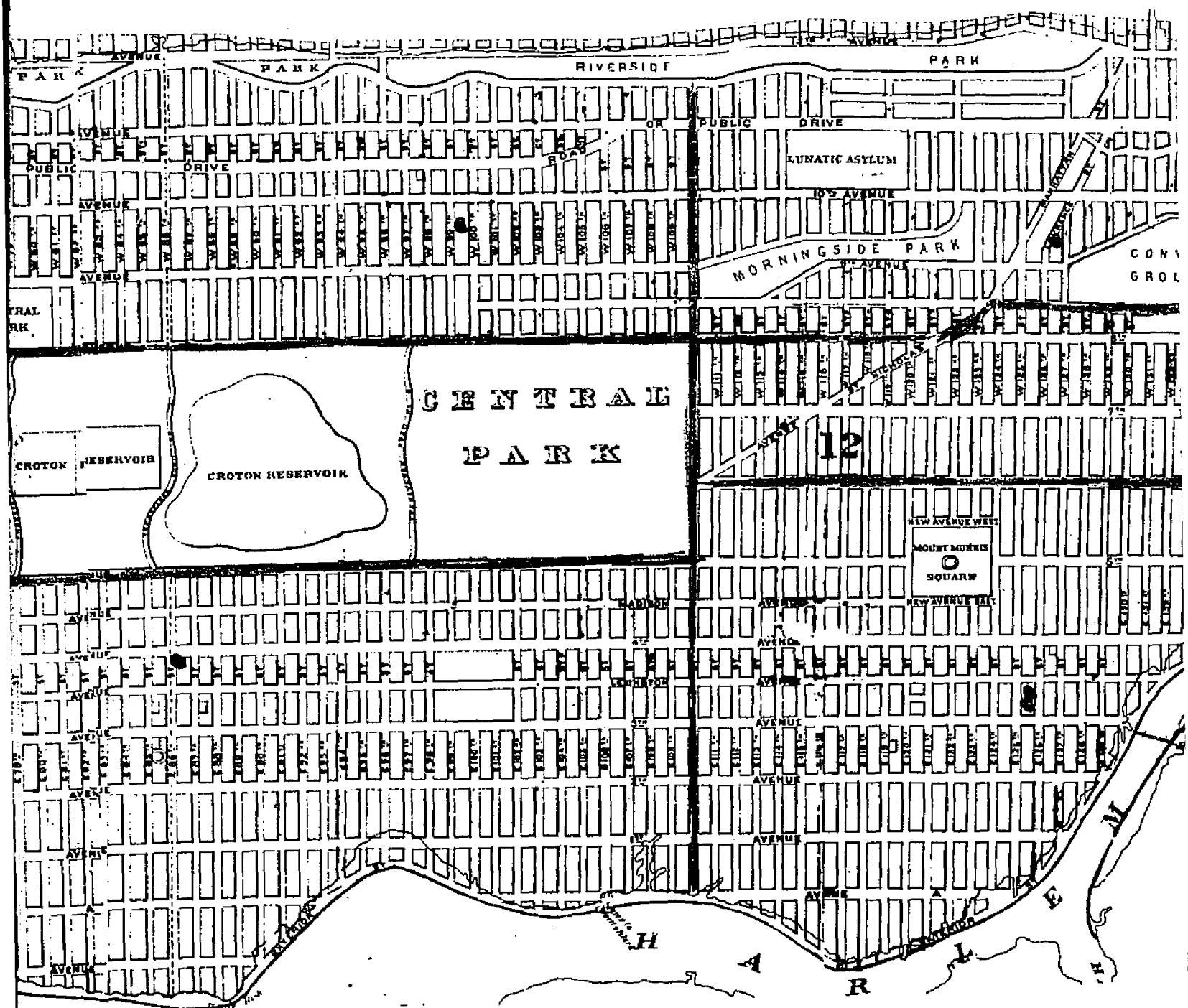
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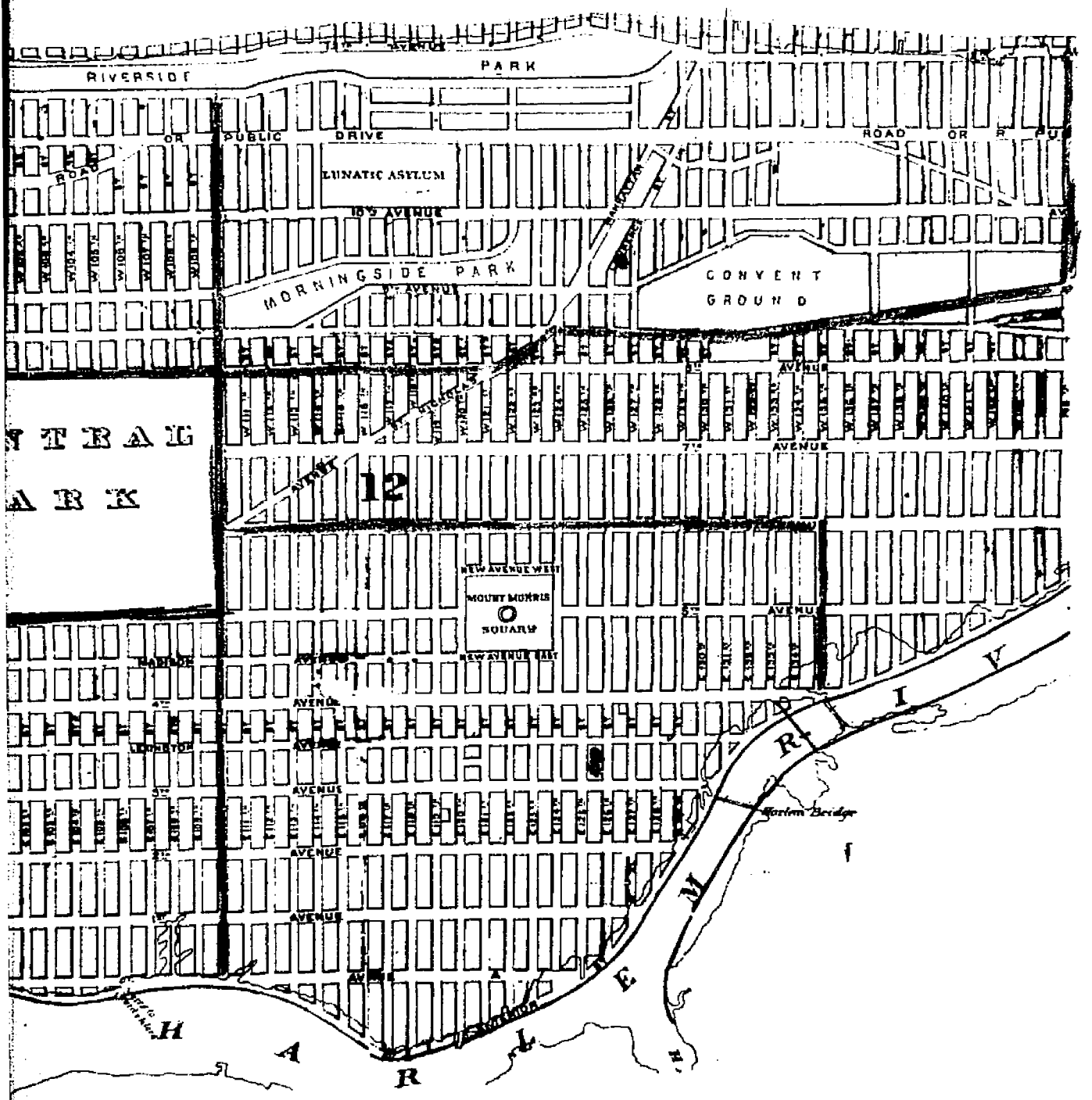
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the center, found its walls, ceiling and floor "constantly wet."[20] In a century of fever epidemics such conditions were perilous. Worse still, it was the custom to provide shelter in police barracks for vagrants and the temporarily homeless. Thanks to this policy, overcrowding at the Tombs Prison heightened the chance of illness. The nightly scene impressed an investigating physician who reported having seen "these wretched beings lying on the pavements, and on one another like sheep in the shambles."[21] The doctor scarcely could believe that such "miserable, unhealthy and horrible dungeons... [could] exist in the centre of the metropolitan city of a civilized and christian country."[22]

Many a transient died from a night's sleep there, but resident officers faced the same peril. The chronically high absentee and mortality rates among those assigned there worried authorities,[23] including the captain who complained bitterly about conditions.

> The sleeping room for the men is not fit for any human being to sleep in; there is constantly a damp and sickly smell in it, and at times it is so great (particularly in wet weather, or when the tide is high which causes the sewer to overflow, and leaves the stagnant water under the floors,) that the men are compelled to leave it, and do without the necessary rest they should have to enable them to perform their duties.[24]

Nevertheless, despite all pleas, the house remained open for years more.

Continued government apathy mystified commanders everywhere. In 1848, it led the Chief to warn aldermen that "the present system of police can no longer be looked upon

as an experiment, but must now be regarded as a permanent department of the city government." He concluded that new precincts should be erected on public land and "on an approved model."[25] Furthermore, he urged authorities to cease renting and re-modeling dwellings or stables. A modern force, he argued, would need new facilities in all districts.

By the 1850's, many buildings seemed inadequate. The First Ward's, for instance, located in Franklin Market at Old Slip, was "not central enough" and required "more room for lodgers." The sub-station, too, was "in a deplorable condition, having no sewer to carry away the filth which accumulates there in."[26] And the Fourth's was "entirely unfit." Here there was but one set of beds for the men, leading the captain to complain that "while one platoon rests, the others have to wait."[27]

Problems plagued other houses as well. The Fifth's suffered from poor ventilation, with the water-closets having no ventilation at all.[28] The Sixth's needed painting, glazing, ventilation and more Croton water pipes.[29] The Seventh's had so "little room for lodgers," that many had to be turned away nightly.[30] Moreover, investigators reported no space for officers and cells in poor condition. As one observer concluded, "the whole place is poorly constructed."[31] Officials found the Eighth's headquarters "in a leaky condition greatly in want of ventilation,"[32] while the Tenth's, located in Essex Market, failed on all accounts. Ventilation was poor and cells were "in a miserable

condition." Unlike the average station whose lodging areas were below ground, here they were "in the upper stories, where the water pipes get overflowed and leaking constantly."[33]

Poor conditions in uptown barracks matched those in lower wards. The Sixteenth's had "no ventilation whatsoever,"[34] while the Nineteenth's was "greatly in need of ventilation" plus an extension for more room.[35] Police authorities characterized the Twenty-first's as being "in a deplorable condition, almost ready to fall down."[36] The Twenty-second's faced the usual deficiencies as well: little air and no place for lodgers. In fact, the local force could scarcely accommodate itself; the patrolmen's sleeping quarters measured only 39X20 feet, forcing "the Captain and sergeants to sleep in one bed."[37]

In the absence of new buildings, complaints still poured in.[38] Fresh investigations in the 1860's found the Fifth Precinct "small and badly constructed,"[39] while the Tombs's remained scandalous. By the 1860's, police officials reported that the latter's "rear portion...has settled continually from the time it was completed, and the process is still going on. The beams are nearly drawn out of the walls and the building must ultimately fall."[40] But matters scarcely improved elsewhere. The Tenth Precinct, for instance, located in the second and third stories of Essex Market, was "cold, leaky and unfit for a station house."[41] And this was typical of the rest.

These conditions resulted from parsimony. It was city policy to undertake frequent patch-work repairs to postpone

the cost of new construction. The Tenth had long been victimized by this behavior. Despite annual "improvements" there, officials still reported that officers were "frequently driven from their beds in rainy weather by water that enters the roof in numerous places, rendering the premises scarcely inhabitable."[42] Too often renovations proved ineffective.

Even by 1870, the town had failed to modernize all of its facilities. The Ninth Precinct's house remained "cramped and unhealthy."[43] The Eighteenth's continued as "a third-class structure," and the Thirteenth's was adequate, only because of its being "frequently reconstructed."[44] Officials predicted the Fourth's "weak structure" would soon hasten its collapse, and they characterized the Twenty-eighth's as "the unhealthiest and most antiquated...in the city."[45] Yet, despite these disgraceful circumstances, there was no crash building program by city or state. Instead these evils persisted, leaving stations dangerous and disease-ridden.

These small and insalubrious offices flourished for decades. From the beginning, City Hall resisted the cost of new construction. In a typical case, the town first located Department headquarters in Ambrose Kingsland's stable, and later moved it to several dwelling houses.[46] Similarly, the Sixteenth Precinct, still active in the 1870's, was a converted home with an upper story added in later years.[47] In fact, as late

as 1870, most Manhattan stations were old, run-down structures.

Clearly, the government should not have rented existing buildings. But soaring real estate prices after 1845 deferred action. Gradually, town leaders realized their mistake and began purchasing land. Fortunately, uptown sites were still inexpensive; in 1860, it cost but $12,500 for two lots, a new stable and barracks at 152nd Street and Tenth Avenue.[48] But downtown, where the need for municipal facilities was greatest, amounts rose to prohibitive levels. In 1862, for instance, the state appropriated $25,000 to procure ground and build new quarters on Centre Street, but the sum was inadequate; $40,000 was a more reasonable figure.[49] In 1864, the legislature provided $35,000 for a lot and precinct fronting Liberty which ultimately cost $50,000. And, one year later, the Police Board praised this purchase as "timely and fortunate," since the land's value had already risen by $20,000.[50]

Although the city owned some of the old stations, it leased many others. Terms varied with each. Officials rented the West 29th Street house from Peter Goelet for twenty-four months at $500 per annum and the Warren Street barracks from Mayor George Opdyke for five years at $1,000 per year. Everyone played the real estate game, including St. James Church which offered its Trinity Place property for $250 annually.[51] Though the policy seemed a losing proposition, the 1870's saw its continuance. Indeed, authorities made a fifteen-year pact (at $1,500 per annum) with Peter Godet in 1870.[52] That same year,

they approved a twenty-four month proposal (at $2,000 per annum) with Abram Wakeman and one-year agreements with William A. Martin ($2,500) and William Guion ($1,500).[53] But with land prices rising, construction not renting was the answer.

Even in areas slated for new centers, it often was necessary to pay huge rents on current facilities because of Council delays. In 1870, the Police Commissioner urged officials to sign a three-year (at $3,000 per annum) deal for the First Precinct, because in the business district such a figure was "extremely low...[and] equivalent premises could not probably be obtained now for three times that sum." Yet, he warned, "timely arrangements ought to be made for a permanent station house, owned by the city to be ready for occupation at the termination of this lease."[54] New York clearly faced a battle against time in all sections downtown.

Growth also posed problems. Indeed, spreading settlement continually forced the redrawing of precinct lines. In 1871, for instance, the Commissioner noted the Nineteenth district had become increasingly unwieldy.

> The population has increased so rapidly, to such an extent, and is of such a character as to demand a larger police force than ought to be assigned to one command. The increase of population is likely to continue. The circumstances seem to require an early division of the territory...into two precincts, in which event two new station-houses would be required.[55]

In this case the city agreed; less fortunate neighborhoods, however, continued suffering.

When not lobbying for additional facilities, the Department pushed for other reforms. The 1870's witnessed an

effort to shift the responsibility for housing transients elsewhere. In 1871 alone, 141,780 people had stayed overnight in police barracks. But as rising crime crowded cells, agency leaders suggested providing, "independent of the station-houses,...several lodging houses to be located in different portions of the city, where the population is dense,...to receive and shelter this unfortunate class of the community."[56] During these and other campaigns, officers reaffirmed that their major concerns were crime prevention and detection. To accomplish this, the force needed headquarters that were new, well-located and devoid of transients.

By the 1870's, this goal still lay in the future. Although lower Manhattan enjoyed a blanket of protection by 1871, gaps grew larger uptown where the Department struggled to patrol each graded street once an hour.[57] Unfortunately, public works lagged in the face of skyrocketing land values, forcing many neighborhoods to suffer more years of poor service (see MAP 9). As a result, violent crime, juvenile delinquency and other evils thrived downtown along the waterfront and backwater districts, causing local real estate and business to stagnate. Police might insist on the need for more stations but politicians alone held the ultimate power.

Fire has ravaged New York in every century, often destroying whole sections of town. For decades, Manhattan's forest of buildings portrayed a tinderbox. Even in colonial times,

when crowding was less accute, officials showed concern. New Amsterdam took its first steps in 1658 when Burgomasters levied a special tax to purchase 150 water buckets. Eleven years later, authorities added a supply of "hooks and ladders,"[58] but urban growth soon relegated this meager defense to obsolescence. By 1730, the parsimonious Common Council had already bought two fire engines. Yet, despite these measures, citizens clamored for still better protection. Editorials demanded frequent drills, enforcement of "bucket laws" and the acquisition of more hose carts. But councilmen delayed. With apathy prevailing, disaster alone produced action. Thus, in 1741, it took a destructive blaze at Fort George to convince leaders they needed a hundred more buckets and larger engine companies.[59] There was some response, but, as usual, further reform awaited the next holocaust.

Meaningful progress came in the 1760's when officials established seven-man crews in each of the six wards. Firemen still were unpaid, but enjoyed exemption from jury duty, night watch and other civic responsibilities. The alarm system improved also, as New York grew too large for shouting. After 1800, authorities erected high towers from which bell-ringers could spot flames and sound warnings. These sentinels, aided by more "companies," serviced the town well into the nineteenth century. But, as with the Police Department, the modern city soon rendered all colonial systems obsolete.[60]

Reform, however, lagged because of the firemen's refusal to discard traditional methods. Due to this obstinance,

the horse-drawn engine lay unused for years; crews instead preferred dragging their apparatus through the ever-multiplying streets. Moreover, some feared the innovation would retire the volunteer "runners" who did the actual hauling.[61] For similar reasons, steam fire engines, too, faced stiff resistance. These models posed several threats to the status quo. Their superior pumping ability combined with the growing hydrant network would surely vanquish the out-moded hose cart. Such an event would cut personnel, since current trucks required teams of up to sixty men, while the "steamer" used but four.[62] Hence it was little wonder that in a Department where stubbornness reigned, speed and efficiency suffered.

In addition, there were other problems. Prior to Croton, water was scarce. Local cisterns often ran dry despite efforts to keep them full.[63] Moreover, hydrants frequently malfunctioned or became the victims of bitter rivalries plaguing the agency. . . . Many times, companies, on first hearing alarms, would rush a man over to cover the nearest plug with a barrel. This forced other crews arriving at the scene to find their own spouts,[64] since team honor and pride took precedence over life and property.

This seeming anarchy led to greater unrulyness in the 1830's and 40's.[65] For one thing, politics too often dominated policy as Whigsand Tammany Democrats struggled for control. Throughout the 1830's, "regular" firemen battled politicians for the right to determine the "Chief Engineer." Intra-departmental conflict added further confusion. Strife usually

followed every election. A thousand events combined to intensify the bitter political and ethnic jealousies racking the agency.[66]

But if "regulars" proved troublesome, "volunteer" groups were worse. Since 1738, these gangs of pugnacious amateurs had assumed "the garb of firemen" and provided crucial support. In the 1800's, however, they increasingly hindered operations by tying up hydrants, tangling hose lines and blocking engines. Such hijinks invariably led to fisticuffs. Too often, rival companies met at a blaze and commenced brawling. To the winner belonged the singular honor of combating the flames and removing charred victims.[67]

By the 1860's, authorities grew weary of this dissension. Finally, as with the Police, Albany legislators created a state-controlled unit.[68] During its tenure the Metropolitan Fire Department greatly advanced the professional approach. Horses now serviced every house, permitting the discharge of "runners." In addition, there were other improvements. Increased use of steamers and hydrants eventually exiled the hose cart. And this, in turn, furthered mobility which allowed substantial personnel reductions. Soon 500 men did the work once performed by 4,000.[69] Thanks to Tweed's influence, the city regained control five years later, but professionalism had come to stay. Gone were the halcyon days of honor and amateurism. The way now stood clear for competent service.

The seeds of reform lay in earlier times. As the "walking city" became a metropolis, leaders moved to revamp

the agency. A major step occurred in 1835 with the creation of a paid force. Nevertheless, a series of monstrous fires provoked the business community to further protests. Critics focused on performance. Thus, in 1839, despite new apparatus and better work by "regulars," the Common Council's Joint Committee on Fire and Water found "in the rapid growth and great extent of the City...cause for less efficiency in the... the Department than formerly."[70] As a remedy, aldermen offered several proposals, including the shelving of the traditional all-hands response to conflagrations in favor of a multi-district system. Under this plan, companies would respond only to calls in their section, leaving the Department free to fight blazes elsewhere.[71] The aldermen not only supported this reform but also the abolition of "volunteers." This move, however, required postponement, since urban growth had stretched distances greatly. Thus, for the time being, to keep "regulars" fresh, amateurs still pulled the engines from station to fire. On another front, though, the goal of improved mobility finally led the politicians to favor abandoning the cumbersome engines for lighter, cheaper hose carts.

Though concerned with alarms and technology, the Committee also examined company locations.[72] By 1840, lower Manhattan enjoyed good protection. As MAP 10 indicates,[73] stations abounded downtown. Over thirty miles of mains and 350 hydrants (located at the ends of each block) prompted the aldermen to brag "that no point in the compact parts of the city is more than six hundred feet from a good supply of water."[74]

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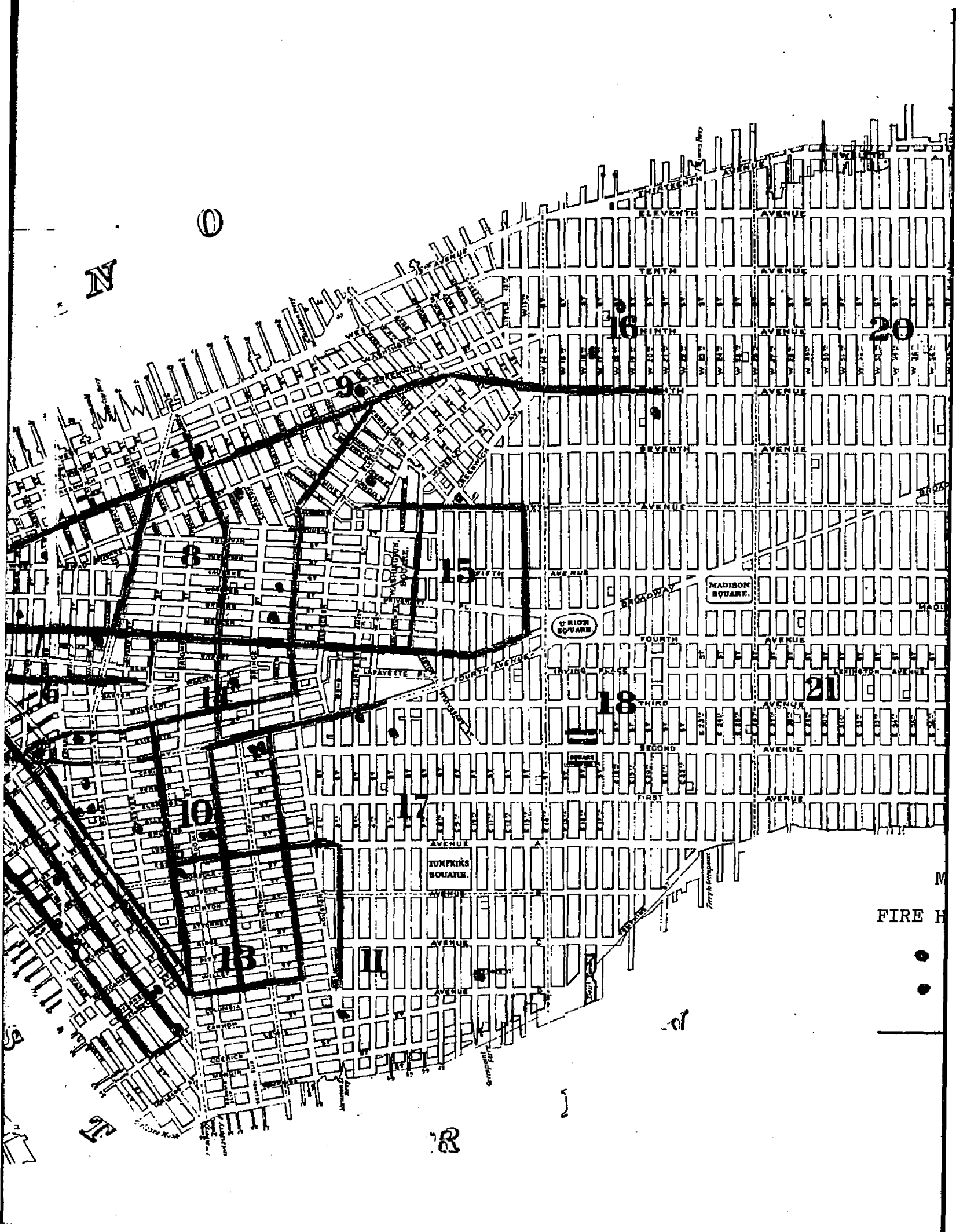
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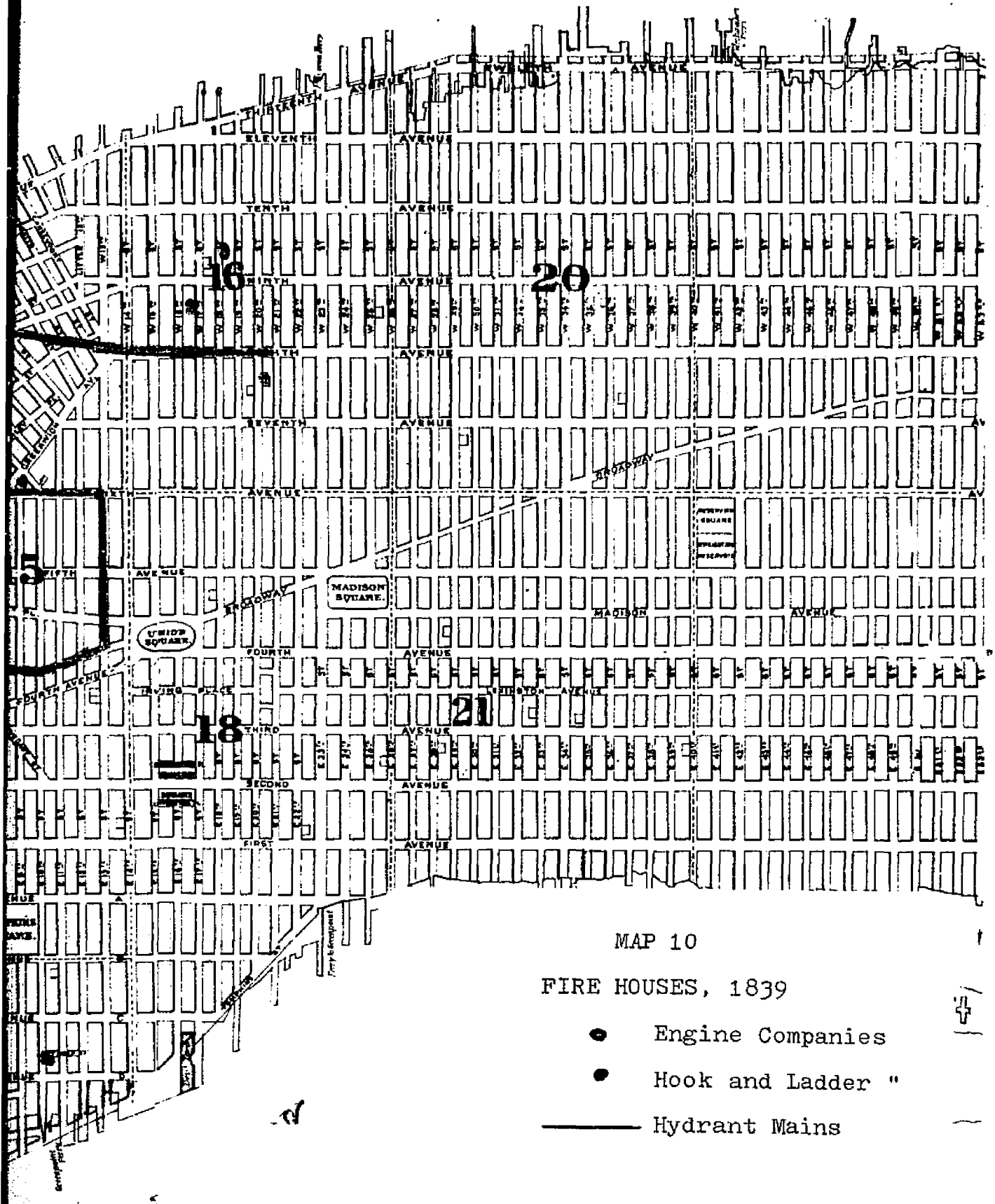

MAP 10

FIRE HOUSES, 1839

- Engine Companies
- Hook and Ladder "
- Hydrant Mains

But with many spouts defective or barrel-covered at key times, this claim offered little solce to fire-prone neighborhoods. Worse still, with many buildings over three stories high, Gotham suffered from a lack of hook and ladder trucks. In fact, the First Ward, with the town's tallest structures, counted only two. North of Reade Street protection declined seriously. Despite many warehouses and factories along blocks near both waterfronts, these vehicles were absent; their garages were inland.

Engine companies, although more numerous, were still inadequate. The opulent First, Second and Third Wards received priority. But the tenement-ridden Irish and German centers (Tenth, Eleventh, Thirteenth and Seventeenth especially), had less facilities. In addition, emergency water mains mysteriously ended at 2nd and Prince. Fashionable thoroughfares like Broadway, William, Pearl and Greenwich might boast hydrants throughout, but this was not true near the rivers where immigrants and dockworkers resided. Still, uptown service was worse. Scarcely an engine sat above 14th Street, even though highly flammable wood dwellings housed the 30,000 people living north to 50th.

By 1848, conditions had barely improved (see MAP 11).[75] Hook and ladder houses continued hugging the central spine of the island, leaving sections east and west unattended. The Tompkins Square area, for instance, still lacked protection while the highly combustible waterfront lay remote from most stations. At the same time, only select locales uptown received better service. As the wealthy moved farther up Broadway to escape

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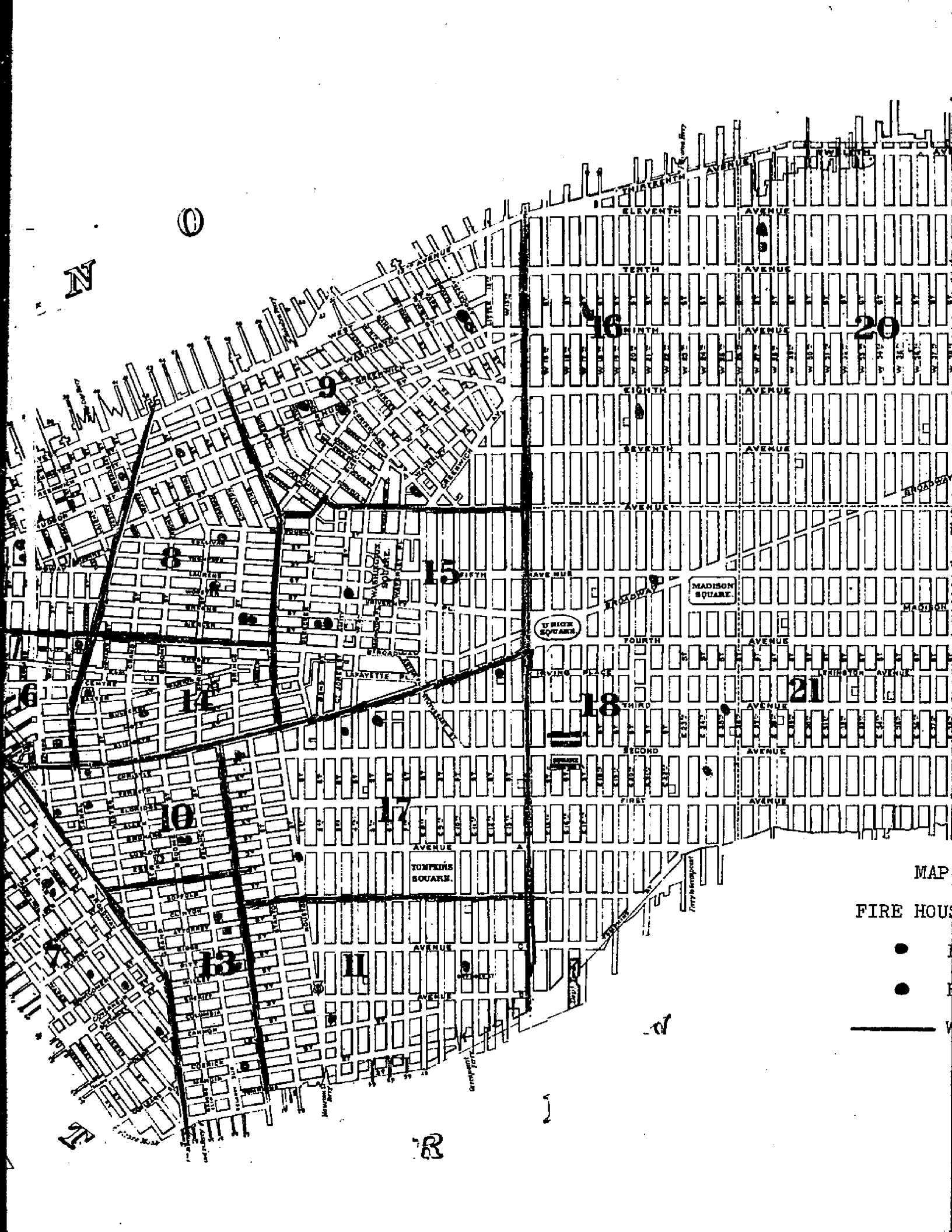
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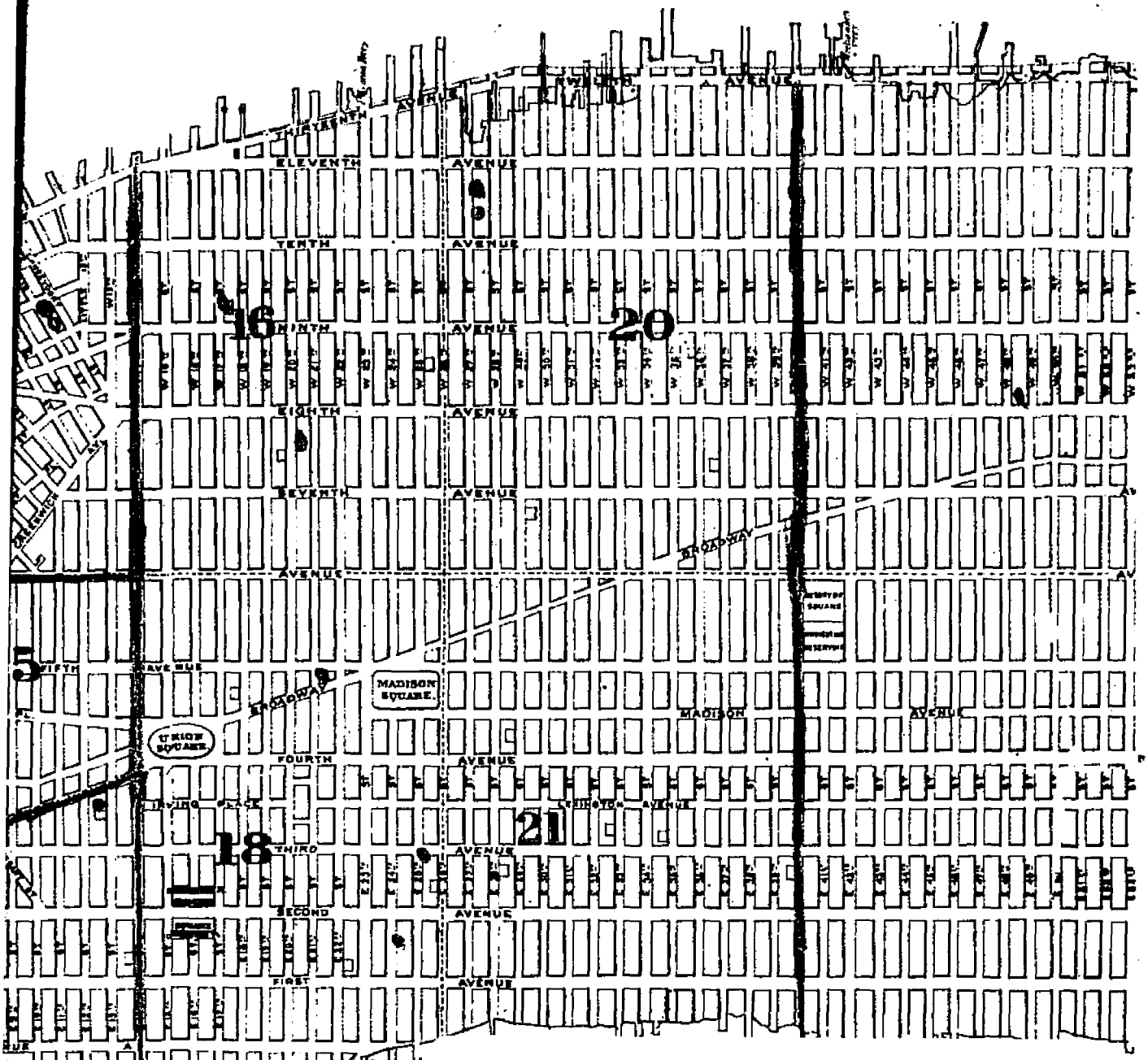


MAP 11

FIRE HOUSES, 1848

● Engine Companies

● Hook and Ladder "

——— Ward Boundaries

the central city, authorities added new engine quarters but not to Fourth, Sixth or Seventh Avenues, only Broadway. Inflated rents downtown had forced a middle-class exodus to cheaper, wooden houses in the northern suburbs, but the government largely ignored this migration, responding only with an occasional new facility. Thus, as the 1850's approached, lower Manhattanites, with more wards and consequently more aldermen, continued enjoying preferential treatment.

As with police, fire stations throughout New York suffered neglect. Chief Engineers annually begged the Common Council for repair funds. In 1850, Chief Alfred Carson described Gotham's fire houses as "a source of infinite embarrassment to the department."[76] Carson appealed with moving emotion to aldermen when he deemed it unfair that those "who so unremittingly strive to please...the city at large, should be thus neglected,...the occasional repairs and alterations of their buildings being about the only reward they require... for their severe labor and exposure."[77]

By 1857, protests grew louder. The Chief contended that downtown garages were "not of a suitable character to keep a fire organization together."[78] But these centers, though in lamentable straits, were not the worst off. Indeed, the Chief complained that Hook and Ladder Company No. 4, "one of the most efficient and energetic in the department, have been out of service for some time, in consequence of their not being

a location provided for them by the Common Council."[79] Citizens surely wondered how a town renowned for its 'sky-scrapers" could keep a crack organization inoperative for want of a house.

But the late 1850's were crisis years. With one crew already de-activated, four others required new locations while another two faced expired leases. But the Board of Aldermen still procrastinated as eviction drew closer.[80] Matters hardly improved by 1863; once again the Chief Engineer glumly reported that two more "may,...at any moment, be placed out of service" because of un-renewed leases.[81] Last-minute juggling in 1864 resulted in Engine Company 47 moving into No. 50's former headquarters.[82] But still, the Chief complained to no avail that No. 14 had "been out of service for more than a year for want of a location;" Trinity Church had dispossessed them in 1863 and the absence hurt.[83] He further complained that "several large fires have occurred in that vicinity [of Fulton and Church Streets] during the past year, which could, in my opinion, have been readily checked, had this Company been in service."[84] Absurd as it might seem, numerous outfits throughout Manhattan functioned with constant threats of eviction hanging over them.

Politicians largely greeted these troubles with apathy. At times, city policy approached the ridiculous. In a rare move in 1848, the town built a station on West 24th Street and left it vacant for the next three years. A disgruntled Chief politely reminded the Council in 1851 that, as yet, it had given him "no authority to organize a company," despite the pressing need for one.[85]

Chief Engineers also faced the unwelcome task of persuading penurious councilmen to extend protection uptown. In 1848, fire officials warned that "the rapid increase of the population of the upper wards, especially in the Sixteenth and Eighteenth and the lower part of the Twelfth renders it necessary to increase the force in that part of the city."[86] These neighborhoods had outgrown current facilities.[87] Hence, noting "the great number of houses erected there during the past year," the Chief urged the "immediate organization of several hose companies" and a new alarm district west of Seventh Avenue between 30th and 42nd Streets.[88] A local water shortage also impelled the Chief to request mains "in all the areas west of Sixth Avenue."[89] But such entreaties usually evoked only token responses.

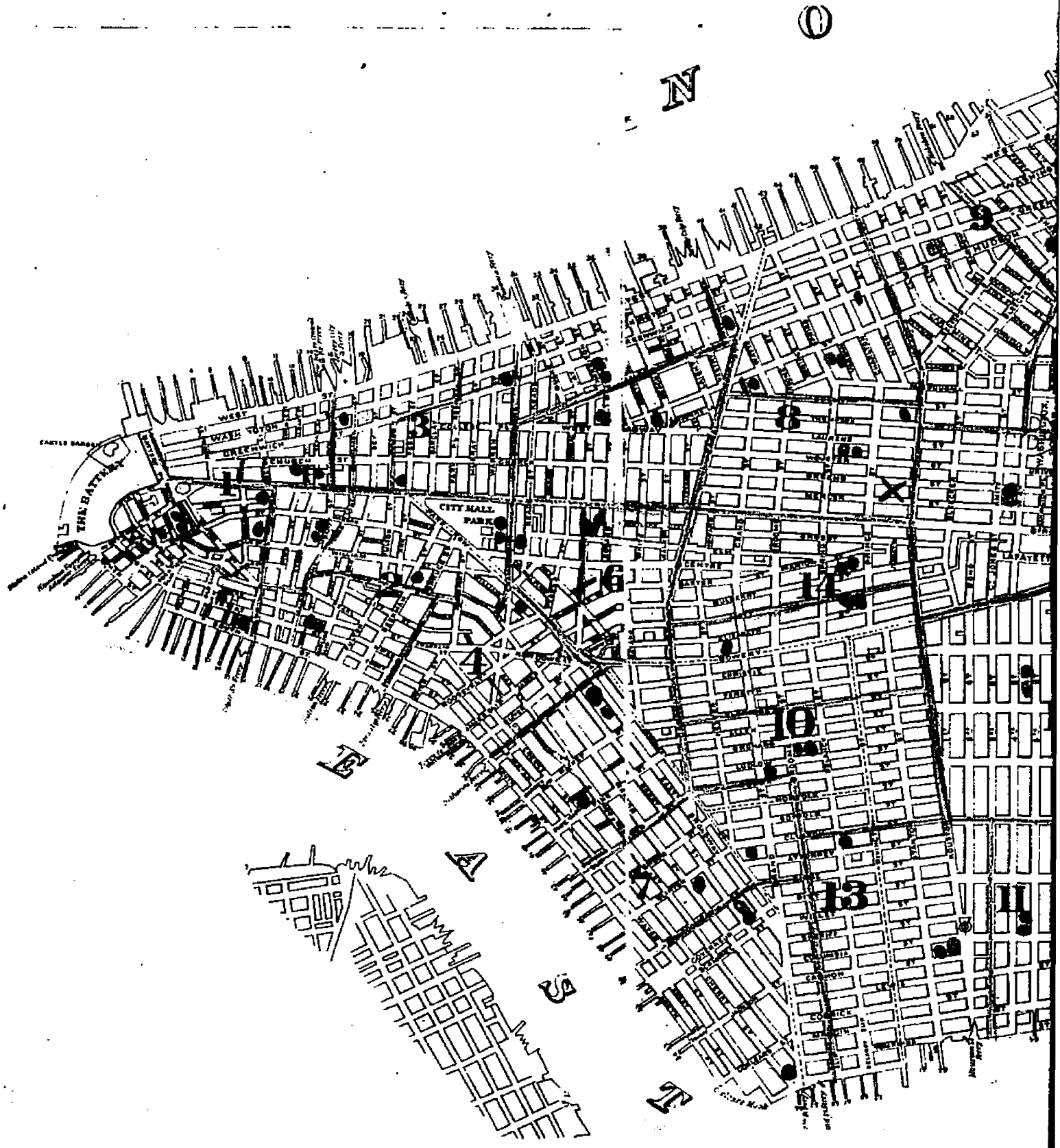
The city erred, too, in another key area. As with police, the town rented private stations instead of erecting its own. Not till the 1850's did New York embark upon a building campaign. But again, lot values downtown restricted the activity in lower Manhattan, leading one Chief in 1863 to conclude that "the high valuation set upon property downtown, has...prevented the Comptroller from procuring suitable locations for... Companies."[90] Only in the 1870's did modern facilities cover most of Manhattan.

As a result of soaring costs after 1850, the government finally began constructing more stations. Land, however, was expensive. By 1852, lots ranged from $1,300 to over $5,000 in sections above the business district. And prospective lots in the Third Ward went upwards from $10,000.[91] After the

Civil War, prices rose to staggering heights. This, combined with incessant repairs to apparatus and hoses, retarded Department efforts to eliminate the leasing system.[92] Thus, many companies continued renting.

As with police precincts, the city offered no standard deals. Instead, terms varied with each landlord. A number enjoyed twenty-year pacts. Among these, the Rose Street station brought the Goelet brothers $280 a year. Temple Street's cost $450, while farther uptown, the center at 27th near Eighth went for only $70.[93] Some tenures were longer; J. M. Moore, for instance, let the Ann Street station for twenty-one years at $1,250 per annum. Most agreements, however, ran less. The New York and Harlem River Railroad enjoyed a nineteen-year pact with an annual payment of $307.12, while the Roman Catholic Orphan Asylum received $400 annually (for a decade) for its Elm Street house. Politicians, too, joined the act; former Mayor Ambrose Kingsland had a ten-year contract (at $500 per) for the Mercer Street depot. It was a profitable investment for any landlord.[94]

Surely, had the city planned well, avoided graft and patronage and built its own fire and police stations after 1830, it could have saved a fortune. But contemporary politicians believed public works a "job" and real estate a game. As a result, the public received little for its tax dollar. Witness the location of fire houses in 1871 (MAP 12).[95] By now skyscrapers had begun invading downtown. Tenements rose everywhere to six and seven stories. But still there was a paucity of hook and ladder companies to fight the savage blazes. Many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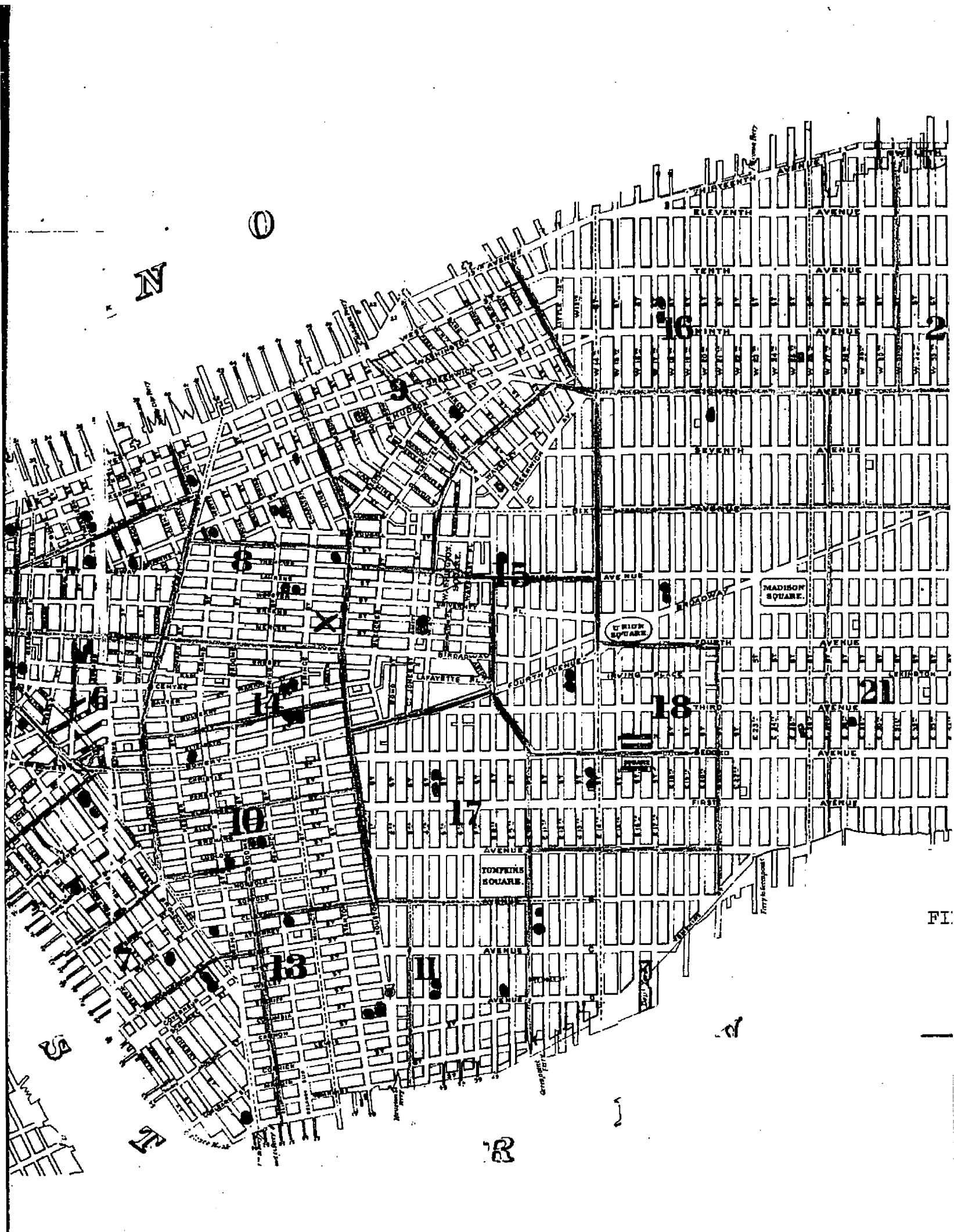
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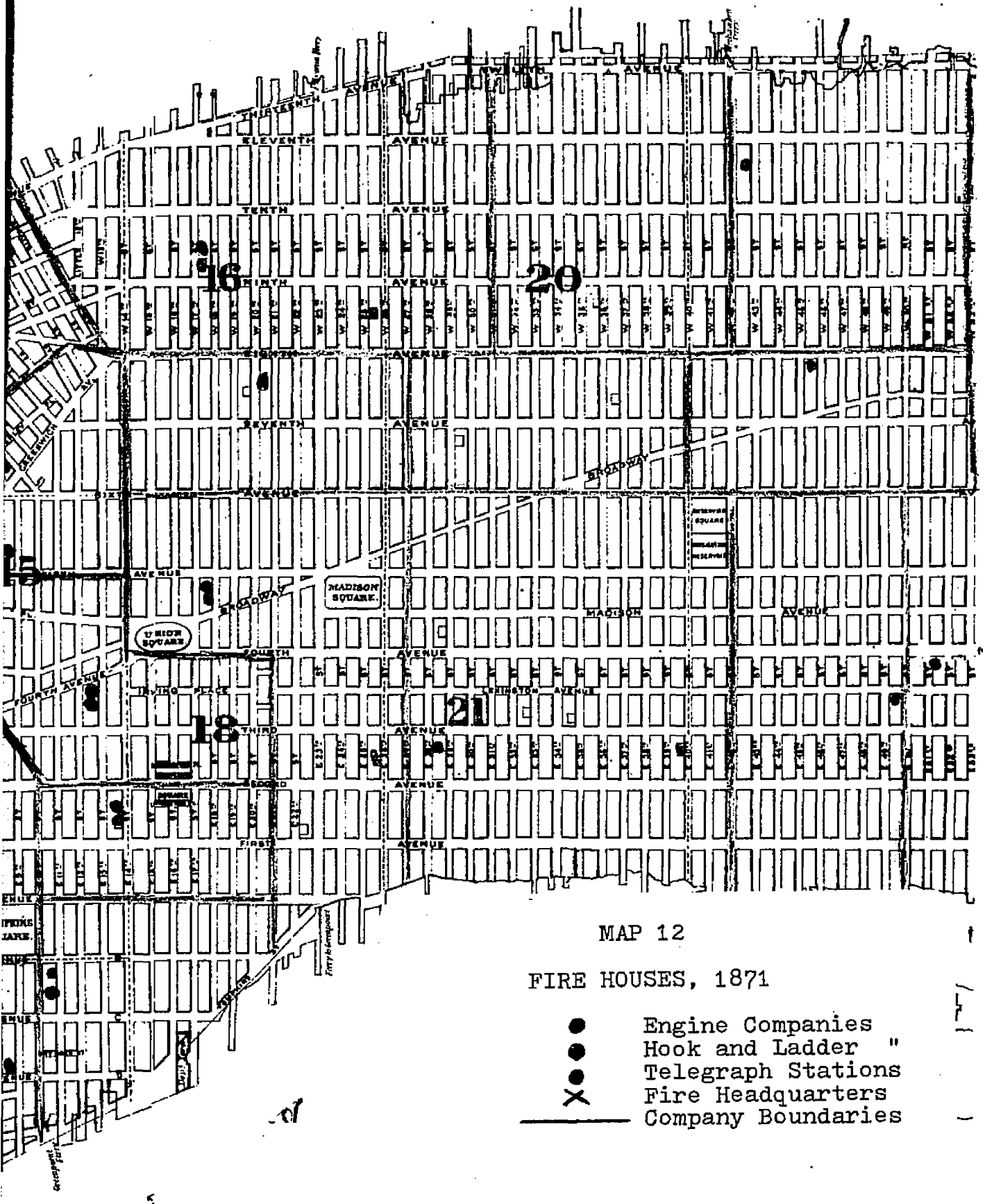
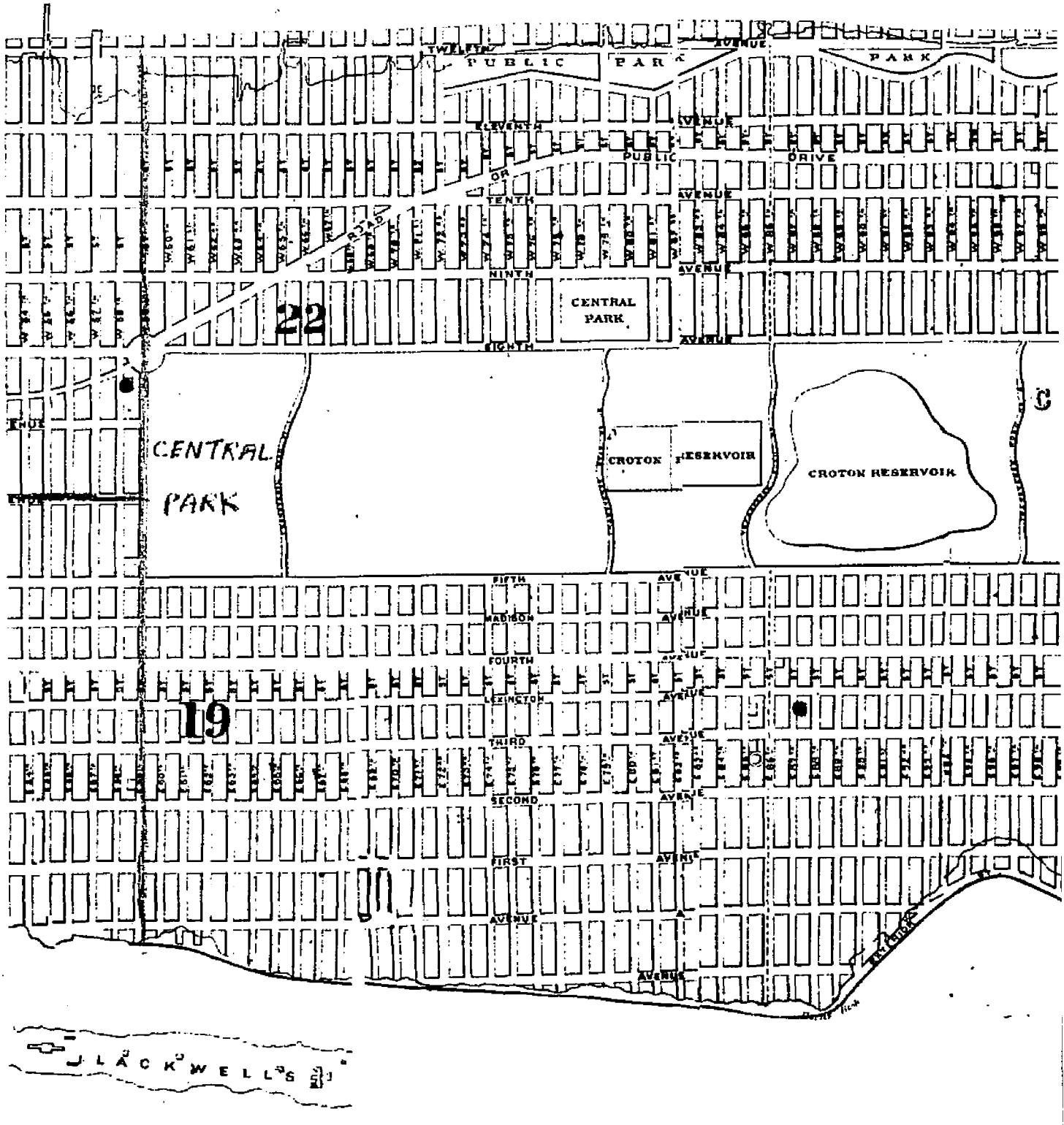


MAP 12

FIRE HOUSES, 1871

- Engine Companies
- Hook and Ladder "
- Telegraph Stations
- Fire Headquarters
- Company Boundaries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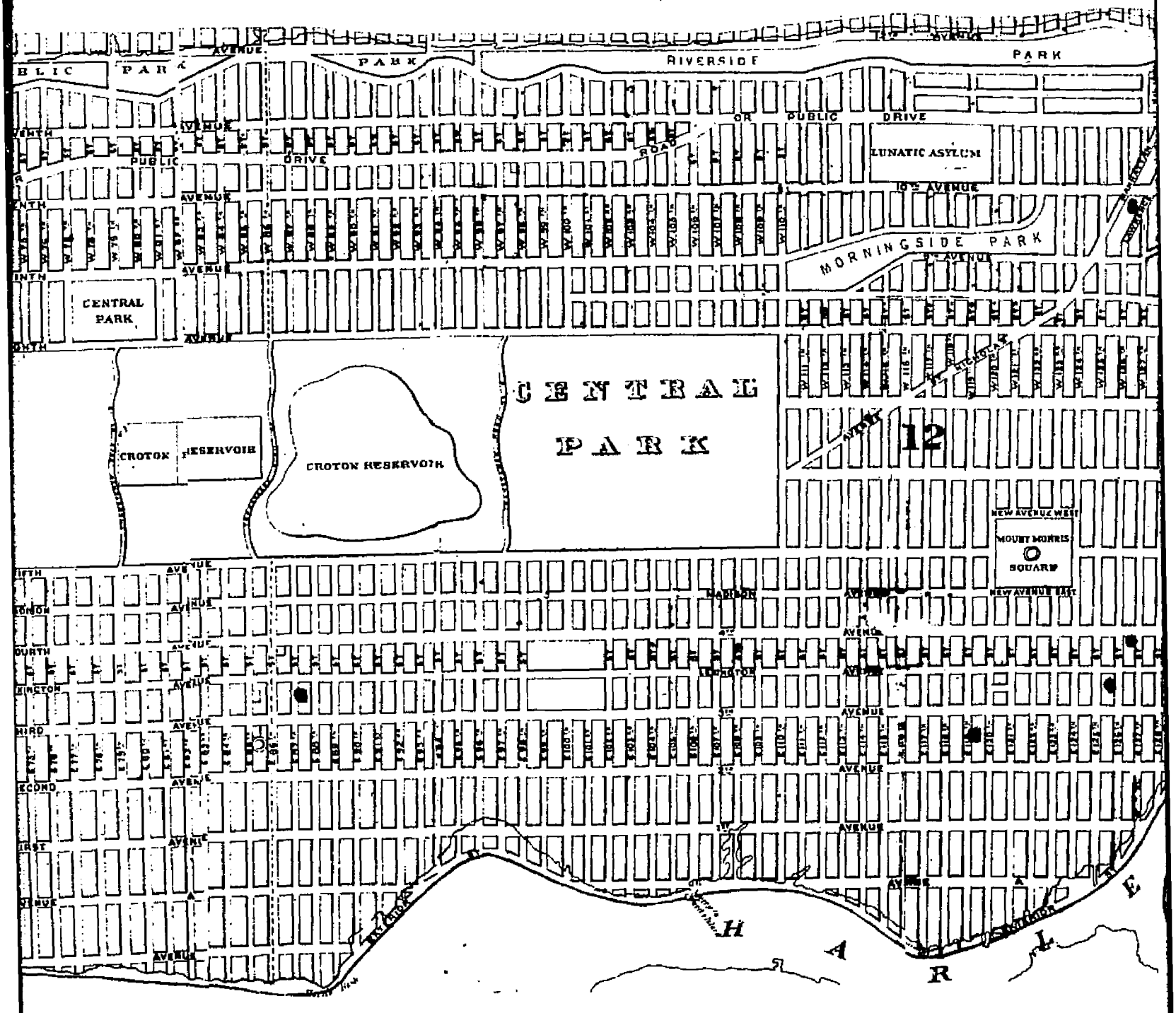
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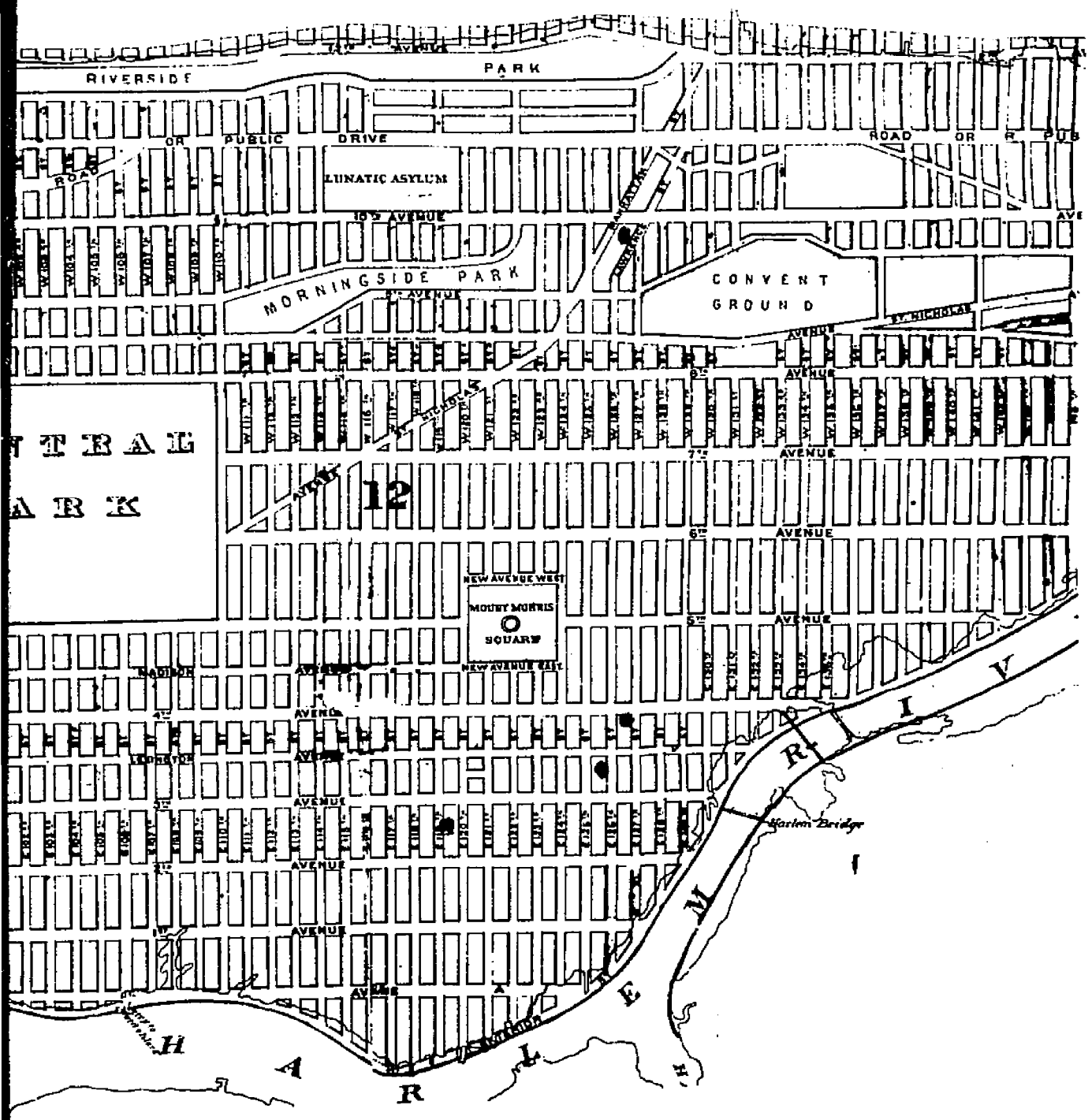
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SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
Harlem Bridge
HARLEM
RIVER

died needlessly.

And as population surged northward, streaming along Central Park, the number of engine houses above 14th Street scarcely multiplied. Insurance maps reveal thousands of homes, factories and stores above the Union Square area, yet few new facilities existed. In 1875, the Twenty-first Ward totaled 58,883 people, the Twenty-second over 83,000 and the Nineteenth almost 118,000. But, unimpressed, the government was slow to extend protection to these locales.[96] Not until the twentieth century did politicians meet the needs of uptowners.

Though unable to build enough stations, fire officials succeeded in improving the alarm system. For several decades Manhattan utilized the primitive bell-tower method. In the absence of modern call boxes, this seemed the best way to spot conflagrations. Too often, however, these wooden stanchions were themselves victimized by flames. In fact, after the destruction of the Jefferson Market bell in 1850, there was "not a solitary tower in operation on the west side" of New York.[97] Authorities slowly began constructing metal replacements, but this invariably awaited the wooden original's demise.

Fire, however, was not the only problem; age too was a factor. By 1851, the Chief reported Centre Market's tower to be "dilapidated and insecure," so that it "dangerously vibrates in a high wind."[98] At other times, ringers, eager to satisfy friends, permitted the striking of bells. On many nights, irresponsible watchmen or vicious gales triggered false alarms and occasional melees.

Despite its defects, the system's chief advantage was its simplicity. The number of clangs represented the Fire District hosting the blaze (e.g. five times for the Fifth). Upon hearing their signal, the area's companies responded. Church belfries supplemented the town's, although sextons grew less cooperative after 1820. Various factors led officials to ponder alternatives. For one thing, repair costs rose as the stanchions grew older. But more important, many people doubted their effectiveness. The arrival of taller structures reinforced this view, for each year's new construction blocked sight lines further. The City Hall bell was a prime example. By 1857, authorities noted that with "the erection of large buildings in the surrounding locality, the 'lookout' is nearly useless as an observatory."[99]

Such events had led officials in 1847 to investigate a telegraphic alarm system. Within a few years, the Department had ordered its installation first in public bell towers. Next the Chief Engineer urged its extension "into the houses of different fire companies located some distance from bell towers."[100] By the early 1860's, an ill-working network of eleven "Robinson" wires radiated from Mercer Street headquarters and connected with all stations below 14th Street.[101] Unfortunately, maintenance was poor. By 1865, the Metropolitan Fire Board reported the "wire to be very much out of order, and in places broken, and considerable distances gone."[102] Uptown lines, too, were in a shambles, with "most of the wire and poles from Tenth Street to Twenty-third...gone."[103] Then too,

communication "with towers at Yorkville and Mount Morris had also been severed for about the same length of time, thus leaving the upper portions of the city in an exposed condition."[104]

By 1865, however, the Metropolitan Board had made all repairs and changed the code. In the latter move, officials abandoned the use of dashes in favor of dots to indicate the station nearest the blaze. Hence "... ....." would put the alarm near the 35th Engine Company, etc.[105] At first, the system serviced downtown exclusively (see Map 12).[106] Later, as engineering improved and buildings rose higher, most lower wards won the innovation. Of course, there were gaps; as usual the eastern waterfront went neglected. But in most places where fire houses were not available police precincts handled messages. Unfortunately, this network proved less effective above 23rd Street. Owing to a lack of stations, uptown once again took the backseat. Despite vast distances, sixable populations and thousands of wooden structures, few wires traversed the region. In short, the city failed miserably to supply its suburbs with a modern alarm system.

Hydrants were yet another headache for the Department. For decades firemen had wrestled with defective spouts. Lower Manhattan at least had some reliable models, but above 14th Street there were few. By 1869, the deficiency uptown led the Chief Engineer "to order six additional hose companies...[for] these districts;" although he added: "even these are not sufficient."[107] The city, however, persisted in its hodge-podge policy of installation. In 1867, for instance, First Avenue from 83rd to 86th

Streets received hydrants as did Avenue A from 83rd to 85th. But then contracts jumped to other locales: 37th, 58th and 124th Streets, Irving Place and one block each of Fourth and Ninth Avenues.[108] Politicians, it seemed, threw these plugs about as sops to quiet the populace. Most neighborhoods won a few to silence agitators.[109] But in spite of a growing fire menace, there were no crash programs to supply the city. In fact, the government contracted for less than a hundred in 1867.[110]

The nineteenth century, therefore, witnessed great discrimination in the amount of fire protection afforded each section of town. Lower Manhattan possessed the most stations, hydrants and telegraphic alarms, but even here conditions were poor. And though service improved substantially after 1865, top efficiency awaited the twentieth century.

If police and fire protection seemed inadequate, medical care was worse. Since colonial times, New York had served as entrepôt for thousands of disease-carrying immigrants. In addition, the port had long enjoyed an extensive trade with Charleston, Cincinnati, New Orleans and other river towns where malignant fevers prevailed. As a result, visitors had often infected the city's populace with virulent germs. But despite the frequent visit of epidemics, New York assigned hospitals a low priority. Gotham's first public institution came in 1658 when burgomasters utilized five workshops at the

Dutch West India Company.[111] Treatment was often as crude as the quarters, since few competent physicians resided in New Amsterdam. Usually, "apprenticed-trained medicos" and "barber-physicians" predominated.[112] Under British rule conditions gradually improved. A major step came in 1736, when the municipality converted the top floor of its House of Corrections into an infirmary. As population grew, the center overflowed with patients, forcing the purchase in 1811 of "Kip's Bay Farm" at "Belle Vue Place" (a tract near 27th Street and East River) as the building site for a larger complex.[113]

Still, this public "establishment" was of limited benefit, since municipal policy long ago had restricted admission to paupers only.[114] Patients with means entered New York Hospital, an institution chartered by George III in 1771 as part of King's College (today Columbia University) Medical School.[115] Here, highly skilled doctors plied their trade. But this was little consolation to many New Yorkers whose meager incomes qualified them for neither facility. Home nursing was their only recourse. Just those suffering from infectious diseases merited exceptions. Indeed, victims of yellow fever or typhus fever, cholera, smallpox and other maladies were eligible for Bellevue.[116]

Thanks to prevailing mores, the city took a myopic view of health care. As a result, hundreds of people suffered and died each year. Private physicians might offer their services, but house visits only decentralized medical treatment. Seriously ill patients required hospitals, but the Common Council never recognized the need. This apathy eventually forced private philanthropy to fill the void. A key step came on October 14,1790,

at a meeting of the Medical Society of the City of New York, where members resolved "that a committee be appointed to... publish a plan of a Dispensary for the medical relief of the sick poor of this city, and to make an offer of the professional services of this society to carry it into effect." The group ultimately formed a trusteeship and, in 1791, opened the New York Dispensary (at Centre and White Streets).[117]

Other districts later followed this precedent. In the 1820's, for instance, civic leaders in Greenwich Village "with the approbation and assistance of a few of the physicians residing in that vicinity," formed an association which established the Northern Dispensary. For the first few years this institution, located in an old house, "was entirely dependent upon and wholly supported by voluntary subscriptions and occasional collections in churches, and the surplus proceeds... of popular lectures delivered in the winter months."[118] Despite annual jumps in patient numbers, city officials displayed little sympathy for the Trustees's plight. Finally, in 1830, the town corporation granted the center a triangular lot at Waverly Place and Christopher Street on which to erect a larger edifice. The Trustees, aided by substantial private donations, constructed a two-story building. But still, admissions swelled, forcing the addition of a third floor in 1854.[119]

"Northern," however, could not service everyone. By 1830, east siders realized they too needed beds. Therefore, as the section filled with residents, citizens organized to build their own facility. The latter came in 1832, when the legislature

incorporated the Eastern Dispensary. A new structure was unthinkable for lack of funds, so founders located their institution on the second floor of Essex Market--hardly an ideal spot. Conditions were objectionable, but there was no alternative.[120]

Nevertheless, these efforts inspired others. As more neighborhoods grew, hospital campaigns sprang up around town. By 1851, the east side above 14th needed help. Impoverished families there could hardly afford private health care. Prior to 1850, a charitable organization, the "Association for the Improving the Condition of the Poor," had sent doctors and medicine to the area, but this proved too costly. In desperation, the group requested aid from the city but got none. Finally, members appointed a committee "to inquire what measures, if any, should be adopted to supply the indigent sick in the northeastern part of the city with medical attention and medicines." This body, in turn, called an open ward meeting at which citizens approved a "medical dispensary." Civic leaders formed a Board of Managers which bought land and built the small Demilt institution in 1853.[121]

Similar buildings, "not intended for any...able to supply themselves," opened elsewhere as the century progressed. The Northwest Dispensary at Eighth Avenue and 36th Street started in 1852, the New York Homeopathic in 1862, New York Central (934 Eighth Avenue), Hoffman (Sixth and 26th) and Harlem (Fourth near 125th) all began in 1868. Others came in succeeding years.[122] MAP 13[123] reflects each community's efforts to care

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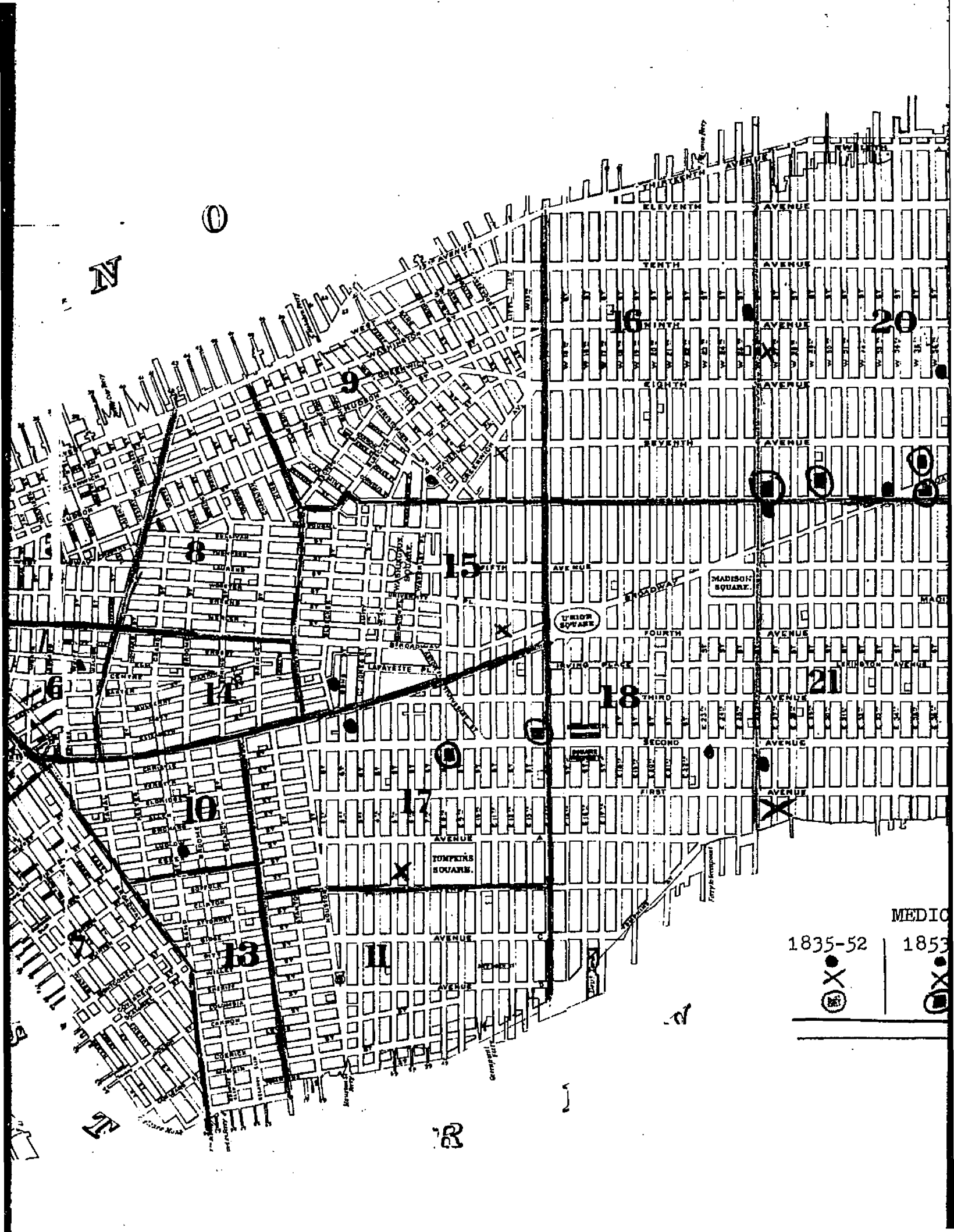
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BROADWAY
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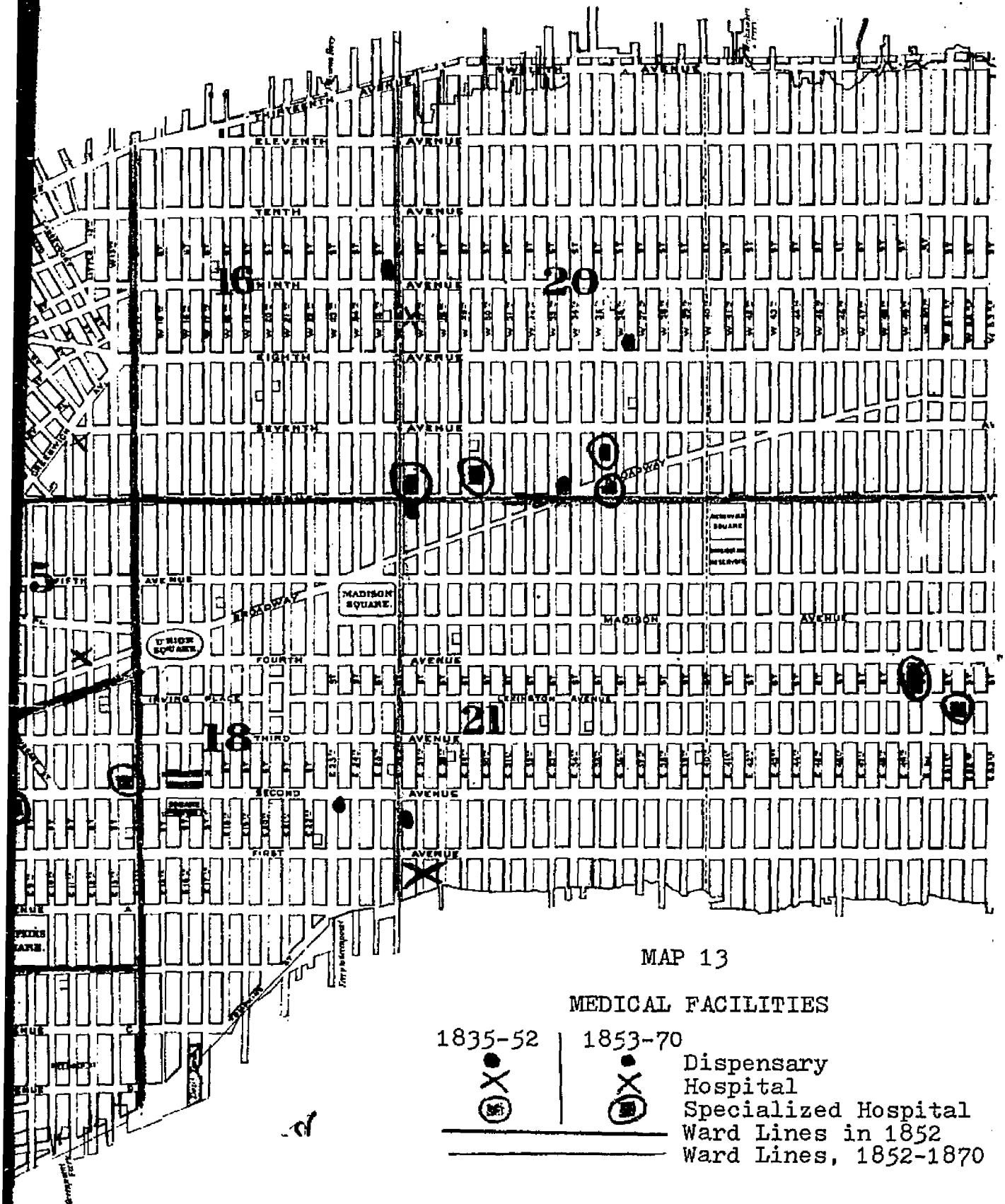

MAP 13

MEDICAL FACILITIES

1835-52	1853-70	
●	●	Dispensary
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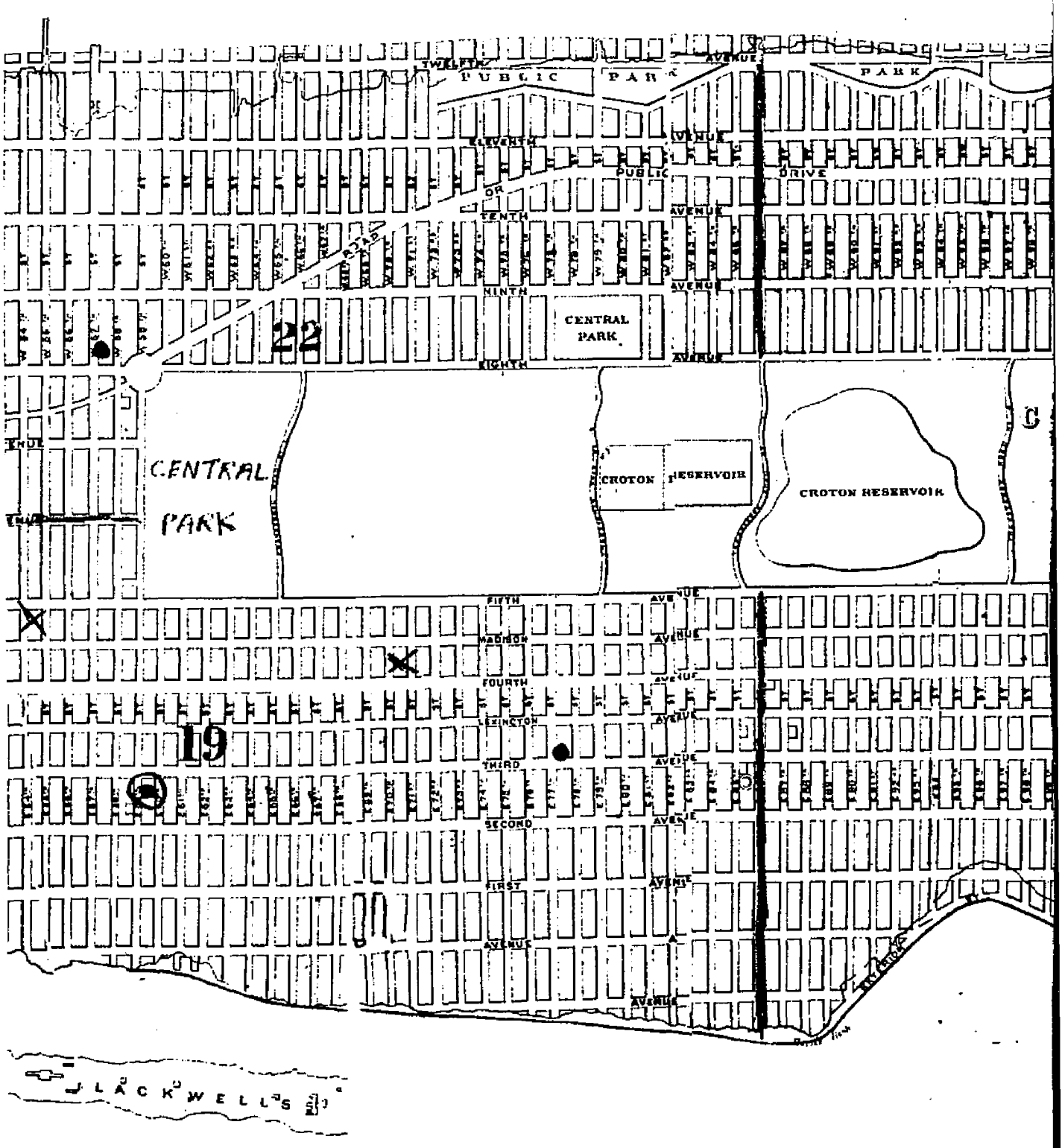
(SH)	(SH)	Specialized Hospital
		Ward Lines in 1852
		Ward Lines, 1852-1870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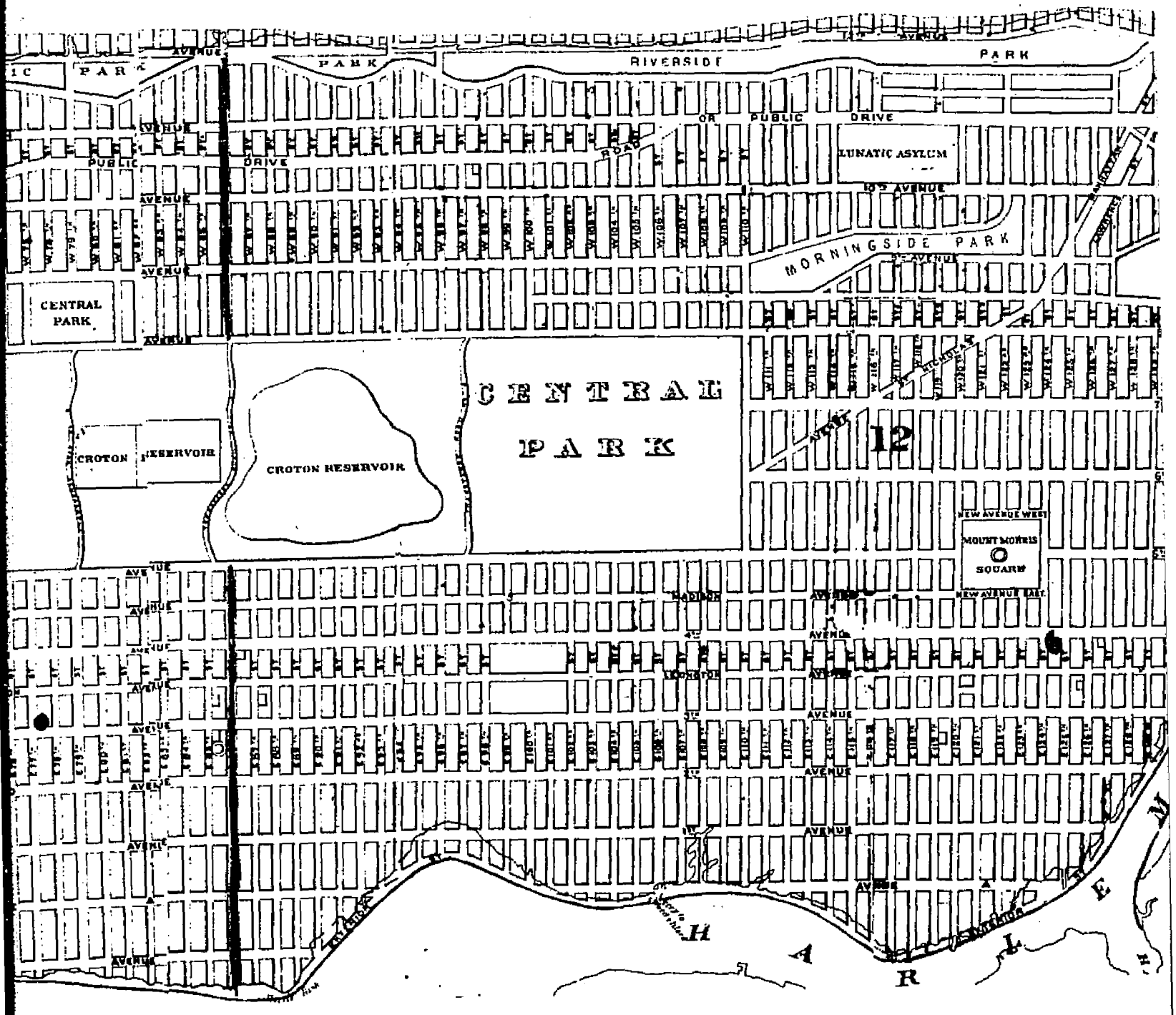
AVENUE
19
THIRD
AVENUE
SECOND
AVENUE
FIRST
AVENUE
AVENUE
BLACKWELL'S


PARK
RIVERSIDE
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MORNINGSIDE PARK
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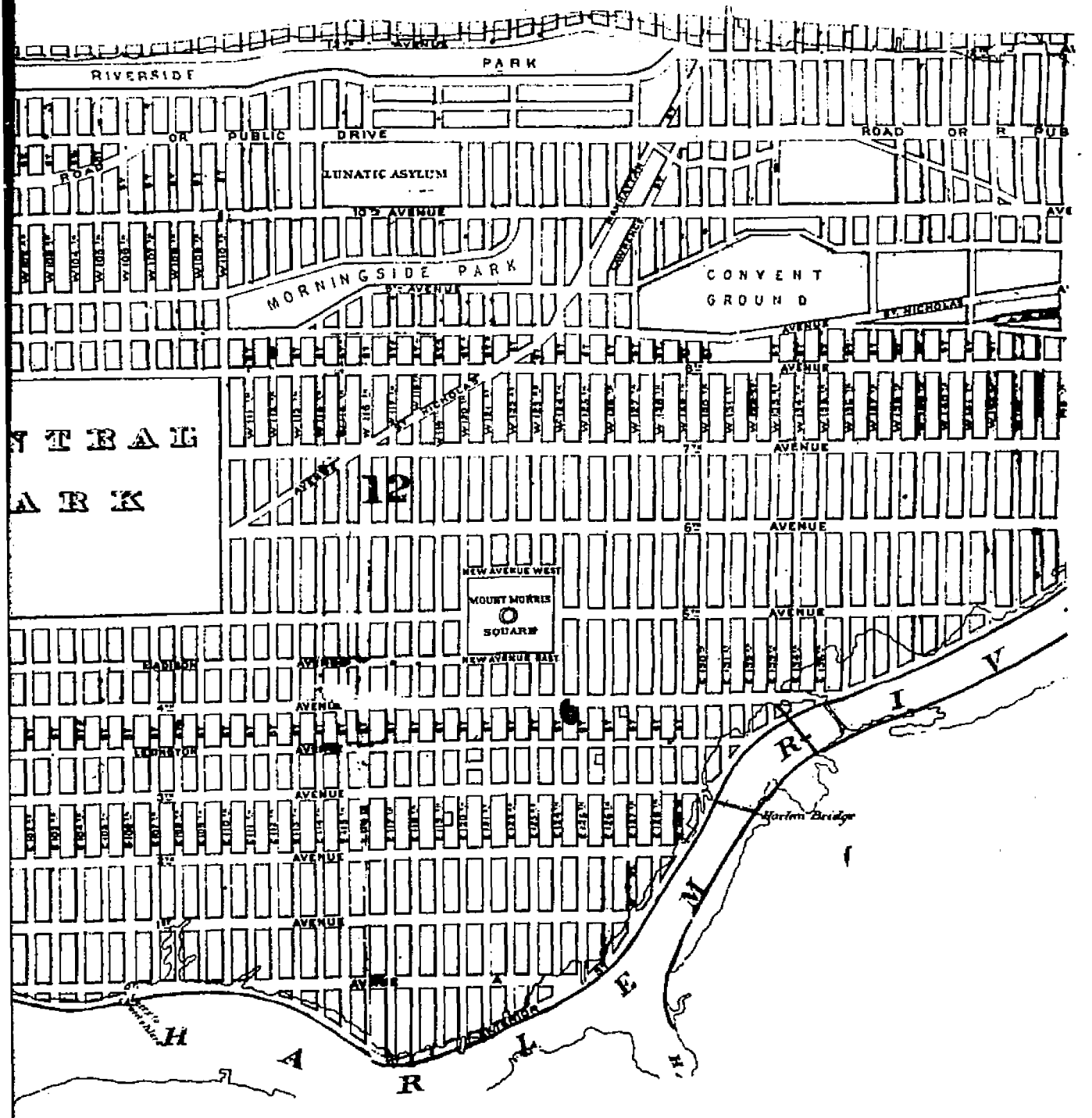
RIVERSIDE
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MOUNT MORRIS
SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
Harlem Bridge
HARLEM
RIVER
NTRAL
ARK

for its own. But, though numerous, these were not large facilities; most had only two or three floors.[124] And town allocations hardly boosted expansion.

Sizable treatment figures did little to spur city aid. Though the Northern Dispensary handled over 5,000 patients in 1839, the Common Council gave but $500, and that "on the condition of its not being required hereafter."[125] Trustees noted bitterly that without their support over 800 patients would have been thrown upon the Alms House in that year alone.[126] But gratitude was no City Hall virtue. Indeed, aldermen remained adamant; the Committee on Charity and Alms House regarded these centers as drains on the public treasury. In 1839, some members complained that the "Northeastern's" "principal dependence has been on the well established conviction...that it highly deserves and will continue to receive...[the aldermen's] active efforts to sustain it."[127] Despite the fact that these institutions had treated over 32,000 people in 1838, politicians increasingly viewed them with contempt.[128]

In fact, public officials felt the city's traditional $500 semi-annual donations to the "Northern" and "Eastern" had been overly altruistic. Then too, "New York" had received $600 every six months,[129] and "Northeastern" land plus $1,100 yearly.[130] But at crucial times this attitude could change. Hence in 1839, when a battle arose over cutting appropriations, members of the Alms House Committee pleaded the dispensaries's cause by claiming that these centers had kept many of the impoverished ill out of Bellevue, thus saving the town money.[131] Fortunately, the

argument proved convincing and City Hall continued appropriations, but "not [to] exceed the sum of three thousand one hundred dollars." Obviously, the politicians concluded, ten cents per patient was a small price for keeping Alms House expenses low.

Nevertheless, community hospitals required far more than these feeble donations. And sympathetic groups violently objected to the opinion that the former "be supported exclusively by private charity." Many questioned why public revenues aided Alms House destitutes, but not local patients. As one set of Trustees put it: "is the worthless poor vagrant more or better entitled to municipal sympathy and succor than the decent...and oftentimes more meritorious and deserving poor, upon whom the afflictive hand of Providence has laid disease and protracted suffering?"[132] If not, the reasoning went, government should subsidize hospitals further.

The city, however, did not provide larger allocations. By 1851, the Northern Dispensary faced a new crisis as its district (from 23rd to 42nd Streets and from Fourth Avenue west to the river) began "filling up with the poor and needy from other lands and from the lower part of our city."[133] As neighborhood leaders organized to build an annex, hopes for municipal aid dimmed. Many surely agreed with "Northern" officials that these institutions were increasingly "overlooked or purposely neglected by all parties."[134] Finally, in the 1850's, despite years of service, these facilities suffered damaging government cutbacks. In response to these actions, cries arose everywhere.

One spokesman summarized a common view:

> could they [the law makers] but witness the thousands of the poor from other countries landing almost daily upon our wharves, clothed in rags,...teeming with disease...then instead of cutting off two-thirds of our usual allowance, they would, at the lowest calculation, double the original amount.[135]

Nevertheless, the pleas went ignored, forcing Trustees to rely still on private endowments and hat-passing at church.[136]

Unfortunately, rising costs quickly exhausted these revenue sources. "Eastern" officials long had complained about public funding. In 1839, their facility had treated 9,000 patients but had received only $500 in government help. For years tempers ran short among Trustees, as private donations barely met expenses. "Never bestow the least pecuniary aid on street beggars," the Directors warned, "there is perhaps no greater obstacle in the way of deserving poor than this numerous class." Authorities moaned that if only "those who have been accustomed to give to street beggars would bestow an equal amount upon the Dispensaries," a real benefit would accrue.[137] But each year the situation grew worse. The 9,000 patients of 1839 grew to 21,000 just ten years later, but still City Hall begrudged its paltry hand-outs. Frantic managers could only hope that as the metropolis became wealthier "her great charities would assume proportions more worthy of her position."[138] But this was wishful thinking; only massive public funding could close the budget gap.

The Demilt Dispensary fared no better. Fiscal problems plagued the facility by the mid-1850's. Though at first solvent, the institution saw its costs rise "without any increased aid

from the city or state." To ease the crisis, managers resorted to "temporary loans."[139] The lack of vital support for a place that had treated over 453,000 people enraged Trustees. They complained in vain that such apathy "should not be when it is considered that the work of the Dispensary is of a public character, and... if not so done, most of it must be done by the city, at a vastly increased expense."[140] In effect, the government not only limited public hospital construction, but did little to maintain private facilities. As a result, health care in Manhattan suffered for decades.

Inadequate funding also affected the size of centers, forcing planners to design small buildings. Rarely did such structures exceed three stories. Bed space was already limited, since administrative officesusually required one floor. Such conditions only cramped treatment rooms. Confined quarters dictated a floor plan of compartmentaized chambers surrounding an auditorium-like Reception Hall."Eastern's" set-up was typical (see FIGURE 2).[141] Thousands of patients poured through these rooms; in 1861 alone, the figure surpassed 34,000. And similar numbers jammed other facilities around town.[142]

"New York," for instance, handled over 42,000 in 1860. Nevertheless, government aid totaled only $1,000 in 1858, $700 in 1859 and zero in 1860.[143] The institution's cut-off came despite its treating 135,000 patients that year.[144] And since Trustees had no funds with which to expand, the "New York" faced a crisis. By 1868, new construction was essential. The old building at the corner of Centre and White lay in a "shattered state" because of street grade changes. Leaders planned to

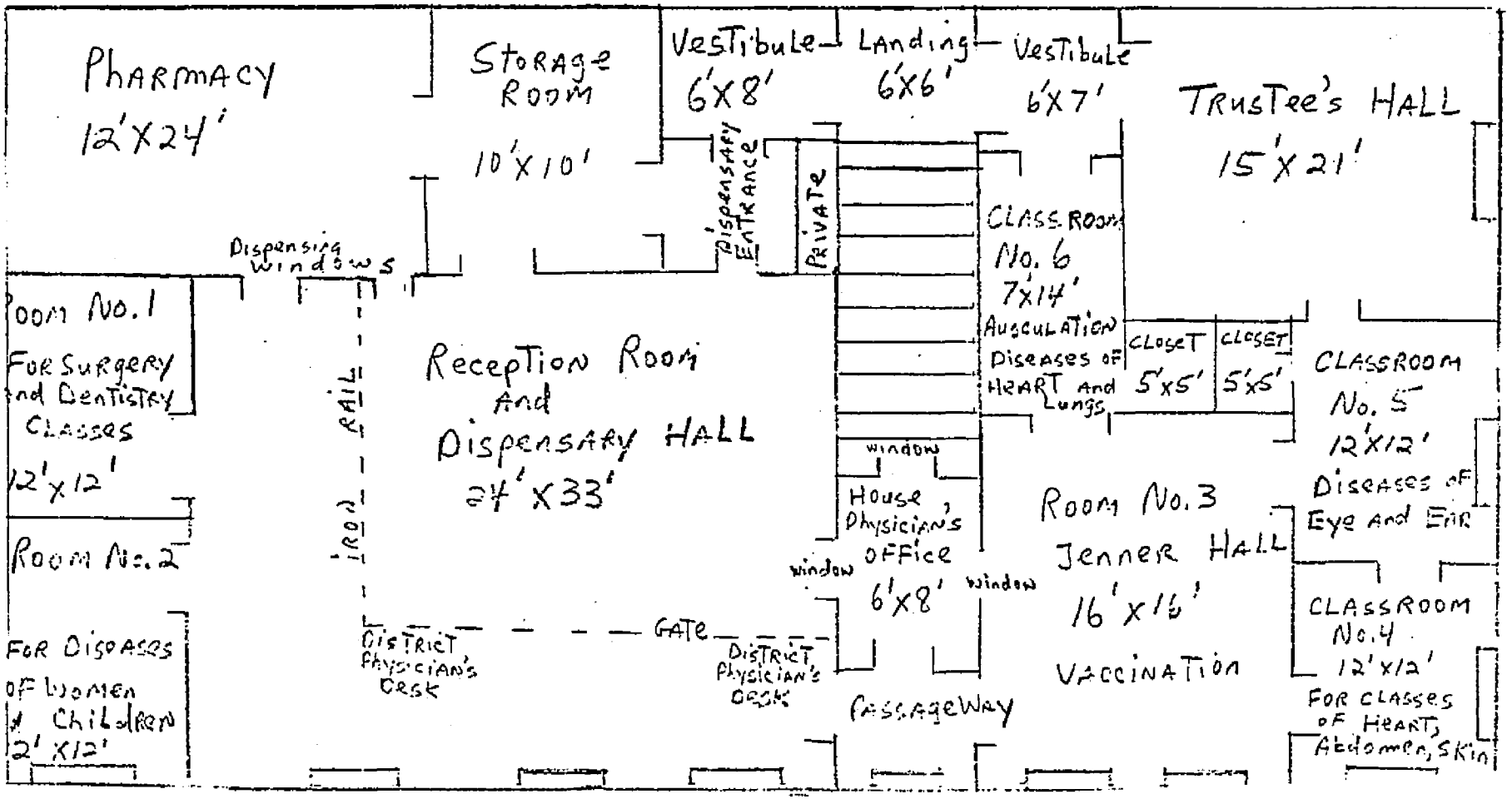

FIGURE 2

GROUND PLAN
OF THE EASTERN DISPENSARY

erect a new four-story structure, but the expense was high, $72,000.[145] "Patron" gifts equalled $5,500, but the city's "generous donation" amounted to only $5,000.[146] As with other dispensaries, "New York" had to sacrifice treatment rooms by leasing the ground floor to shopowners. Want of public aid made this necessary, since only store rents provided enough revenue to liquidate the $20,000 building debt.[147]

With municipal contributions scarce and public centers few until later in the century, many neighborhoods lacked adequate medical facilities for the poor. The lower Eighth Ward, for instance, bounded by Canal, Broadway, Spring Street and the Hudson River, had no institution. Yet, by 1865, local physicians complained that its 607 tenements and 101 brothels were breeding nests of disease. Numerous "fevers" preyed upon inhabitants, including "typhus, typhoid, remittent and intermittent types, cholera morbus, cholera infantum, scarlatina, dysentery and diarrhoea."[148] Despite the area's high mortality rate, however, physicians insisted that "50 per cent die from preventible causes."[149] But what could the 40,000 residents do?

There were few hospitals downtown. A glance at Map 13[150] reveals only two below Houston Street in 1870. Real estate considerations in the business district may have been responsible. Here was a rare case when uptowners enjoyed a service advantage. Indeed, the northward trend of medical centers continued after 1853, and authorities did little to remedy the oversight. Perhaps fears prevailed that patients under treatment might trigger an epidemic. But what of the neglected sick downtown?

Which posed the greater threat? And what of northern Manhattan? Farther uptown, near Harlem, buildings again grew scarce. Still, population here was scanty and a trip on the Second or Third Avenue streetcar could bring one "quickly" to help.

Several events helped ease the problem. In the later 1860's, William Tweed and friends transformed the Department of Public Charities and Correction into a state commission. No longer would aid to hospitals be left to aldermanic whims.[151] Then too, the creation of the Metropolitan Board of Health provided government with a much needed transfusion. Now licensed physicians and not political hacks would control the power to declare emergencies and outlaw local "nuisances." And though the body lasted only four years, it served as an effective predecessor of the city's own Health Department created by the 1870 Charter.[152]

Perhaps the greatest factor easing the crisis was the arrival of more private hospitals. After 1850, religious groups, in particular, began caring for their own. Thus, in 1852, Mt. Sinai (Jew's Hospital) opened on West 26th Street; St. Francis followed in 1866 on Avenue B near 5th, and Presbyterian appeared just two years later, covering the whole block on Madison and 70th. Specialized quarters also multiplied. New York Dispensary for Diseases of the Throat and Chest came to Broadway and 35th (1869), while Orthopaedic, Eye and Ear, Pediatric, Gynecologic and Cancer institutions also arrived in the same era.[153]

As population grew, the city also expanded its accommodations. Throughout the 1800's, authorities had steadily

enlarged the Bellevue Establishment; by 1870, it boasted over 1,200 beds. And there were other moves. In 1864, aldermen converted the old smallpox station on Blackwell's (Welfare) Island into City Hospital, and eleven years later, on the same strip, created Metropolitan from a portion of the town's Asylum for the Insane.[154] There were, however, no new municipal facilities built in Manhattan until the late 1880's when Gouverneur (at the Slip, 1887) and Harlem (1888) arrived.[155]

New York's policy toward medical care reflected the anarchy which usually pervaded decision-making. As one analyst put it, the town responded to patient needs "according to developing pressure, and not according to any established and recognized program of procedure." Throughout the 1800's politicians linked health with charity. Few other services suffered this limitation. Even public education, though at first restricted to the impoverished, was eventually opened to all. Apparently, widespread municipal health care was too large a step toward positive government. Although urban pressures had already snapped most of the chain of laissez-faire values, some links held longer than others. Further progress would await the twentieth century. Still, there were bright spots. Dispensaries, in particular, symbolized a valiant effort by communities to meet a harrowing crisis. These stop-gap institutions performed heroically in the midst of government indifference.

Surely the town's commitment was inexcusable weak. The rapid urbanization of Manhattan after 1830 caught private

groups and churches by surprise and this resulted in lengthy delays in the planning and erection of facilities. In the meantime, public officials could have channeled more aid to dispensaries. Instead, for a time, policy worked in reverse with budget cutbacks universal following the 1857 Panic. Then too, one might bemoan the failure to build more municipal hospitals for both paupers and the indigent working class. But at least by 1880, action was not far off.

Urban expansion overwhelmed government operations. It took decades, for instance, to transform the police and fire departments into modern agencies. Resistance to change was stiff, especially by tradition-bound firemen. But eventually city leaders prevailed in adjusting protection to metropolitan needs. The transition proved difficult; indeed, many neighborhoods went years without adequate service. Too often, the town adapted slowly to new conditions.

In time, however, authorities provided every district with centrally-located stations. Modern communication networks also appeared, as telegraphic systems replaced roundsmen and church bells. Colonial practices, too, met an end: professionals displaced amateurs while steam power supplemented human labor. In short, the municipality encouraged any innovation promoting efficiency. By 1870, the movement had progressed substantially; the embryos of Manhattan's present departments already existed.

Failure, too, marked these formative years. Starting in the 1830's, the city should have rented more buildings uptown for fire and police. In many communities adequate protection was too long in coming. Downtown required a different strategy. Once prosperity returned in the 1840's, authorities should have abandoned the leasing approach. Unfortunately, New York postponed the erection of police and fire houses, and, in the interim, land values soared to levels which discouraged construction in many key districts. On another front, the city also erred in delaying the use of new apparatus. Labor opposition may have held back steam engines, but there was little reason for the lack of hook and ladder trucks. Surely a metropolis of tall buildings had special need of these vehicles. But, for much of the century, too few serviced downtown.

Prejudice more than priorities hindered medical care. Though Bellevue had set an early precedent for government intervention, prevailing mores opposed widespread aid. Only the destitute won exemption; all others depended on private succor. As a result, dispensaries limped along for years with minimum public assistance. But community pressure gradually ended this policy. Eventually the town's limited program would be expanded from a few paltry hand-outs to a major hospital system. The difficult years of the mid-1800's were only a beginning.

NOTES

[1]James Richardson, The New York Police from Colonial Times to 1901 (New York: Oxford University Press, 1970), p. 8.

[2]Ibid., p. 9.

[3]Ibid.

[4]Ibid., p. 10.

[5]Ibid., pp. 11, 1-35. For more on the colonial system, see Carl Bridenbaugh, Cities in the Wilderness... (New York: Capricorn, 1959), pp. 65, 217-220 and his Cities in Revolt... (New York: Capricorn, 1959), pp. 108-109.

[6]Augustine E. Costello, Our Police Protectors: A History of the New York Police (Montclair, New Jersey: Patterson Smith, 1972), pp. 88-89.

[7]Ibid., p. 88.

[8]Ibid.

[9]Ibid., p. 102.

[10]Ibid., p. 101.

[11]Ibid., pp. 101-102.

[12]Ibid., p. 106. The First Police District encompassed Wards 1-6, the Second, Wards 8, 9, 12, 15, 16, 18, and the Third, Wards 7, 10, 11, 13, 14 and 17.

[13]See the Police Department real estate sections in Valentine's Manual for the location of station houses in any year. All maps involving city facilities (stations, schools, dispensaries, etc.) will be somewhat inaccurate. Since address numbers on streets were frequently changed in the nineteenth century, one must allow a margin for error. Thus, building locations on this and subsequent maps may be as much as a block or two off from their actual location.

[14]Costello, p. 105; Valentine's Manual for 1859, p. 406.

[15]Costello, pp. 148-140; for station locations, see the Fire Department's real estate sections in Valentine's Manuals for 1858 and 1871.

[16]Ibid., p. 148.

[17]Ibid., p. 151.

[18]Aldermen, Documents, XIX, Part I, #7, January 21, 1852, 107.

[19]Ibid.

[20]Ibid., p. 110.

[21]Ibid.

[22]Ibid.

[23]Ibid., pp. 108-111.

[24]Ibid., p. 108.

[25]Ibid., p. 112.

[26]Aldermen, Documents, XXV, Part I, #8, March 31, 1858, 3.

[27]Ibid., p. 4.

[28]Ibid.

[29]Ibid.

[30]Ibid.

[31]Ibid., p. 5.

[32]Ibid.

[33]Ibid.

[34]Ibid., p. 6.

[35]Ibid.

[36]Ibid., p. 7.

[37]Ibid.

[38]Annual Report of the Board of Metropolitan Police for the Year 1865 (New York, 1865), pp. 3-6.

[39]Ibid., p. 3.

[40]Ibid., p. 3-4.

[41]Ibid., p. 4.

[42]Ibid.

[43]Costello, p. 351.

[44]Ibid., pp. 335, 327.

[45]Ibid.,pp. 317, 381.

[46]Ibid., p. 353.

[47]Ibid., p. 356.

[48]Metropolitan Report for 1864, p. 2.

[49]Metropolitan Report for 1865, p. 4.

[50]Ibid., p. 5.

[51]Aldermen, Documents, XXVI, Part I, #18, April 25, 1859, 16-17.

[52]First Annual Report of the Police Department of the City of New York (New York, 1871), pp. 57-58.

[53]Ibid.

[54]Second Annual Report..., p. 13.

[55]Ibid.

[56]First Annual Report, p. 14.

[57]Annual Report of the Board of Commissioners of the Metropolitan Police for 1863, p. 6.

[58]Bridenbaugh, Wilderness, pp. 60-61.

[59]Ibid., p. 371.

[60]Bridenbaugh, Revolt, p. 104.

[61]Limpus, p. 21. Also see Richard Calhoun, From Community to Metropolis: Fire Protection in New York City, 1790-1875 (unpublished Ph. D. dissertation, Columbia University, 1973).

[62]Calhoun, pp. 8, 216, 289.

[63]Ibid., p. 139.

[64]Ibid.

[65]Ibid., pp. 149-151.

[66]Ibid., pp. 170-171, 190; see also pp. 161-168 for the political pressures upon the Fire Department.

[67]Ibid., pp. 175-177.

[68]Ibid., p. 345.

[69]Ibid. For a chronology of major events, see pp. 289-307.

[70]Aldermen, Documents, VI, #12, August 7, 1839, 184.

[71]Ibid., pp. 184-186.

[72]Ibid. Engines cost about $800 and hose carts $60.

[73]Ibid., pp. 195-200.

[74]Ibid., p. 187.

[75]For the ethnic composition of different neighborhoods, see the description of "Sanitary Districts" in the Sanitary Condition of the City. For the station map, see the Fire Department's real estate section in Valentine's Manual for 1848.

[76]Annual Report of the Chief Engineer, September 9, 1851, pp. 5-6.

[77]Ibid., p. 6.

[78]Report of the Chief Engineer for 1857, p. 8.

[79]Ibid., p. 9.

[80]Ibid., p. 10.

[81]Report for 1863, p. 7.

[82]Report for 1864, p. 7.

[83]Ibid.

[84]Ibid.

[85]Report for 1851, p. 3.

[86]Aldermen, Documents, XV, #20, November 20, 1848, 435.

[87]Ibid.

[88]Ibid., #8, July 31, 1848, p. 110.

[89]Ibid., p. 111.

[90]Report for 1863, p. 7.

[91]Ibid., XIX, Part I, #42, June 11, 1842, 824-825.

[92]City vouchers at Queens College are filled with the repair bills of contractors.

[93]Aldermen, Documents, XXVI, #18, April 25, 1859, 16-17.

[94]Ibid.

[95]See Valentine's Manual for 1870, Fire Department real estate section.

[96]John Disturnell, New York As It Was and Is... (New York, 1876), p. 85.

[97]Report of the Chief Engineer for 1851, p. 4.

[98]Ibid.

[99]Report for 1857, p. 10.

[100]Ibid., p. 13.

[101]Annual Report of the Board of Fire Commissioners, 1865-1866, pp. 4-18.

[102]Ibid., pp. 12-13.

[103]Ibid.

[104]Ibid.

[105]Ibid.

[106]The map source is Ibid., pp. 13-15.

[107]Report of the Chief Engineer for 1860, p. 13.

[108]Report of the Croton Aqueduct Department for 1867, p. 105.

[109]For petitions regarding most city agencies, see the boxes marked "Clerk's Papers" at the Municipal Archives of the City of New York.

[110]Report of the Croton Aqueduct Department for 1867, pp. 105-107.

[111]Page Cooper, The Bellevue Story (New York: Thomas Y. Crowell Company, 1948).

[112]Bridenbaugh, Wilderness, pp. 90-91.

[113]Cooper, p. xi, but also see Fenwick Beekman,

"Origin of Bellevue Hospital...," New-York Historical Society Quarterly, (July, 1953), pp. 205-227.

[114]Cooper, p. xi.

[115]Eric Larrabee, The Benevolent and Necessary Institution: New York Hospital, 1771-1971 (Garden City, New York: Doubleday & Co., 1971), p. 10.

[116]Later in the 1800's when Bellevue overflowed during epidemics, the city built a Fever Hospital on Blackwell's Island.

[117]See Valentine's Manual for 1870, pp. 343-344.

[118]Ibid., p. 348.

[119]Ibid.

[120]Ibid., pp. 354-355.

[121]Ibid., p. 353.

[122]Ibid., see pp. 340-415 for general information on Manhattan's hospitals.

[123]Ibid.

[124]See Ibid. for further descriptions and pictures.

[125]Twelfth Annual Report of the Board of Trustees of the Northern Dispensary (New York, 1839), pp. 14-15.

[126]Ibid., p. 16.

[127]Aldermen, Documents, VI, #23, October 21, 1839, 301.

[128]Ibid., pp. 302-303.

[129]Ibid., p. 302.

[130]Ibid., p. 303.

[131]Ibid.

[132]Twelfth Report of the Northern Dispensary, pp. 16-17.

[133]Twenty-fourth Report..., p. 17.

[134]Ibid., p. 24.

[135]Ibid., p. 25.

[136]Third Annual Report of the...Eastern Dispensary... for 1837, p. 14.

[137]Sixth Annual Report..., p. 6.

[138]Thirty-third Annual Report..., p. 20; Sixth, p. 9, Fifteenth, p. 5.

[139]Valentine's Manual for 1870, p. 353.

[140]Ibid. For a typical year, see Valentine's Manual for 1858, p. 322 table.

[141]Twenty-seventh Annual Report...Eastern Dispensary, p. 1.

[142]For a summary of the treatment figures of five leading dispensaries, see Ibid., p. 17.

[143]Ibid., p. 37.

[144]Ibid., p. 38.

[145]Valentine's Manual for 1870, p. 344.

[146]Ibid.

[147]Ibid.

[148]Sanitary Condition of the City, p. 41.

[149]Ibid.

[150]The Department of Public Charities and Correction became a state Department in 1860 and a state Commission in 1869; see Valentine's Manual for 1861, pp. 112-115 and the Manual for 1869, p. 129.This agency coordinated aid to public hospitals. See also Disturnell, New York As It Was.... pp. 87-88 for the typical budget for the mid-1870's.

[151] A Half Century of Public Health (n. a.; New York: Arno Press, 1971)

[152] Ibid.

[153] Valentine's Manual for 1870, pp. 34-415.

[154] See Harold Lewis et. al eds. Physical Conditions and Public Services, Vol. VIII of the Regional Plan of New York and Its Environs (12 vols.; New York: Arno Press, 1974), pp.140-141.

[155] Ibid.

CHAPTER 7

PUBLIC MARKETS AND SCHOOLS

America's public markets originated in the colonial era when scanty population permitted face-to-face transactions between consumers and producers. They were essentially an urban institution. Municipalities, eager to promote the sale of food and country goods at low prices, designated various trade sites. Then local residents, sometimes with government help, secured land and erected sheds, canopies and other outdoor stands for visiting farmers.[1]

In New Amsterdam the burghers first proclaimed market days when need required. New York began a regular weekly service in 1677.[2] Officials switched the time periodically, with Saturday and Wednesday seemingly the most popular. As population grew, officials expanded the program. By 1683, they assigned Tuesday, Thursday and Saturday for business.[3] Finally, in 1735, since the city was "chiefly supplied by country people with victuals and provisions, by water carriage, as the tide wind permitted, by reason whereof no particular time or days could conveniently be appointed" for trade, authorities ordered town stalls open six days a week. And later that year, as

marketing grew more important, it won its own standing committee in the Council.[4]

Earlier, in the mid-seventeenth century, specialized institutions had appeared. In 1659, after receiving several petitions for meat booths, the burgomasters created one at Bowling Green.[5] In 1660, Manhattan began a "cattle fair" and, in 1691, opened a second beef complex in Hanover Square. Other food industries also benefited; after numerous requests the government authorized a fish mart,[6] and, in 1709, approved a Wall Street center for "corn and meal."[7]

Arrangements were informal. A 1659 statute directed those using the Bowling Green building to "leave the key with Andries the baker" when finished for the day.[8] At other times, too, a single individual maintained an entire facility. In 1694, for instance, New York "let out" a market to one butcher for seven years at £1 per annum on condition "he keep it in good repair."[9] Sound management brought profits and demands for expansion. Already, by 1700, residents had built additional quarters in Hanover Square, Maiden Lane and Broad Street. In the absence of government aid, nearby communities usually established their own construction fund and collected rents for a specified time (sometimes fifty years) after which the city took over.[10] Eighteenth-century Gotham saw numerous markets come and go. Once neighborhoods became heavily settled they invariably petitioned for marts. In 1738, for example, residents of the "West Ward" won the right to build the Oswego Market.[11]

By 1746, workmen had enlarged its dimensions further, but the facility lasted only till 1771 when a Grand Jury Presentment condemned it as a hindrance to Broadway traffic.[12] This decision forced the removal of operations to Washington Street.

By the 1740's, authorities began leasing these structures to a single tenant who then sublet booths for higher charges. Clearly, this practice hastened the decline of country farmers. Indeed, as profit supplanted convenience as the guiding principle, rent yield became paramount in importance. Bottom-line considerations dictated the relegation of small vendors to sidewalk or canopy space on the market's periphery.[13] A pyramid of economic values now ruled. Under this scheme, specialized retailers with big earnings would occupy the inside stalls, leaving marginal groups outside.

Gotham erected or enlarged her principal, nineteenth-century markets mostly before 1835. In every case location was crucial. In 1786, for instance, many butchers abruptly deserted their Peck Slip quarters for a new one at Catharine Slip. Then too, admission of fishermen in 1797 further assured Catharine's success.[14] In fact, the facility thrived into the 1800's, reaching an assessed valuation of $60,000 by 1863.[15] On any day stalls bustled with activity, as polyglot barkers and colorful signs lured thousands of both

clients and passers-by.[16] But this scene was not universal; while some structures throbbed with life, others collapsed.

Exchange Market was one such victim. Though founded two years after Catharine, it lasted only till 1814. During the early national period, Exchange had flourished with the sale of "coarse merchandise and lumber." By 1810, however, it floundered, as older inhabitants "had begun to withdraw their residences and places of business uptown." Retailers, of course, quickly followed suit, presaging Exchange's inevitable demise.[17]

Duane Street's complex suffered a different problem. Its creation resulted from a $500 city allocation and a Trinity Church land grant. Begun in 1807, the enterprise faced doom ten years later. Competition from nearby Clinton had sealed its fate.[18] Indeed, it was not unusual for two neighborhoods to clash over markets, since trade and prosperity went to the victor. A similar event occurred in 1835 when twenty year-old Greenwich (at Greenwich and Henry Streets) closed after losing its clientele to newly-opened Jefferson (at Christopher near Greenwich Street).[19]

This risk factor prompted some locales to erect modest institutions. In 1812, east side residents built Gouverneur Market for only $357.[20] Fourteen years later, the city offered to rebuild the quarters. But, despite this modernization, the rise of numerous "meat shops" had cut into business volume and forced the building's sale. The shabby structure brought only $127 at an 1852 auction. Yet,

after some complaint, authorities built another, sandwiching it into a police station between basement cells and second-floor offices.[21] This action merely symbolized the declining public commitment to the industry. And Gouverneur's poor location hurt; by 1864, the mart trailed all others in assessed valuation with a paltry $6,000.[22]

After a shaky start, Centre Market (on the Grand Street waterfront) met better times. In 1827, councilmen had sold the ancient building for $49.75 and erected a $1,000 replacement. By 1830, business boomed, as Irish and German immigrants packed local tenements.[23] And prosperity continued unabated for years. In fact, by 1864, Centre's value totaled $100,000.[24]

There were other successes as well. Once leaders established Franklin Market at Old Slip in 1821, it immediately captured the East River fish trade. Fortunately, the great fire of 1835 swept through it, permitting the erection of a more spacious successor. But it, too, proved inadequate, leading residents to petition for a still bigger building which would further "the supply of the wants of the large shipping interest that must be necessarily supplied with provisions." After a delay, the government finally responded with a third edifice, housing the market on its ground level. Officials defrayed expenses by leasing other floors. John Hunt rented the basement for $1,500 per year while a seamen's gospel society paid for the top rooms.[25] From the beginning, the center flourished; by 1864, its worth

stood at $30,000.[26]

Fulton Market also proved a successful venture. Spurred by local petition and completed in 1822, the facility catered to fish traders.[27] Commerce thrived almost from the start. There was only one drawback: the location on Fulton and South Streets, though convenient, was on city property. This left the mart vulnerable to any tax-raising scheme. Though satisfied with the institution's success, aldermen yearned for more revenues. After reviewing many proposals, officials decided to lease part of Fulton Slip to a steamboat line. Unfortunately, the move hampered business. By 1842, three or more of these craft daily blocked the pier, preventing market boats from tieing up.[28] Such events were regrettable, for they only drove wholesalers to rival fish outlets. In addition, town officials bred further discontent by leasing so many stalls to local butchers that, by 1850, even the fish side of the building hosted poultry booths.[29] Worse still, municipal apathy permitted the structure to fall into progressive disrepair.[30] Yet, despite all these problems, Fulton still boomed; in 1858, its assessed valuation stood at $210,000--second highest in New York.[31] Relief came in 1868, when the center finally won a new home (on a nearby site) where it prospered for years more.

As with Fulton and others, community pressure often launched these concerns. In 1818, for instance, the government built Essex Market (at Grand near Ludlow) because local

"mechanics and laborers" complained they were a mile from any other.[32] Once opened, Essex enjoyed great success, with yearly profits reaching unprecedented heights. Indeed, total city market revenues steadily rose until they exceeded $60,000 in 1834.[33] By 1835, with population exploding, uptown outlets seemed the next likely step, but various factors stalled the campaign. For one thing, construction and repair costs were already becoming prohibitive. Of course, building expenses varied with location and time. In 1807, Harlem's bill totaled only $7,600, $5,500 for the plot and $2,100 for the structure.[34] But prices went up. In 1829, officials spent almost $20,000 for Clinton,[35] while in 1835, the town paid $8,000 for Union's site (at Houston near 2nd), plus $5,900 for the edifice.[36] As prices soared, leaders resorted to various economy measures. An extreme move came in 1836, when authorities scrupulously collected the wood from demolished Essex and carted it uptown to build the Tompkins facility. At times, parsimony knew no limits.[37]

Washingtom Market was New York's most ambitious effort. Begun in 1812, it took over a year to complete. When finished, it covered the block bounded by West, Washington, Fulton and Vesey Streets and was the largest of its kind in Manhattan.[38] Its waterfront location and abundant stall space combined to attract many merchants. Butchers prospered from the start, prompting complaints from the port's fishermen. Legally barred from Washington's booths, the industry wanted a cut of the pie. As lobbyists fought the resented exclusion,

tensions rose between the competing trades. Councilmen finally settled the controversy in 1824, when the town erected a fish mart nearby.[39]

In 1828, the municipality, anxious to boost the center's business still further, decided to extend West Street from Fulton to Vesey. Within a year, land fill covered the old wetlands, permitting cargo wagons to park at the store's new loading docks. Thus, here was a case of a market inspiring a street improvement.[40] No doubt New Yorkers viewed these facilities as sound municipal investments.

Surprisingly, however, the latter half century witnessed little construction; officials built no new stores. In fact, administration of existing ones declined, owing to the constant turnover of Superintendents. Re-organization, too, was a problem. During part of the 1850's when the city began consolidating departments, Public Markets found itself under the jurisdiction of the Superintendent of Streets and Lamps.[41] Unfortunately, the latter bore little sentiment for his unwanted dependent. In 1851, for instance, Commissioner Heman Childs, annoyed with the condition of several centers, filed a damaging report with the Common Council. Since recent Union Market profits had been low, he recommended letting "those doing business there pay for their stands quarterly, and take charge of the market, and dispense with the services of the [city] clerk, as there is scarce enough collected to pay him and for cleaning."[42] This new policy might have

pleased penurious councilmen, but eliminating the town's presence at any site would only invite poorer service.

Nevertheless, Childs supported even harsher measures. Essex, though in good repair, had done little business of late, prompting him to recommend its sale.[43] Similar reasoning sentenced Gouverneur to the same fate. A commitment to revitalization seemed to be lacking.[44] Other actions strengthened this view. Thus, although Childs predicted that Jefferson's revenues would remain low because it had "no facilities to procure marketing from railroads or boats," he proposed no improvements. Rather than provide transportation, he advised selling the grounds.[45] This Commissioner, however, only symbolized the problem, for no one offered programs to rehabilitate these places. In many cases, a few alterations would surely have raised business volume.

Only the highly lucrative Washington Market inspired officials to adventurous schemes. In 1851, Childs reported the building "in a miserable condition and not worth repairing."[46] But there was a remedy. Since the present site could bring $300,000, he proposed its sale. With this money the town could build a new one on the wetlands off West Street. According to Childs, "the extension and filling up would cost nothing, [since] the city has dirt and ashes." The plan featured other benefits, too. Nearby docks could be lengthened several hundred feet"which would give a good slip for fish cars and market boats." The logic seemed inescapable. For only $16,000

authorities could erect a complex "far more extensive and convenient than the present market ever was." And later years saw Childs's plan realized in the form of a large modern facility.[47]

Unfortunately, the government confined its imaginative planning to Washington; the others endured with minor repairs. The problem lay in the refusal of the city to move these distribution points uptown in the wake of consumer migrations (see MAP 14).[48] Except for Harlem, no public store existed above 10th Street in 1870. And most of those downtown lay in the business district, remote from population clusters. Then too, as industry displaced homes in old neighborhoods, it left even more booths short of customers. This disproportionate location of facilities resulted in the overcrowding of those (Tompkins, Washington, Centre and Fulton) in popular areas. Such conditions invariably led some to wonder "how many appetites would be spoiled if sensitive people who send to them [the markets] would go themselves and rub...or be pushed through the reeking crowds that squeeze between the groves of perspiring flesh."[49] Clearly, the concentration of markets downtown was unwise. With many vacant lots above 23rd Street, aldermen should have acted; but there was no building program uptown. Perhaps the investment risk worried politicians or maybe indifference overcame them?

At any rate, civic groups protested the inaction. In 1867, a Citizen's Association challenged City Hall either

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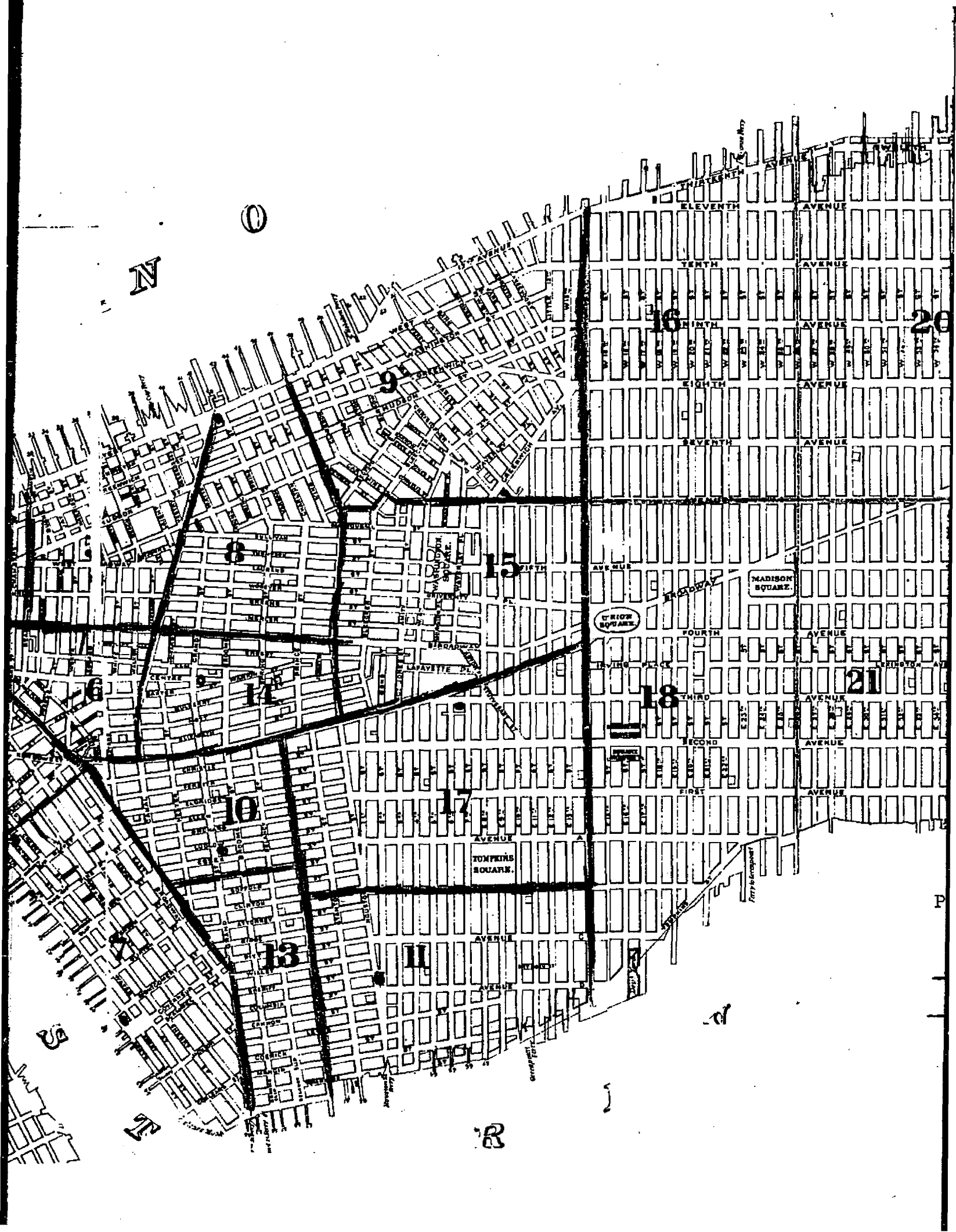
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TOMPKINS SQUARE
WASHINGTON SQUARE
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IRVING PLACE
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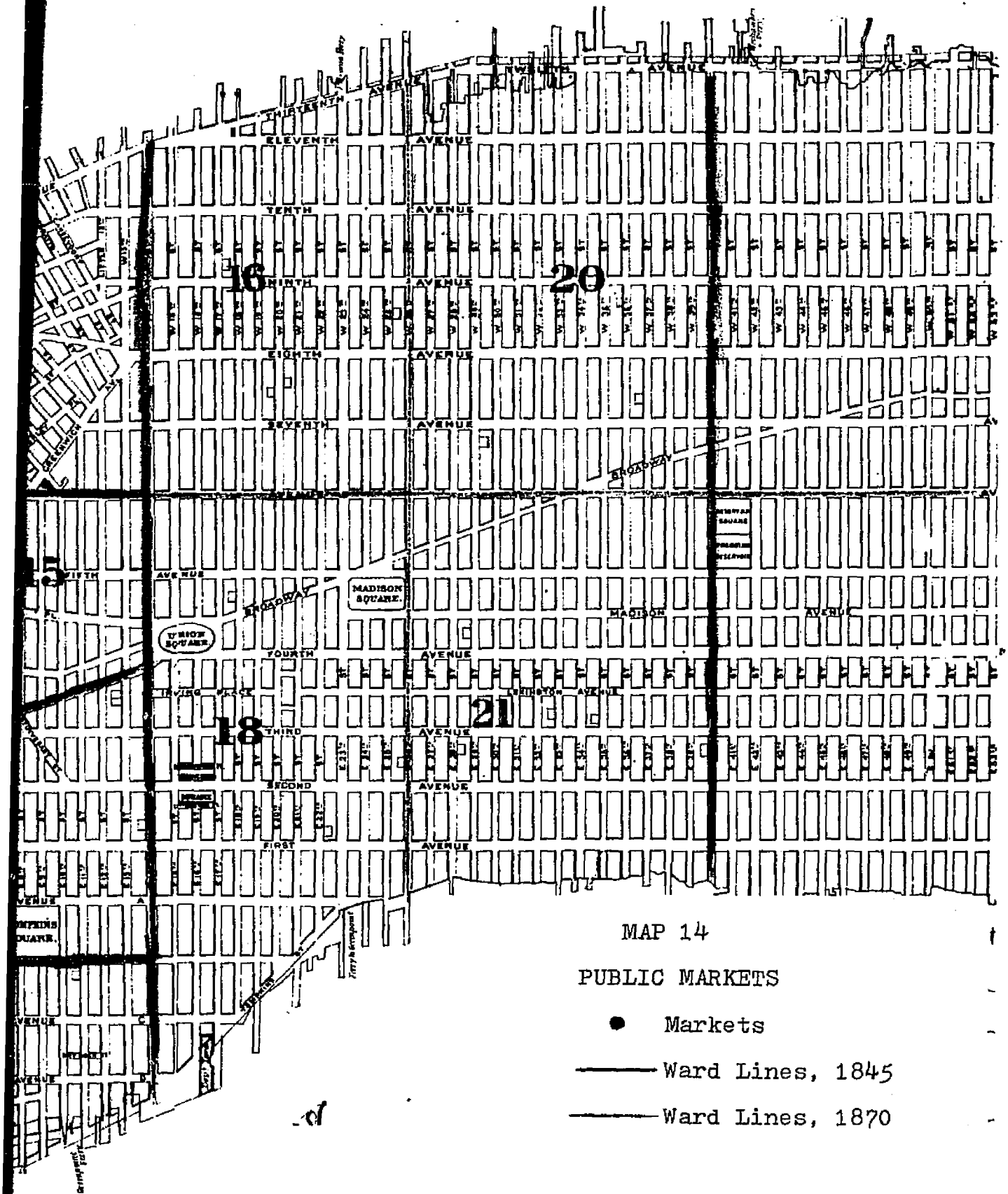


MAP 14

PUBLIC MARKETS

● Markets

——— Ward Lines, 1845

——— Ward Lines, 1870

to revitalize or sell every facility but Washington. The organization charged that public markets no longer accommodated producers and consumers. Official policy had pushed farmers into the streets while "traders" monopolized the prized stalls.[50] The enthronement of middlemen had thwarted direct trade.[51] In colonial times, government had prosecuted "hucksters," but now they operated freely.[52] As a result, harried farmers sold their harvests to distributors and no longer came to town.

Reformers also berated the lack of construction. They assailed the failure of politicians to erect a needed mart at 18th Street, claiming that "year after year has rolled by and nothing has been done to accommodate the public interest."[53] By 1865, the Washington center symbolized the problem. Though the town's most profitable store, it had become "nothing more than a distributing market for nine-tenths of the population." The Association charged that even if New Yorkers followed theory and all flocked there for shopping "it would be an impossibility for them to be accommodated."[54] Indeed, the group charged, Paris had twelve times the capacity of New York. What was wrong with Manhattan?[55]

This lack of expansion, therefore, had caused a major economic change. By 1867, over 5,700 food shops dotted uptown neighborhoods.[56] Their appearance resulted from the inability of residents to trek miles downtown each day for goods. Local stores would save the trip.

But service was costly, because retailers braved much inconvenience. For, as the Association reported, "to supply his patrons with vegetables, fruit, & c., the grocery man must be up early...have a horse and wagon...and start downtown to...purchase his supplies and [then] be up to his store by sunrise."[57] As this practice became universal, prices soared. By 1865, the retail mark-up approached 30 per cent. In dollars, the Citizen's group estimated that for 1863 alone, "uptown people" had paid $25 million more than if "markets were located so as to bring consumer and producer together, and dispense with middlemen and speculators." The $25 million was a "direct tax" on uptowners.[58]

Earlier, the city had protected market butchers against private counterparts with ordinances restricting the sale of "certain kinds of fresh meats" south of 14th Street. But those who ignored the statute usually escaped prosecution. As a result, respect for law eroded, encouraging more "independents" to fight the markets.[59] Eventually, stall butchers and "traders" had to capitulate, sell to retailers and settle for middle-man status, leaving consumers to face inflated prices.

The trend agitated many New Yorkers and prompted consumer advocates to charge that "if the markets were properly located, or the farmers [and licensed butchers] were allowed convenient stands in different parts of the city, all our people might have fresh food and save $25,000,000 a year." Quality, too, would supposedly improve, since

transportation delays had often produced "wilted and unwholesome vegetables" while spoiling other "fresh foods" as well.[60] How could such logic go unheeded?

Mal-administration proved another issue. The Citizen's Association wondered how annual market revenues could be so low. Why, for instance, did Washington earn only $166,000 in 1866 when it should have netted $300,000?[61] And why were profits so paltry in the town's other successful centers? Was it corruption or mismanagement? No one knew for sure. Whatever, public policy seemed futile. Forbidding distances had exiled customers, while high rents had pushed farmers into rain-soaked stands at $1.50 per day.[62] Whether by conspiracy or apathy the government built neither stores nor farmer's stands in northern wards. Though obsolete, the downtown concentration prevailed.

And, this undeserved resiliency sparked much opposition. By the late 1860's, many agreed with Comptroller Richard Connally that, in the absence of plans for new markets, government should abandon the function altogether. The suggestion had its advantages, for if the town sold out completely, "the property thus improved would be worth over $20,000,000 instead of now $5,000,000."[63] But with each passing year, debate grew less heated. By 1880, the victory of neighborhood retailers was obvious. In fact, the decay of public facilities led one observer to conclude that there was "no capital city where the market accommodations both for seller and for buyer, are so badly managed as here."[64]

Poorly enforced laws, lack of modernization and no new construction had combined to destroy a tradition.

Education progressed slowly in Manhattan even after New Amsterdam's first school opened in 1633. Conditions hampered progress. The lack of suitable accommodations, for instance, compelled masters to teach in their homes.[65] And throughout these early decades government's feeble commitment teamed with local apathy to retard learning. As a result, "Latin classes" came and went, dying for want of interest. "Elementary" grades prospered, but British rule drove these institutions into dependence upon the Dutch Reformed Church. Thus, after 1664, no public center serviced English-speaking children, although several private academies still flourished.[66]

Not until 1702 did New York establish a "Free School." Unfortunately, it collapsed within eight years, as students opted once more for church-supported groups.[67] Periodically the government tried again. In 1732, the provincial assembly resolved that since "the City and Colony...abounds with Youth of a Genius not Inferior to other Countries, it must undoubtedly be a Loss...if they are destitute of the opportunity to improve their Capacities, by a Liberal Education." A community-sponsored facility offering courses in Latin, Greek and Mathematics followed this noble proclamation, but lack of funds occasioned its demise in 1738.[68] In later

years, private sessions and "evening lectures" increasingly filled the vacuum. Nevertheless, the absence of municipally-funded education must have embarrassed town leaders, as efforts continued past the Revolution to provide some instruction. Success, however, awaited the nineteenth century.

Prior to 1805, most institutions catered only to children of upper and middle-income families. With tuition rates determining class composition, care of the poor fell to Manhattan's religious societies. Although various denominations responded with "charity free schools,"[69] large segments of Gotham's young still went neglected. Many times the arbitrary prerequisites of wealth or faith discriminated against students. In every parish would-be pupils born into poverty suffered if their sect lacked facilities.

Gradually, however, reformers organized to rectify matters. De Witt Clinton led the effort which, in 1805, resulted in the Free School Society's incorporation.[70] This was the seed from which the city's system later sprouted. Funds derived chiefly from two sources: private donations and a municipal grant offered in return for the admission of fifty Alms House children.[71] With this money, Trustees immediately purchased quarters in the Mission House on Madison Street near Pearl. Later, the Old Arsenal in Tryon Row provided a spacious center for several semesters, but overcrowding once again forced the town to find a larger

home.[72] In 1808, City Hall responded with a building accommodating 500. And this move came just in time, since a revised charter in that same year opened the floodgates to more pupils. According to this instrument, the organization no longer could bar parochial students; now Protestants, Catholics and Jews could enrol.[73]

Government, too, altered its policy toward education. The new charter prompted the Common Council to appoint Commissioners who would disburse yearly allocations to the Trustees of the Free School Society, the "African" enterprise and other sectarian academies. The annual appropriations went for books, faculty salaries and building maintenance.[74] Yet, despite increased public aid, most children still failed to attend. Town officials eventually recognized the need to remove all semblance of "charity." Thus, in 1826, the state re-wrote the Society's charter and permitted all "scholars" (rich and poor) to attend the group's classes. In addition, the organization received its third name in as many decades, the Public School Society.[75]

Throughout the 1820's and 30's, the enterprise seemed to grow and prosper, but this was temporary. An immediate cause of trouble was a battle with the Catholic Church over the use of the King James Bible in class. The conflict, reflecting the fierce religious antagonisms of this Nativist age, dragged even the reluctant Governor William Seward into the fray. In the end, despite pleading from Seward and others, the Society refused compromise and

adamantly championed King James, forcing a full-scale desertion by Catholic students.[76] Out of this welter the parochial and city school systems eventually came to replace the Public Society. Still, the bible controversy was not the main reason for the latter's downfall; its problems ran deeper.

Actually, the agency's decline was slow to be recognized. After 1810, it had serviced an increasing number of students relative to Gotham's total population. Records indicated apparent success. In 1810, for instance, the group had educated only one of every 175 children in New York. But the ratio fell each decade until 1840 when it hit one out of every 16½. In 1841, however, there was a sharp change; the number rose to one in eighteen and swelled further.[77] A major reason for the problem lay in the failure to provide sufficient facilities; crowded classrooms surely discouraged attendance. Already, by 1830, the Society's instructional capacity had fallen twenty times behind the city's soaring population. Absolute registration also shrank for the first time in 1841 to 18,300 from the previous year's 19,000.[78]

Trustees responded by erecting more schools. But this move only worsened a cancerous debt. By 1835, the group owed $45,000, $85,000 five years later and $131,000 by 1841.[79] These reverses eventually forced officials to sacrifice new upper-graded schools for more lower and primary classes.[80] And this, in turn, resulted in more

absenteeism.[81] By 1840, matters were appalling; the town's lower six wards, with over 100,000 people, had no seventh and eight-year programs at all. Thousands of youngsters had to travel above Canal Street for instruction. Forced with this trip, many never went. Moreover, town authorities observed, attendance declined not only in upper grades but also "in the distinctive studies which mark the transition from the lower to the higher schools."[82] Clearly, something had to be done. No longer could the city relegate education to private agencies; government would have to intervene.

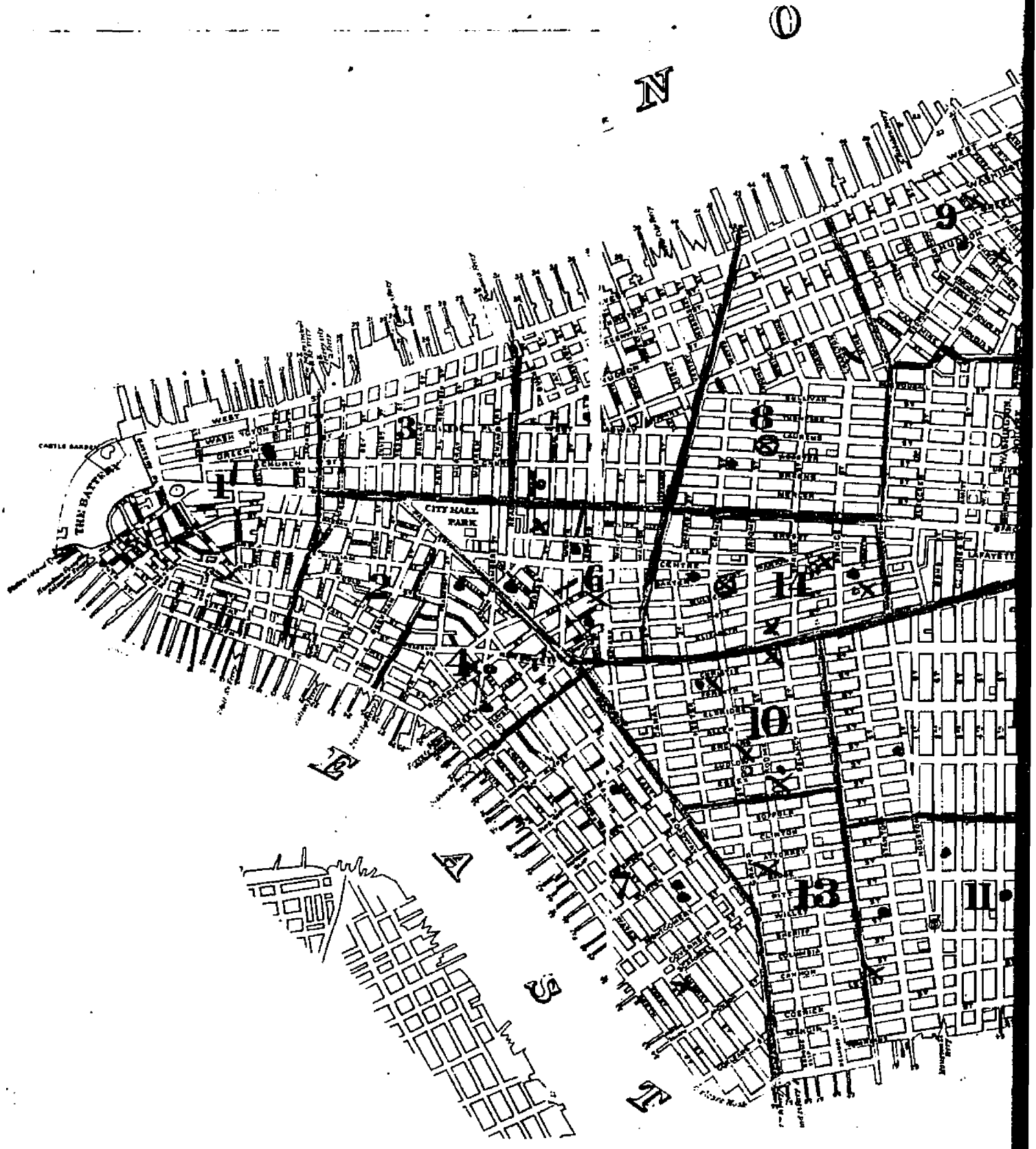
In 1842, after much agitation, the state legislature finally authorized a public system for Gotham.[83] The law established a Board of Education in New York with all Trustees, Inspectors and Commissioners popularly elected.[84] Each ward composed a school district and enjoyed great autonomy. Under the plan, local boards determined curricula, hired teachers, purchased supplies and supervised construction. In short, ward leaders controlled spending. The central board, on the other hand, concerned itself with bill payment. Of course, in these early years this body lacked the formidible powers it would enjoy in subsequent decades. In fact, during the 1840's its only check upon ward excesses was a veto over unreasonable expenses.[85]

The real power struggle, however, raged from without. Indeed, despite public control, this fledgling system faced much opposition from the still-popular Public School Society.

Many parents, especially those of Protestant pursuasion, continued championing the latter. Furthermore, with the municipal agency coming in the wake of earlier Catholic protests, politicians everywhere, fearful of being labeled papists, scurried to praise the Society's record. Battle lines formed quickly, as the latter's Trustees, realizing the vulnerability of most lawmakers, fought to destroy the municipal enterprise before it grew popular. After two furious years of in-fighting, a victor finally emerged when the state legislature reaffirmed and strengthened the infant system. The resulting act of 1844 marked the Society's downfall, since it vested the city's group with control of all new construction.[86]

The Board of Education moved rapidly to expand facilities. Though it established no buildings in the first year, the second witnessed the erection of seven and leasing of three more. And, in the next three years, six additional centers opened.[87] MAP 15[88] shows the situation in 1847. Despite the combined efforts of Society and town, New York still lacked enough places. The First Ward with 1,200 people had only one grammar school, while the more populous Second and Third had none.

Some wards suffered more than others. Only four institutions serviced the Seventh, although 8,000 citizens lived there. Again, just four structures stood in the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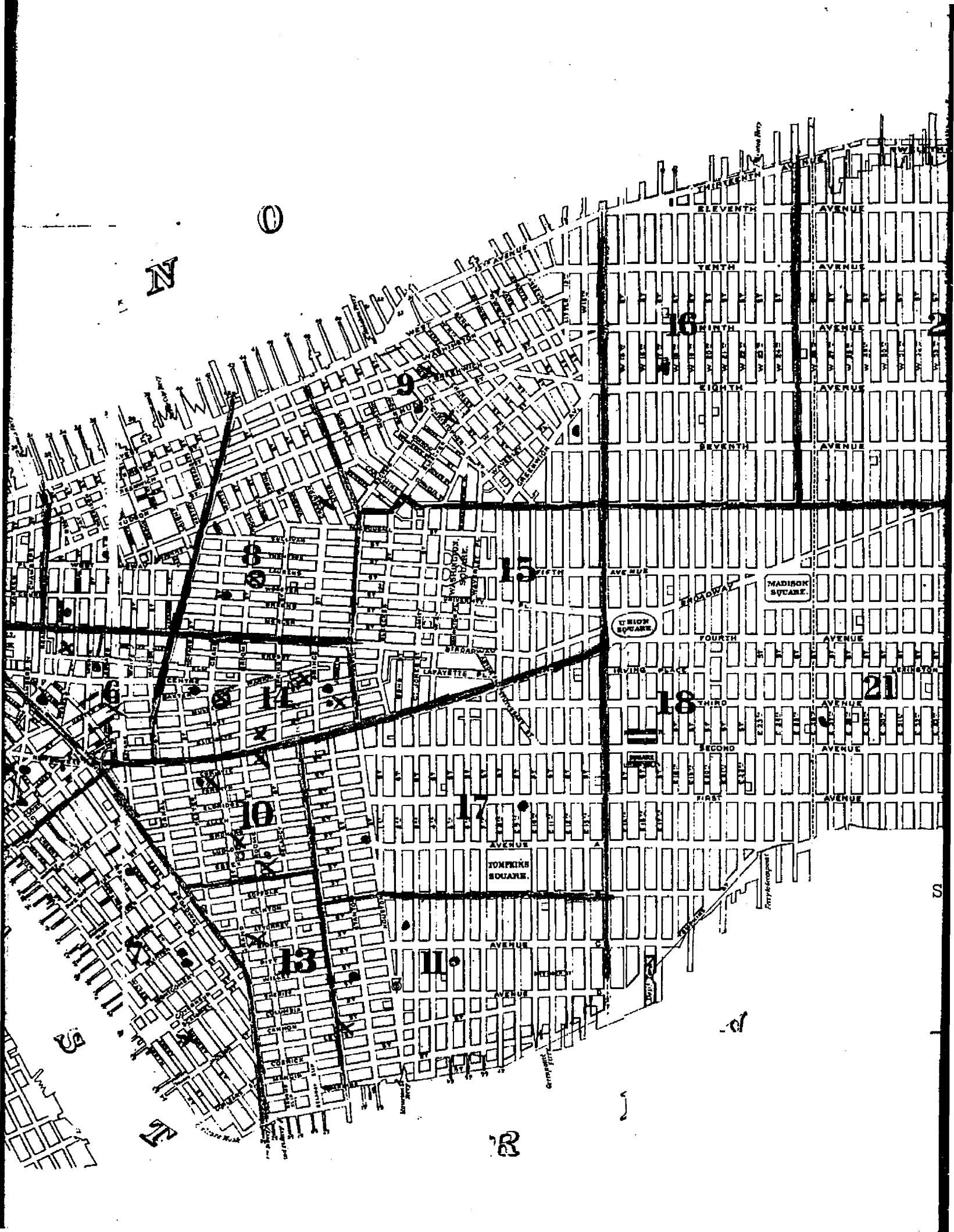
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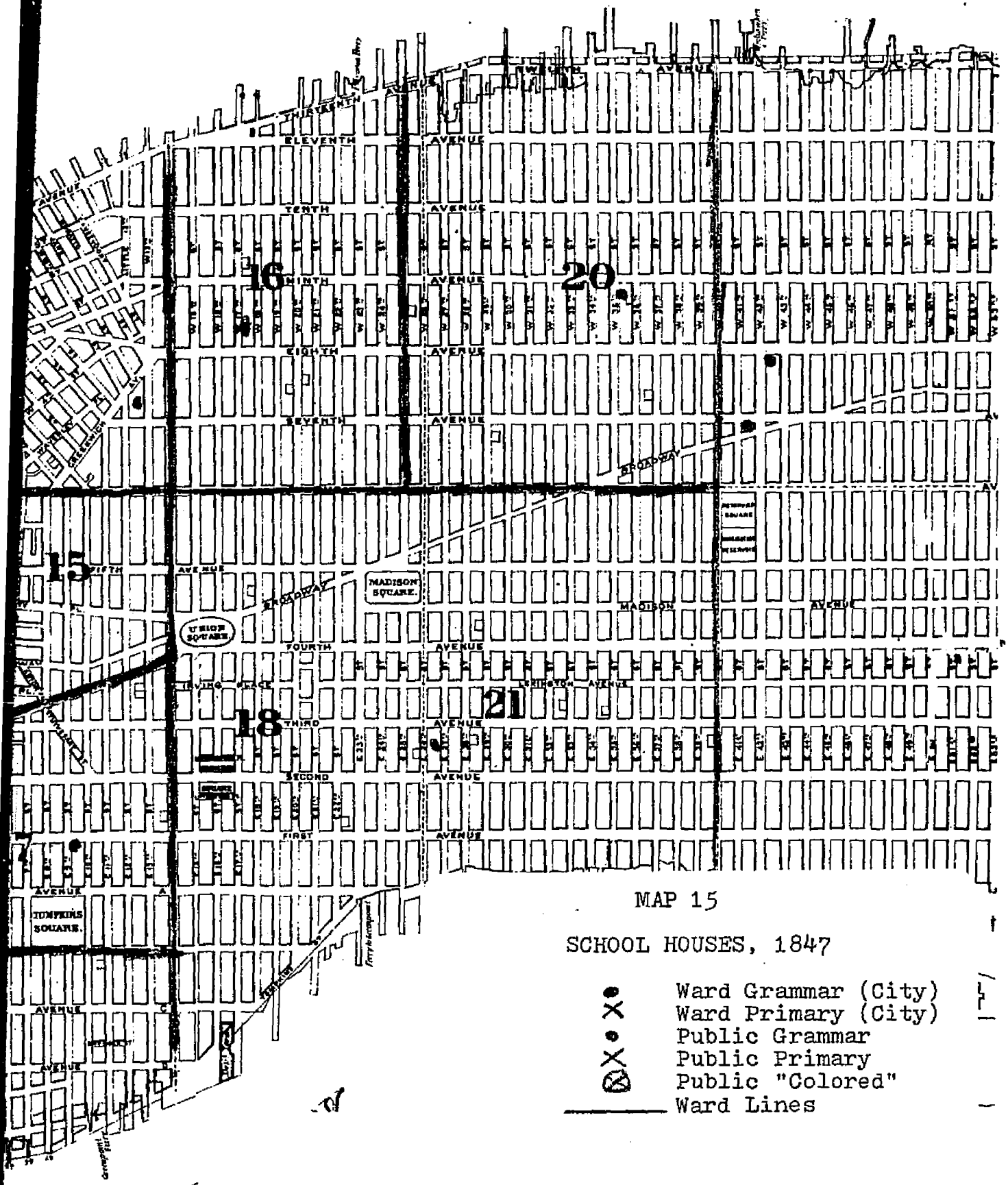


MAP 15

SCHOOL HOUSES, 1847

- ● Ward Grammar (City)
- ✕ Ward Primary (City)
- • Public Grammar
- ✕ Public Primary
- Ⓒ Public "Colored"
- ——— Ward Lines

Eleventh, though its population exceeded 25,000. But other districts fared better. The Sixth and Fourteenth, with 9,000 inhabitants between them had eleven facilities. Undoubtedly, the Irish Sixth and "American" Fourteenth enjoyed good relations with both City Hall and the Society. Unfortunately, the poorer immigrant sections along the east side wielded less clout. And western communities, too, lacked enough buildings, but, then, residents here were mostly"Americans" who reserved public schools for the "foreign" and poor.

Uptowners fared badly because downtown wards elected most aldermen. With suburban schools few and far between, children often walked miles to class. The seeds of the problem lay in the failure of both the Society and city to distribute facilities properly. For some reason, authorities in the 1820's and 30's had concentrated early grade schools mostly between Chambers and Bleecker Streets. This policy, in turn, forced students living out of the zone to travel long distances in all kinds of weather. And since many of these pupils were age ten and under, attendance naturally suffered. Nevertheless, help was slow in coming; to a large extent, the city waited until the 1850's and 60's before remedying matters.

Black students suffered more than white, because discrimination produced a separate and inferior system. Indeed, only two "colored schools" serviced all of New York. Though sizable black ghettoes existed in the Eighth and

Fourteenth Wards, many smaller settlements lay scattered around, especially uptown in the thousands of squatter shanties north of 14th Street. But, regardless of location, the race as a whole received only token help; throughout most of the century New York's "colored schools" remained few, under-staffed and poorly funded.[89]

In the 1850's, city schools for all pupils were too few; the result was overcrowding. For reasons of economy, many districts had to locate primary and upper courses in the same building. The lowest grade, often relegated to ill-ventilated basements, suffered the worst. In fortunate places like Ward School No. 4 on Rivington Street or P. S. 39 on 12th near Second, the primary registration stayed below 200, but this was rare.[90] Most facilities had between 200 and 400 youngsters in these sections.[91] And in some centers numbers ran higher. No. 20 (on Chrystie Street) had 546 children, No. 33 (at 35th off Ninth) 533, No. 34 (Broome near Sheriff) 530, while No. 40 (20th near First Avenue) listed an appalling 753 "primary" students.[92] Safety alone demanded that no more than 200 be crammed into these dank basements, but authorities, short of funds yet eager to accommodate all applicants, looked the other way.

Conditions varied among the grammar schools as well. Some like Nos. 6 and 9 maintained no primary sections at all, which created more room for older pupils. Some institutions like No. 3 (on Hudson Street near Grove) kept

numbers reasonable, but many others packed these grades as well.[93] Thus, No. 20 added 517 grammar students to its 546 in primary to run its total registration over 1,000. No. 33's exceeded 1,100, while No. 40's surpassed 1,500.[94]

Loose regulations nursed these conditions. When establishing the public system in 1842, the state legislature had continued the Society's tradition of allowing parents to patronize the school of their choice. Hence if the Ninth Ward employed the best teachers, then conceivably, all children might attend class there. Even commuters from New Jersey, Brooklyn and the Bronx could bring their young on the ferry for a day's education. Clearly, some reform was necessary, but none came.[95]

Instead, the early 1850's saw the Public School Society absorbed entirely by the Board of Education. The former had lost the battle. Almost from the beginning, its best teachers had deserted for better paying jobs. Students, too, had abandoned their decaying houses for the city's modern facilities. The turning point was 1851, when, for the first time, the town's nascent system boasted a higher average attendance than its competitor.[96] The latter's fate was now sealed. Thus, plagued by declining enrolment and spiraling debts, the Society conceded defeat and prepared to merge. On June 4, 1853, the Board of Education took control of its rival's thirty-eight buildings and full union occurred in 1855.[97]

From the beginning, financial support for public schools was a key problem. Money came from four sources: the New York State Common School Fund, the County Board of Supervisors, a flat city tax and extra municipal allotments. State law required the town to cover the difference when expenditures exceeded appropriations. This angered local leaders, since the Board of Education's inveterate over-spending continually forced added tax levies.[98] It was therefore little wonder that Manhattan's soaring contributions prompted demands for more government control of education. In 1851, Mayor Ambrose Kingsland warned that "unless action is had with reference to placing in the municipal authorities some control over the expenses of this [school system,] they will increase..[until] there may be a revulsion of feeling against an organization so enormously expensive."[99]

Although city and state shared funding, the latter's contribution was always inadequate. The state divided the "Common School Fund" among its towns and counties on a percentage based more on taxable property than population.[100] But, with a gerrymandered legislature in control, Gotham never received enough of the pie. In 1849, for instance, Albany allocated just $40,621--not enough to build three schools much less renovate and maintain the rest.[101] Eventually, the continued decline raised a chorus of local voices warning

of an immediate "danger injuring the schools by stinting their support."[102]

To offset these losses, the town annually increased its support, but the burden soon grew heavy. By 1849, the municipality's share had risen to near $200,000, while the state's shrank from $7 per student in 1844 to $4 by 1851.[103] Three years later, Manhattan's contribution had gone to $513,902, five times the state's figure.[104] With Albany deaf to cries for more help, local politicians again turned on the central Board, accusing it of waste and mismanagement.

In the face of mayoral and aldermanic charges, education officials, in 1851, defended their actions. True, members admitted, new facilities had cost more than old, but the former were also "larger and of better style, accommodating a much larger number of pupils." The too, there had been "a very great advance in the cost of materials for building and for building lots."[105] Spending, therefore, had not been reckless; in most cases, $25,000 was a fair amount for site and structure.[106]

The Board chided leaders for denouncing school costs. Other cities had done more. Indeed, Manhattan spent 75¢ per citizen to Boston's $2.34.[107] Moreover, the Board calculated, if New York would adopt the Bostonian formula, twenty new schools could rise every year.[108] The educators also advised that "tax payers...consider the effects of Free Schools upon the value of property, before they

denounce the extravagance of the demands made by this Board."[109] The latter felt learning would promote urban growth, because "as facilities for bringing up children in proper schools multiply, parents flock to the cities to enjoy them."[110]

Whatever the arguments, as population spiraled and calls for schools rose, the town had to increase allocations substantially.[111] And this, in turn, intensified the struggle between high-spending educators and penurious councilmen.

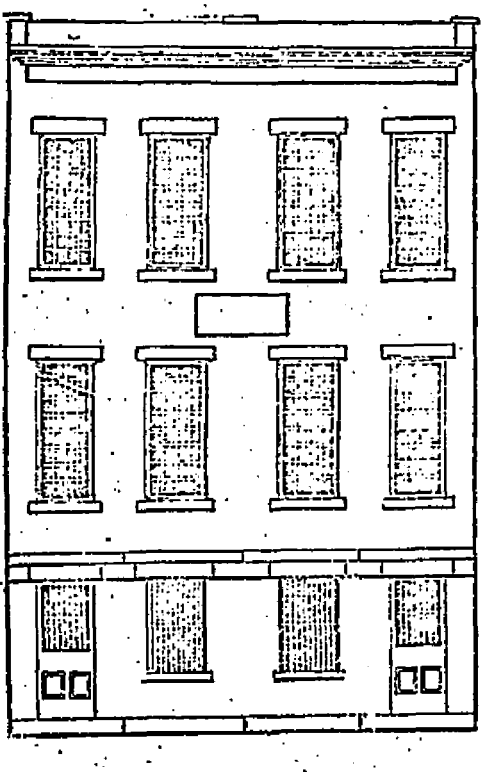
The fledgling city system borrowed heavily from its predecessor in building design. For reasons of economy, the Society adopted the so-called Lancastrian plan which divided students by sex into two large "assembly rooms." Under this scheme, teachers moved about conducting classes first with one grade then another. To create more of a classroom atmosphere, some facilities provided sliding partitions.[112] While instructors busied themselves with one section, unattended pupils enjoyed "study periods" supervised by monitors. This method suited itself well for an organization short of funds, since classrooms required wall construction and larger staffs--neither of which Society finances would allow.[113]

By the 1830's Trustees had tailored their schools to this system. A typical building put the "primary hall"

in a basement whose "floor...was generally about five feet below the sidewalk line, and ceiling perhaps the same distance above it."[114] While this area's dimensions often coincided with the building itself, plans changed upstairs. The boys and girls grammar Departments were usually on separate floors. In the boys's sections and sometimes the girl's, one or two classrooms (seating about fifty students each) adjoined the assembly, permitting a measure of intimate training. But these chambers remained few, as finances reinforced Lancastrian traditions.[115]

After some experimenting, Society Trustees chose the so-called "Model Primary School House" design which governed all new construction after 1844. The scheme was simple. On the outside, a tin roof topped the four brick walls; copper gutters drained off rain. The lower door and all windows had iron bars to ensure safety and permit "a free circulation of air in summer." In winter windows stayed closed, with sashes drawn down (see Figure 1).[116]

FIGURES 3 and 4[117] show the outside appearance and ground plan; boys and girls divisions were on separate floors upstairs. Large halls (not shown) dominated the upper stories, while court yards, stairways, queueing areas and storage sections filled the first. The city school system adopted the model for its early structures, though changes occurred in the 1850's. No. 19, built in 1859 (on 14th Street near First Avenue), was a good example. It reflected the growing popularity of classrooms. In the 1840's and early



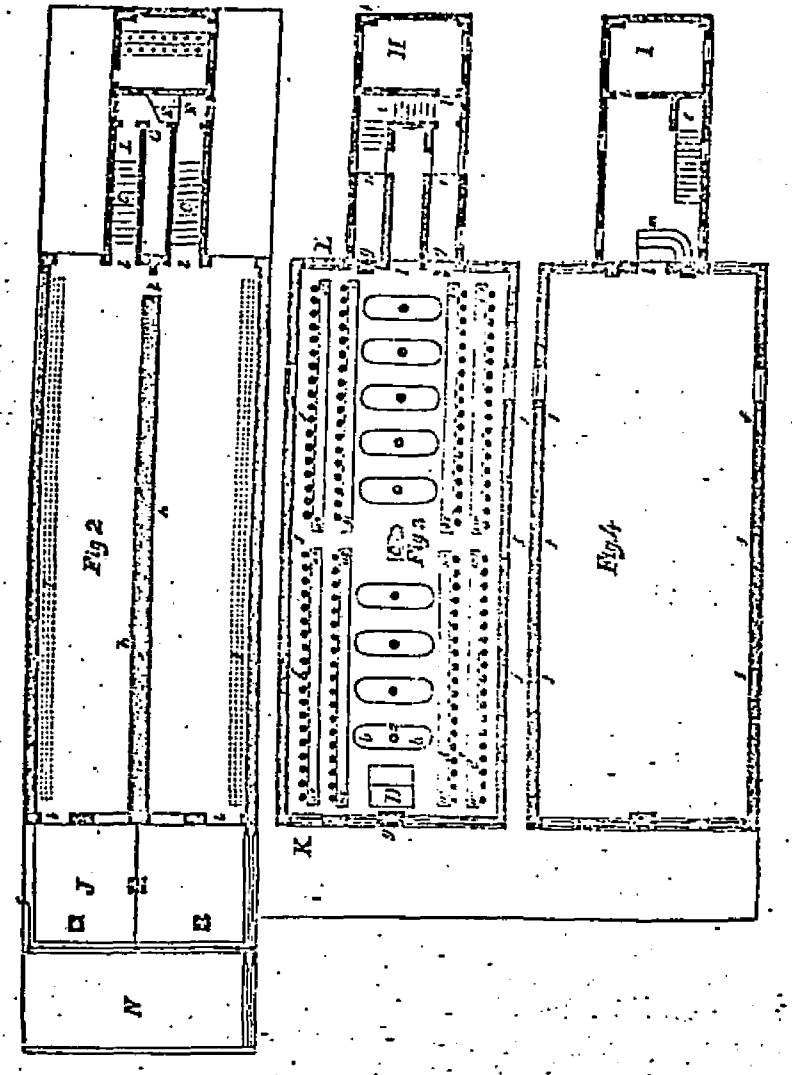
Elevation of a Primary School, built on a lot of ground 25 by 100 feet. The first story is used as a play-ground, which is more fully explained in Fig. 2. The main building is 25 feet front, by 62½ feet deep; the stair building is 27 feet by 11 feet 8 inches. The main building is placed 6 or 8 feet from the line of the street, according to the depth of the lot. The walls above the ground are built entirely of brick. The roof is of tin, and the gutters of copper. The lower doors and windows have iron bars inserted, for safety, and to admit a free circulation of air in summer, but are closed with sashes in the winter.

The Sashes in all the Primary Schools are hung the same as those in the Public Schools, so as to be moved up and down at pleasure. The first story, or play-ground, is 7½ feet high in the clear; the second and third stories, each 12 feet high in the clear.

Figures exhibit the plans and elevation of a Model Primary School House (for two departments) adopted by the Public School Society. That Society, since 1844, erected all their Primary Schools after this plan.

FIGURE 3

PRIMARY SCHOOL, FRONT VIEW



—Ground Plan of First Story, or Play-Ground, Yards, Privies, Stair Building, &c.

N—Side-walk, blue stone flagging.

J—Court Yards, blue stone flagging; separated from the side-walk by iron railing.

C, C—Stairways; the side on which Fig. 2 is marked leading to the Boys' Department, or third story.

I, F—Places for pine (kindling) wood, under the stairs.

E—Sand-box for both departments.

h, h—Piles of wood, about 4½ feet high.

I, I—Lines on which the scholars are marshalled, previous to entering school.

FIGURE 4

PRIMARY SCHOOL,
PLAN OF 1st FLOOR

50's, architects gradually added three, four and sometimes five of these cubicles per floor. But No. 19 had the most ever, eight each for the boys's and girls's Grammar Departments and ten for the Primary section. More than anything else in the 1850's, the shrinking assembly hall symbolized the trend.[118]

FIGURES 5-8 show the plan of No. 19.[119] In the basement and ground floor, vaults, yards, storage and maintenance areas replaced Primary sections. The youngest children now enjoyed second-floor status, as officials increasingly recognized the importance of good ventilation. The Division also had six large classrooms though older students (the boys's complex on the fourth floor not shown) had more. Added benches in the lower grades freed teachers for duty upstairs where advanced subjects required private instruction. Yet the Lancastrian system retained some influence; assembly halls still accounted for a third of the space.

The new structure had other features as well. Philadelphia pressed brick covered the front wall, giving a bright, cheery look to the outside. All water closets connected with the street sewer. Properly constructed drains removed the threat of flood, a perennial nuisance to schools. In addition, students enjoyed gas-light, heat and Croton water. The strategy was deliberate. By giving new buildings a warm, inviting look, officials diminished the traditionally cold and austere image of school life.

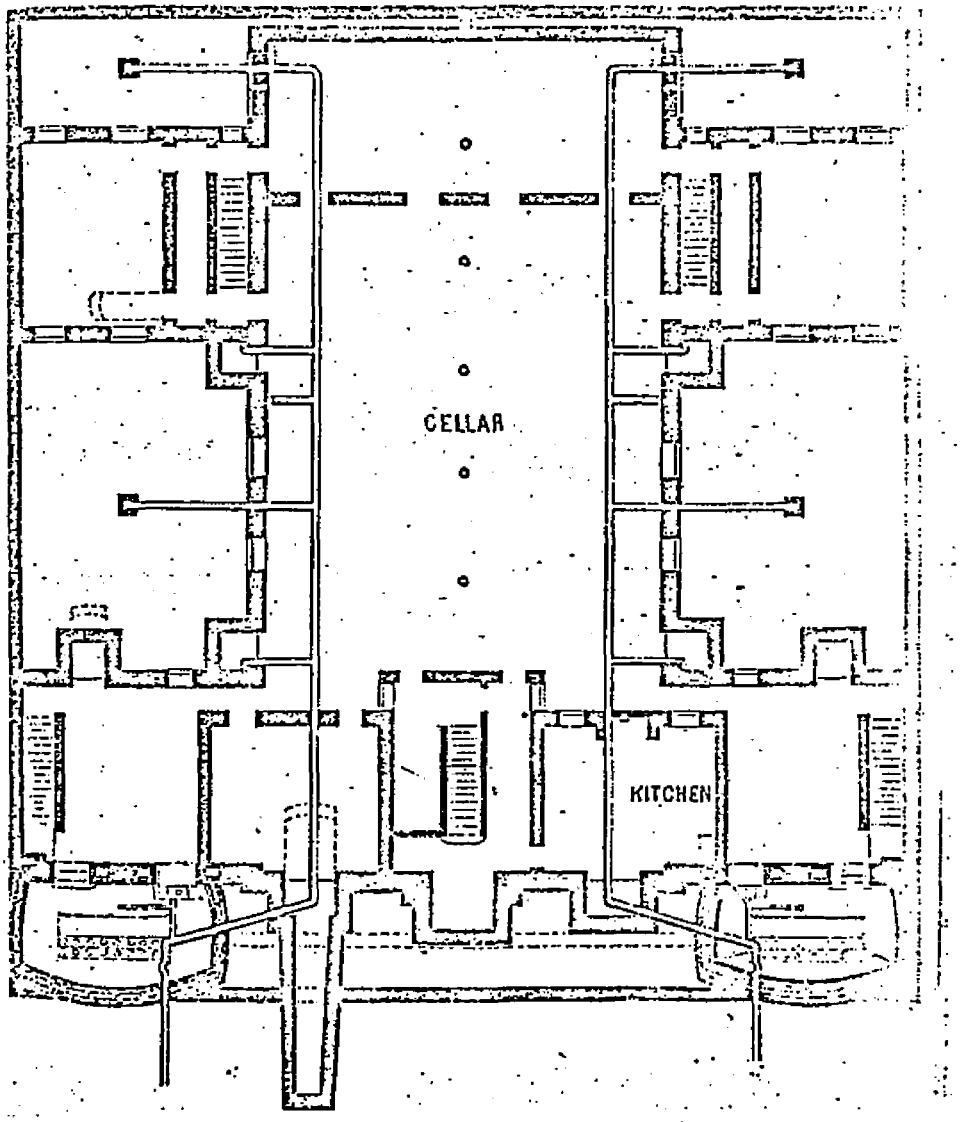


FIGURE 5

WARD SCHOOL NO. 19,
PLAN OF CELLAR

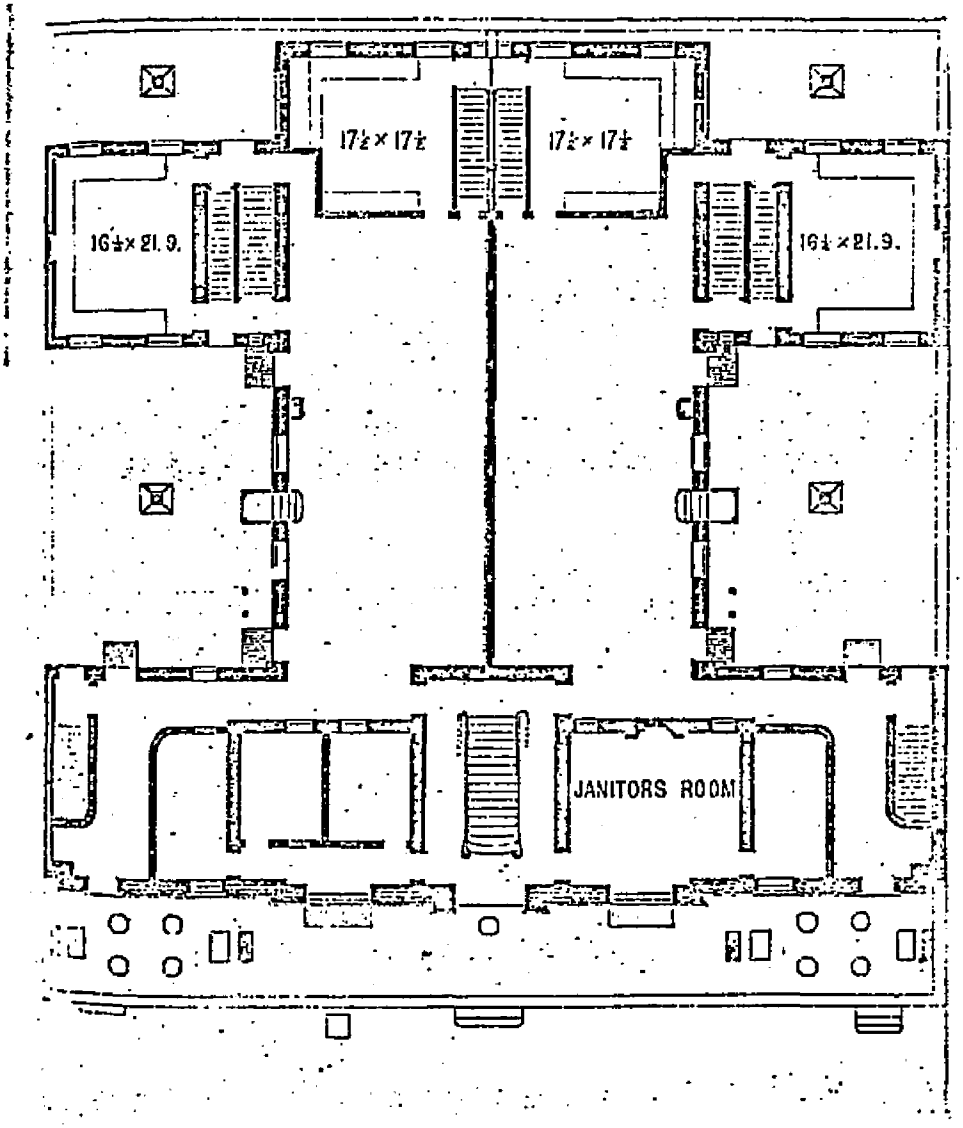


FIGURE 6

WARD SCHOOL NO. 19,
PLAN OF 1st FLOOR

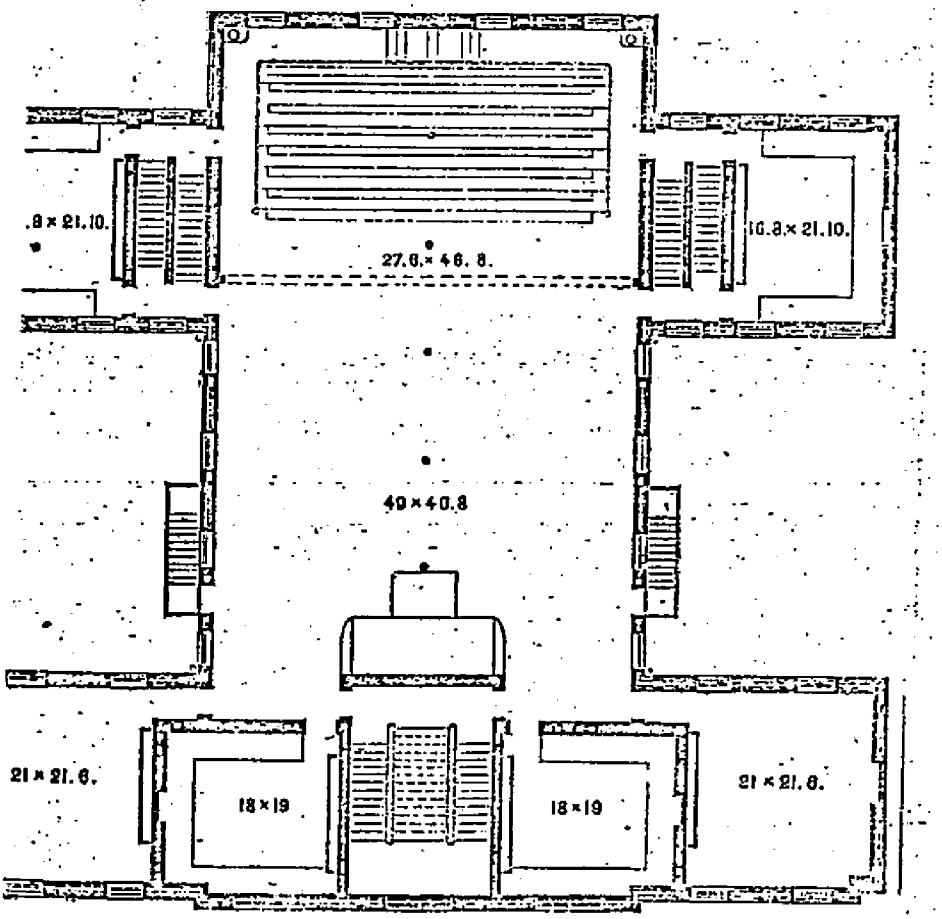


FIGURE 7

WARD SCHOOL NO. 19,
PLAN OF 2nd FLOOR

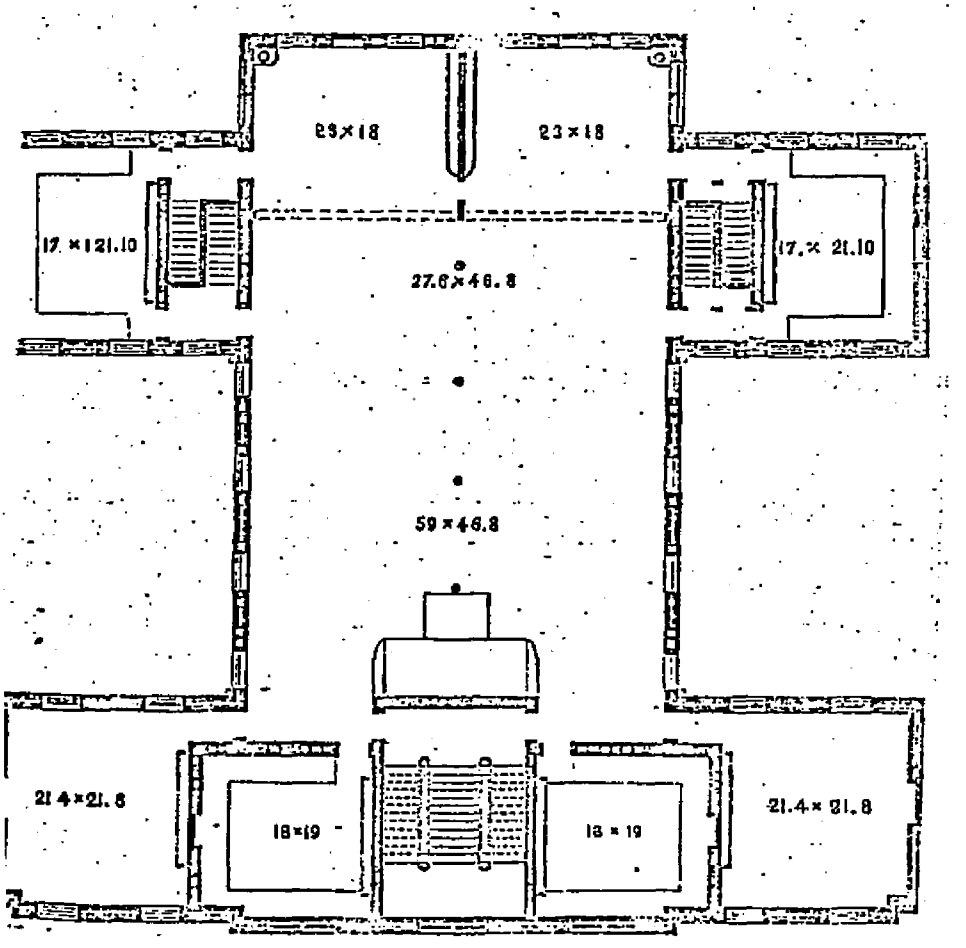


FIGURE 8

WARD SCHOOL NO. 19,
PLAN OF 3rd FLOOR

In many ways, No. 57, built in 1865, embodied the newest architectural trends. Planned for a boys's department and mixed primary grades, the facility counted twenty-four classrooms (see FIGURES 9-12).[120] The absence of girls permitted a subdivision of the third floor. This, in turn, promoted the room and corridor concept which allowed the principal, teachers and maintenance staff - offices of their own. But, despite its spaciousness, the new building still suffered from overcrowding. Already by 1873, the boys's department bulged with 471 students and the primary with 922.[121]

All rooms boasted furniture, desks and settes "of the best patterns and latest styles."[122] Although for years the heating in most schools was poor, officials felt No. 57's apparatus would spell an end to the problem. Warming would be "done by stoves, on an improved principle that has been tested and found to work well; not only giving the required amount of heat, but very materially aiding to secure perfect ventilation."[123]

Outside, the front reflected a grander version of the standard look. Philadelphia pressed brick with cut brown stone trimmings continued to predominate. But there were flourishes: the heavily moulded cornice relieved with consoles, the elegant cupola combining a belfry, observatory and clock tower gave "an air of finish to the upper part of the house." Gone was the stark appearance of the old "Model Primary."[124] These new structures still bore the stone look

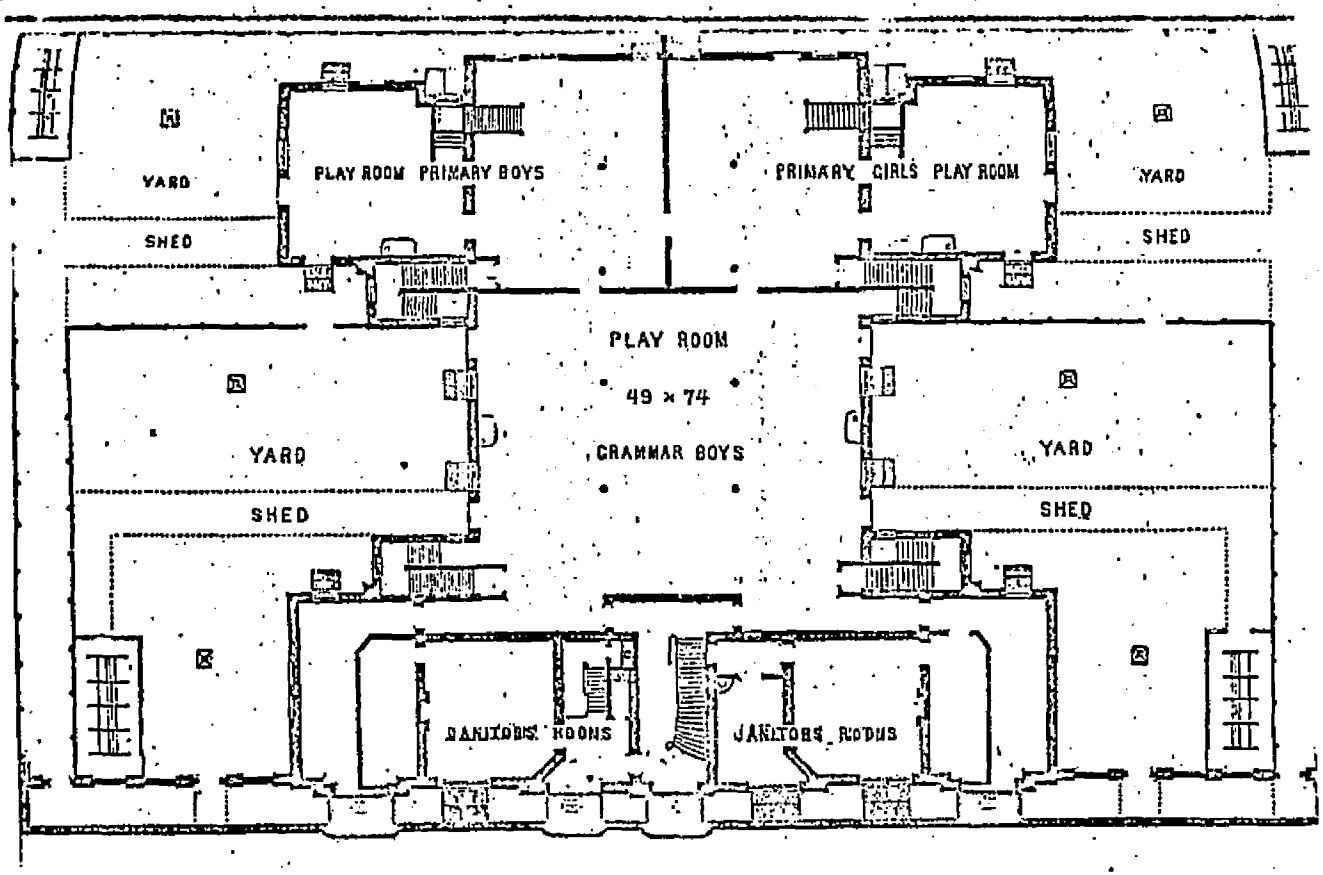


FIGURE 9

GRAMMAR SCHOOL NO. 57,
PLAN OF 1st FLOOR

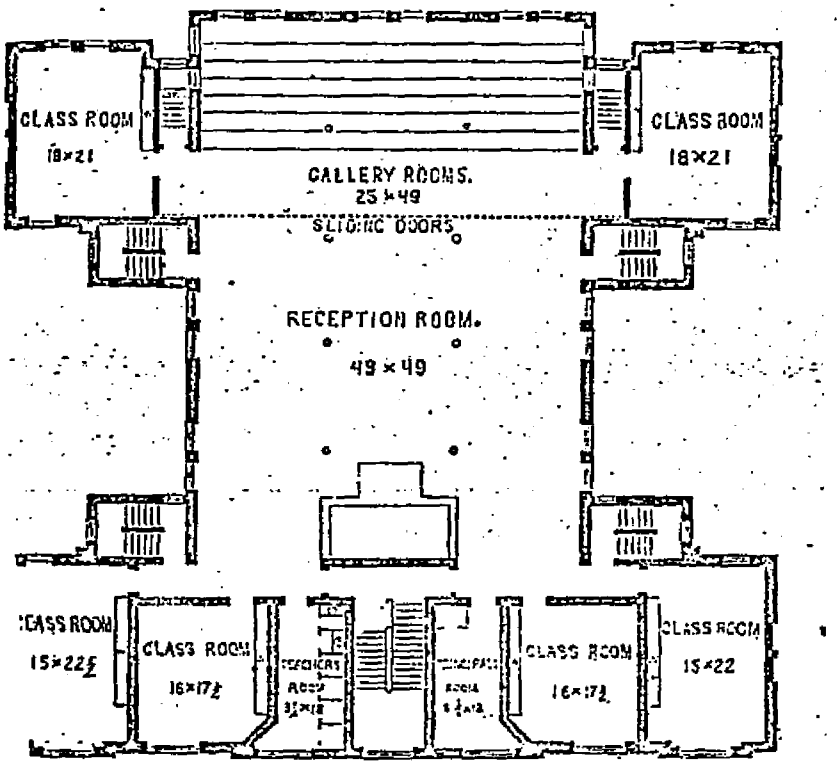


FIGURE 10

GRAMMAR SCHOOL NO. 57,
PLAN OF 2nd FLOOR

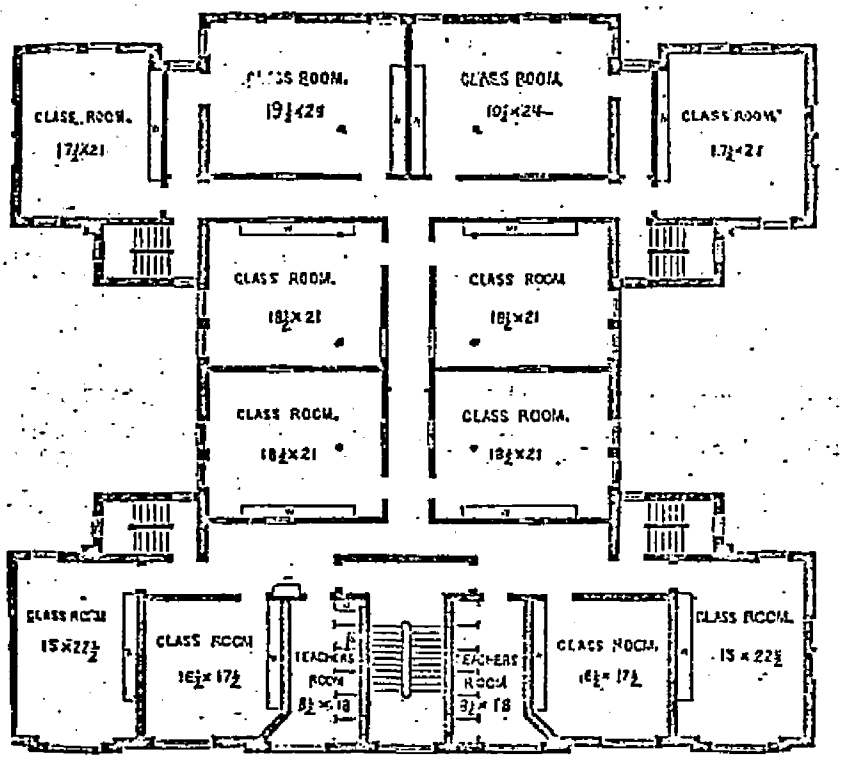


FIGURE 11

GRAMMAR SCHOOL NO. 57,
PLAN OF 3rd FLOOR

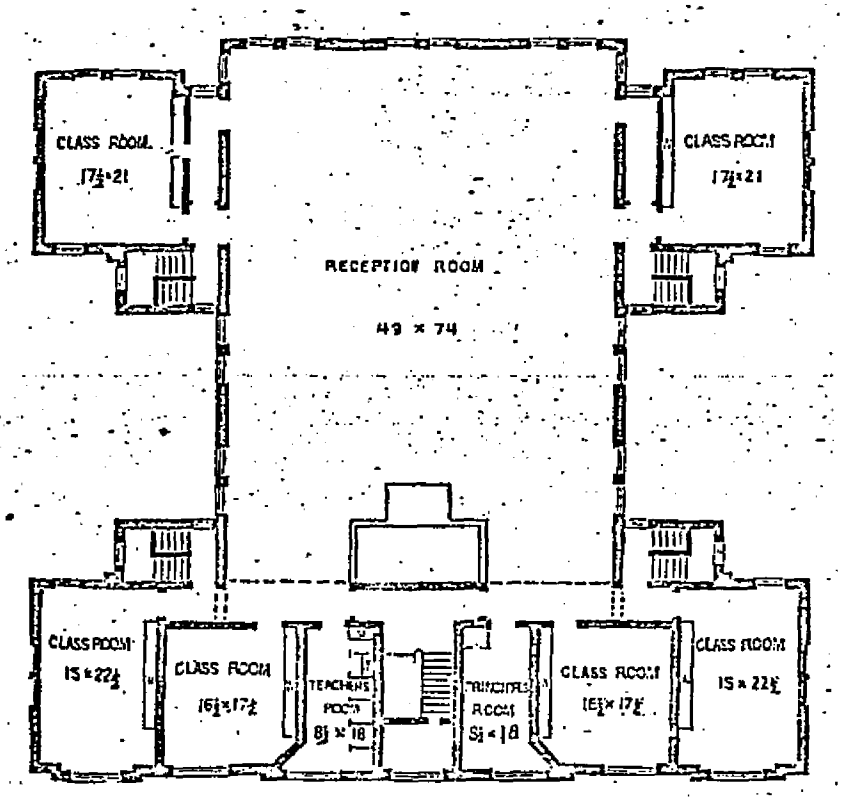


FIGURE 12

GRAMMAR SCHOOL NO. 57,
PLAN OF 4th FLOOR

of authority, but it expressed it with style and elegance.

Though beneficial, these improvements drove up expenses. In fact, building figures soared throughout the century. Houses erected by the Public School Society in the 1820's and 30's had averaged less than $10,000.[125] Several came very cheap. P. S. 18, for instance, (on 51st and Lexington) cost but $6,963, though it was only two stories high, while the single-floor P. S. 9 (at Eleventh and 86th) priced for $3,000 in 1830. [126] Only the bigger three-story structures approached $12,000.[127]

But charges grew higher as the century wore on. Thus, P. S. 36 (Avenue C and 9th), a three-story building, cost $14,000 to erect in 1847. In 1849, P. S. 40 (20th and First) totaled $14,302. And prices spiraled further. No. 42 (Allen Street) went for $21,860 in 1850, while No. 44 (North Moore and Varick) reached $23,534 in the following year.[128] Even the primary centers, though usually much smaller than grammar counterparts, cost more. It took only $4,000 to build No. 39 in 1845, and no other exceeded $6,000. By 1854, however, Primary School No. 27 (on 37th near Eleventh) required $18,000 and No. 24 (on Horatio), $13,000 in 1858.[129] With the post-war greenback flood, inflation hit harder. Construction expenses for the Eleventh Ward's No. 22 (1872) hit $84,271,[130] while No. 57's exceeded $120,000.[131]

Site costs also rose dramatically, adding to the central Board's burden. From the beginning, officials,

looking for maximum aeration and ventilation, preferred corner plots. But these locations were often the most expensive. For example, P. S. 22's land at Stanton and Sheriff went for $10,000 in 1843, while, in the same year, P. S. 20's ground on Ludlow near Delancey amounted to only $8,500.[132] And, again in 1843, property for P. S. 24 on Elm near Leonard cost but $8,000.[133]

Some inside lots, however, approached corner values. In 1844, the Board of Education paid $10,000 for a large plot on Orange near Grand (for P. S. 32).[134] Farther uptown, however, prices declined. In 1843, officials bought a site on 35th near Ninth (for P. S. 33) for only $5,300 and another in 1847 on Avenue C off 9th (for P. S. 36) for $6,350.[135] Harlem land came even cheaper. In 1849, officials acquired lots on 125th Street near Second Avenue (P. S. 39) for $1,600. Later, the Board purchased still more (in 1850) on 129th near Tenth for the same price,[136] and in 1852, got nearly half a block on 156th off Tenth (P. S. 46) for only $2,800.[137]

But prices rose steadily downtown. In 1850, it cost $14,000 for P. S. 42's land on Allen near Walker. A year later, No. 44's site was $17,919.[138] In 1855, the Board paid $13,000 for ground on 20th near Third and $22,500 for similar property on 12th near Broadway.[139] In 1862, authorities gave Thomas J. Hall $25,000 for his lot on Vandewater near Pearl.[140] All over town the upward trend continued.

As a result, corner lots became less feasible for construction. But other reasons, too, favored mid-block locations. For one thing, since all Manhattan corners bordered on avenues, traffic noise made these sites undesirable. In fact, by the 1870's and 80's, the clang of street trains had grown so unbearable that few new facilities appeared on corners. Still, there were problems. The movement to mid-block sites sacrificed light and air for children. And instruction suffered more with each year, as higher office buildings and tenements surrounded schools in post-war growth. Relief came only in the 1890's when Charles B. J. Snyder popularized the "H-type" design. This plan required a ten to twelve-lot section running through mid-block from street to street. Blueprints called for two wings built along the lot's inner periphery and connected by a corridor. Classrooms filled the edifice. And, since windows ran mainly inside the "H," students enjoyed light, air and relative quiet. These structures, sometimes rising five stories high, accommodated over sixty classrooms and 3,000 pupils.[141] But they were still too few; only in the twentieth century did most New York children finally escape the wretched conditions of the system's early years.

Fund shortages often forced school districts to use old, ill-located sites for new buildings, [142] or worse, to shun construction for renting. By 1854, P. S. 24 on Oak Street, No. 29 at Greenwich, No. 30 on 2nd and No. 37 at 86th all had leases.[143] And so did most of the city's

fifty-four primary institutions. With older children given priority, authorities diverted most building allocations to grammar schools.[144]

Throughout the nineteenth century, lack of money forced the Board of Education to utilize houses transferred in 1853 by the Public School Society. By 1868, the Board had remodeled over thirty-eight,[145] but with yearly repair costs running high, the policy had its disadvantages. In 1854 alone, over sixty schools needed improvements. This presented budgeting problems, because the expense of these jobs varied greatly, some ran $100 and others over $2,000.[146]

To protect against fraud, authorities drew up strict contract procedures. In 1854, for example, when the Ninth District board approved alterations for No. 3, it first published notice. After studying estimates, officials awarded the contract to the lowest bidder. Authorities then filed the agreement with the central Board's clerk who forwarded it to the Finance Committee. Once past this body, the pact became official and work could proceed under the supervision of the School Buildings Superintendent.[147] But complications could arise at any time. Furthermore, subsequent years witnessed more rules governing these accords. The city especially clamped down on debt transfer abuses. By 1863, the central Board refused to confirm any project whose bidder "made assignments or permitted liens to be filed against the Board...by means of which the work on said building has been delayed or the

Board of Education put to expense...of defending suits at law."[148]

Contracts usually stipulated a strict deadline for work completion. Though the city expected prompt action, payment was not so fast. In this regard, schools differed little from other public works. A typical case occurred in 1854, when builders of two facilities received $10,000 on January 1, but had to await the "next tax levy" for the remaining $25,000 owed them.[149] Various factors could complicate the accounting. For one thing, construction might involve one or more companies. In 1854, for instance, agreements for a new school on 28th Street near Sixth allocated the masonry to Robert Smith ($18,965) and the carpentry to John McClave, while, in the same year, Patrick McAuliff handled both items for the job at 51st and Lexington.[150]

Despite strict procedures, however, abuses still existed. As with sewers and paving, authorities discovered repeated contract violations. Bricks and wood beams were often of poor quality, roofs leaked, water closets overflowed, rain water drained off roofs and down walls into classrooms. Materials did not meet specifications, or installers added extra items and padded their bills. Most frequently, equipment failed. Shades became stuck, windows locked, heating, plumbing and ventilation broke down. In winter, students often froze or faced the danger of fire from defective stoves.[151] Witness the testimony of one

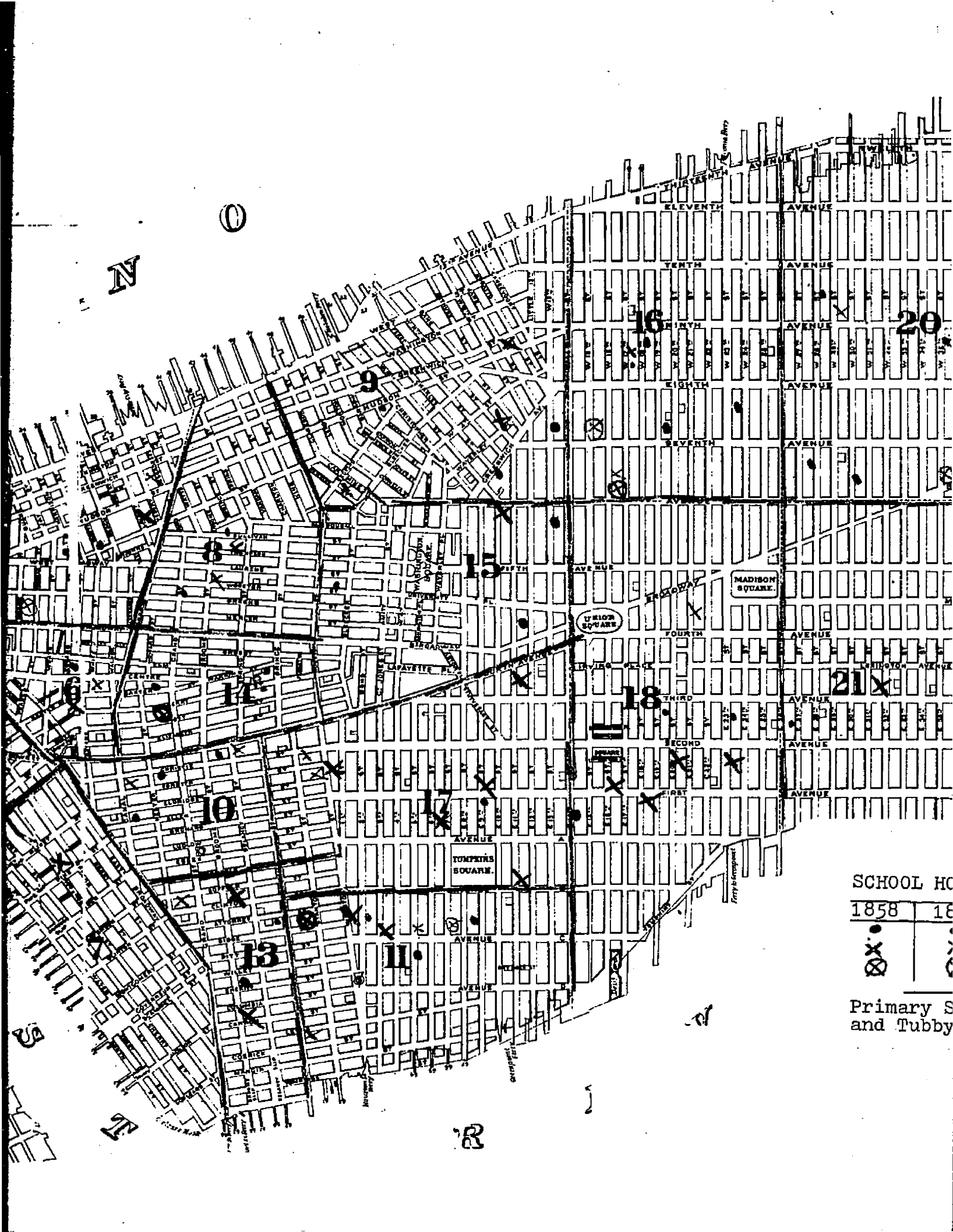
physician who, in 1872, inspected schools in the Second and Fourth Districts. In many places he found defective waste ventilation "owing to the roofs being too low, and to the want of a sufficient number of ventilators. The wood in many [of them] was decayed and the effluvia extremely offensive." He also deemed the heating system "inadequate to supply the rooms with the requisite degree of heat." It was even necessary," one official noted, "to suspend teaching in some of the rooms during the past winters owing to this cause."[152]

Less fraud pervaded land selection. This function lay chiefly with local boards. Each district appointed a committee on sites which kept an inventory of available lots. This body usually consisted of three or more members.[153] Once leaders approved new construction, the committee submitted a list of recommendations. Subsequent deliberations were kept secret to prevent speculators from buying up lots and raising prices. Apparently, these precautions succeeded, for the evidence indicates little fraud in site choice prior to 1860. Trustees did not sell their own lots to local boards, nor did aldermen peddle their lands to authorities. In 1851, however, former Mayor Thomas Woodruff did sell property to the Board, but the price was relatively low ($5,900), and there was no evidence of wrong-doing.[154] Nevertheless, it is probable that in the decades after 1860, when the school system exploded in size, irregularities became more frequent.[155]

The location and number of schools usually sparked much controversy. Despite parental concern for children walking to school, the city erected many buildings near streetcar lines. MAPS 15 and 16[156] indicate the number built along the Second and Third Avenue tracks alone. Prior to 1880, officials failed to recognize the danger of youngsters crossing busy rails twice daily.[157] Indeed, building policies reflected an ignorance of surrounding environments. As a result, objectionable situations abounded. In the Sixth Ward investigators found one school in "a very faulty sanitary condition, 600 children being crowded on one floor that is very imperfectly lighted."[158] Outside there was no playground. In addition, cramped quarters plagued the district's other two buildings which were "surrounded by tenant-houses; one of [which] interfered with the external [water closet] ventilation of a large number of high tenant-houses."[159]

Other schools languished in a sea of horse stables. In 1872, authorities noted the polluting effect of manure piles on instruction at No. 7.[160] In warm weather the odor forced a halt to classes, and throughout the year it was "a constant source of discomfort to teachers and scholars."[161] A decade previous, investigators had discovered similar problems in a half-finished structure at 23rd near Second. A local physician had described it as being "in conjunction with a row of stables, and in the immediate vicinity of two slaughter-houses; the cellar is also very

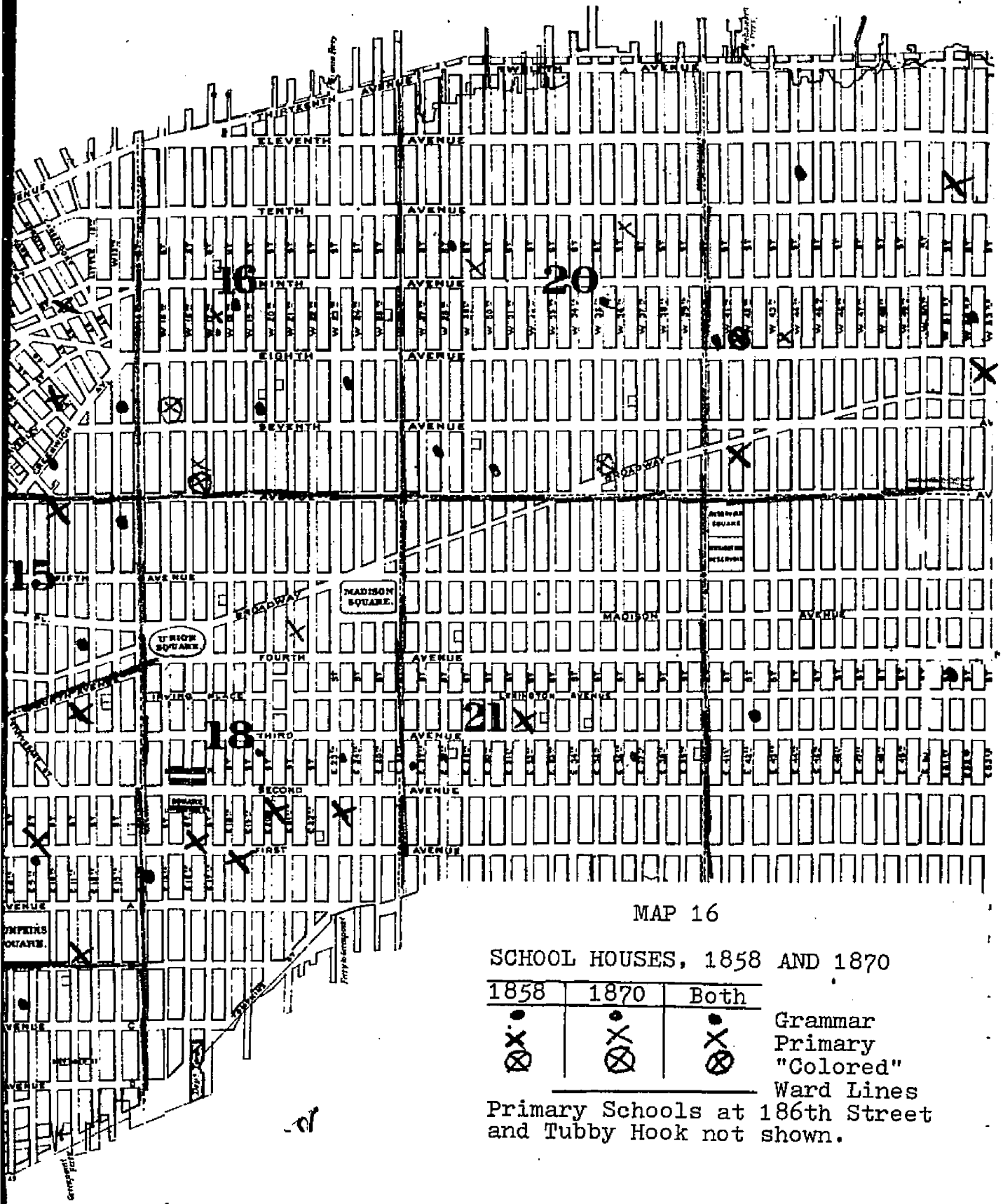
NORTH
EAST
THE BATTERY
CITY HALL PARK



SCHOOL HO

1858	18
⊗	

Primary S
and Tubby

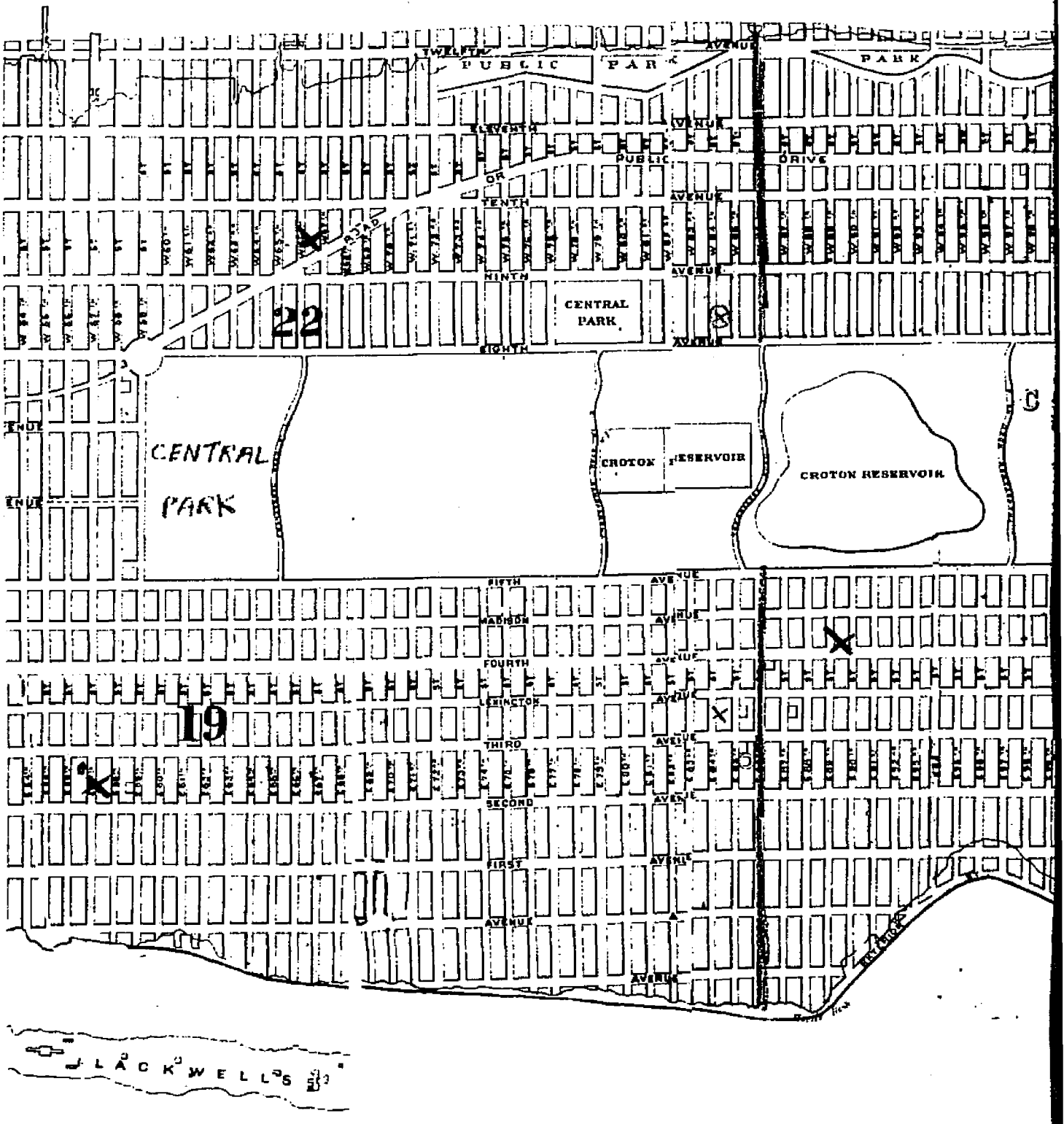


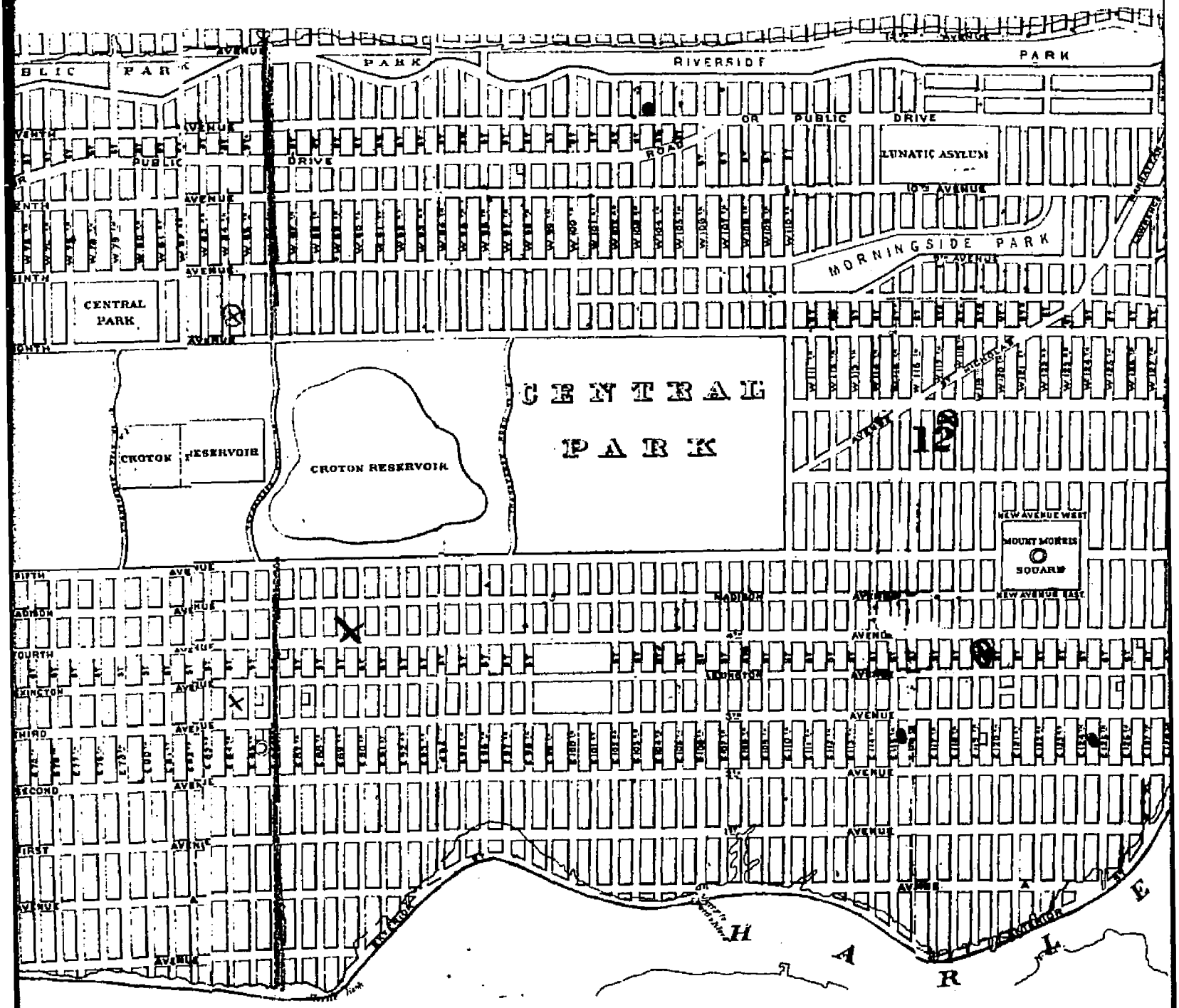
MAP 16

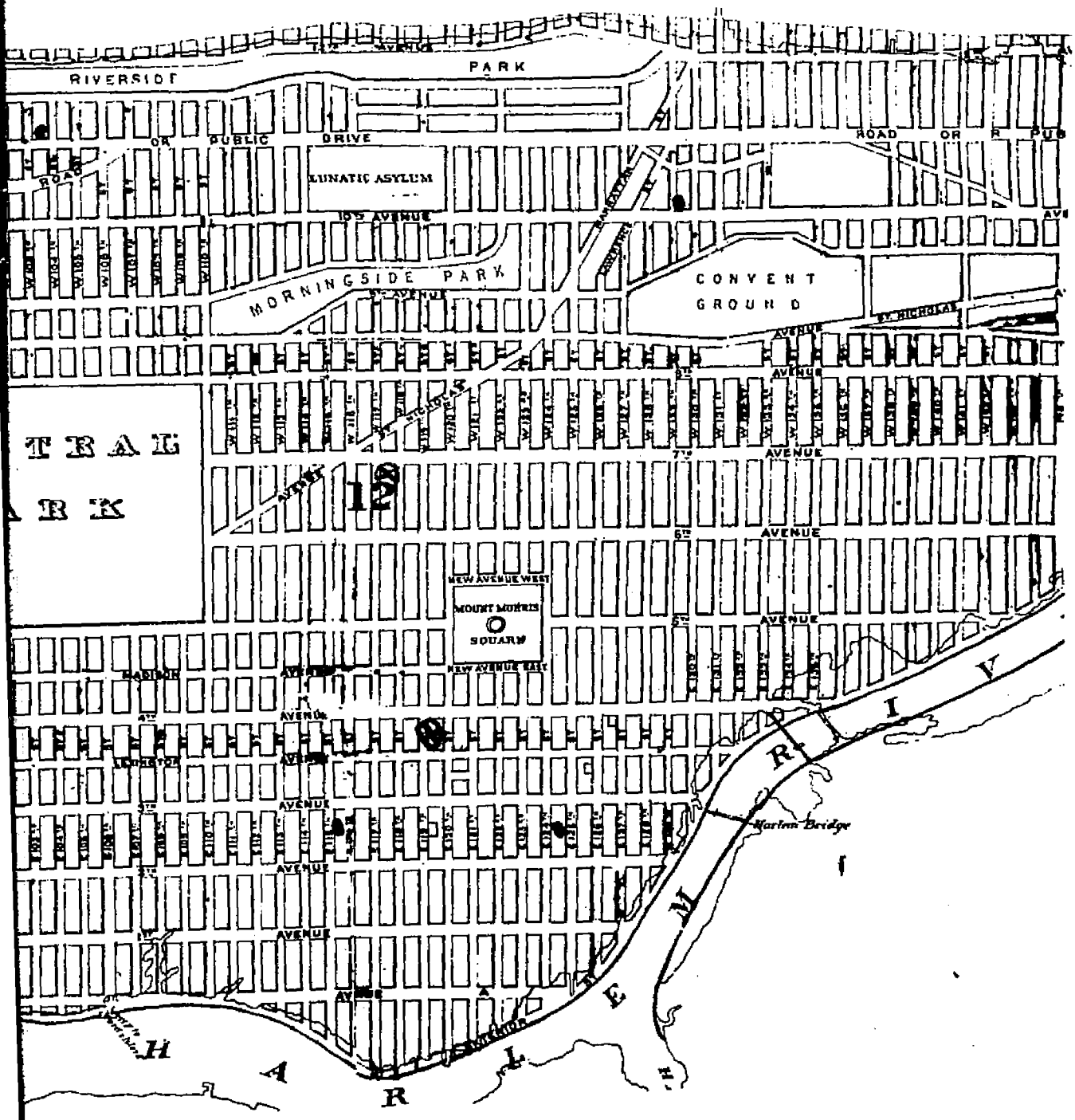
SCHOOL HOUSES, 1858 AND 1870

1858	1870	Both	
•	•	•	Grammar
X	X	X	Primary
⊗	⊗	⊗	"Colored"
			Ward Lines

Primary Schools at 186th Street and Tubby Hook not shown.


PUBLIC PARK
PARK
CENTRAL PARK
CENTRAL PARK
CROTON RESERVOIR
CROTON RESERVOIR
22
19
TWELFTH AVENUE
ELEVENTH AVENUE
PUBLIC DRIVE
TENTH AVENUE
NINTH AVENUE
EIGHTH AVENUE
FIFTH AVENUE
MADISON AVENUE
FOURTH AVENUE
LEXINGTON AVENUE
THIRD AVENUE
SECOND AVENUE
FIRST AVENUE
AVENUE
BLACKWELLS


RIVERSIDE PARK
PUBLIC DRIVE
LUNATIC ASYLUM
MORNINGSIDE PARK
CENTRAL PARK
CROTON RESERVOIR
CENTRAL PARK
MOUNT MORRIS SQUARE
HARLEM


RIVERSIDE
PARK
DRIVE
LUNATIC ASYLUM
MORNINGSIDE PARK
CONVENT
GROUND
ST. NICHOLAS
AVENUE
MOUNT MORRIS
SQUARE
NEW AVENUE WEST
NEW AVENUE EAST
Harlem Bridge
HARLEM RIVER

damp, and emits a very disagreeable odor, the soil having been saturated with filthy material previous to its present use."[162] Such incompetent planning undoubtedly diminished the capacity of any facility to ease overcrowding. For, in a city where parents could pick their school, who would choose such a place?

Such considerations, however, seemed unimportant. Too often, expediency outweighed hygiene and safety. A typical case occurred in 1865 when physicians discovered a large building (of 1,000 students) in the Fourteenth Ward "brought so closely in contact with [a]...fat-melting house, on one hand, and with a butchery on the other, that no place is left for external ventilation and a playground." But this was not all; other "nuisances," too, "wafted... oppressive and noxious vapors" throughout the ward.[163] In areas close to these plants, animal blood and urine ran daily through the streets past playing children. Disease, of course, infested these sections. In 1865, doctors reported all four local schools surrounded by unhealthy environments. Three were "in the most insalubrious part of [the] district."[164] In fact, the proximity of a couple to "typhus fever nests" led one physician to warn that "confining of young children for several days in these houses is no doubt very injurious to their constitutions, inducing, as it may pulmonary tuberculosis."[165]

Such abuses existed elsewhere, too. Within the square bounded by Varick, Wooster, Canal and Spring Streets

medical authorities found high rates of typhus, typhoid, cholera, scarlatina, dysentery and diahorrea.[166] But, knowing all this, the Board of Education still had erected three new schools upon this filled swamp. It is no wonder the city's nicer branches were packed.

The inadequate facilities and overcrowding which plagued the early system grew more severe in the decades after 1850. At no time did Gotham build enough schools to keep pace with demand. Map 16 illustrates the problem. In 1855, the First Ward claimed 13,486 people but counted only two grammar schools and one primary.The Second's 3,249 inhabitants had no centers in 1858, while the Third's 7,909 lacked any till 1870.[167] East side wards, though filled with tenements, also did without. The German Tenth had five schools for its 26,378 people in 1855, but, by 1870, the number fell to three, even though population neared 40,000.[168] This seemed unfair, because the neighboring Thirteenth enjoyed four buildings by 1870 despite only 30,000 inhabitants.[169] But the Thirteenth was fortunate compared to the Seventeenth which saw only four schools service its 59,000 citizens in 1855, and five its 100,000 some twenty years later.[170]

After 1850, the west side also received uneven attention. Although the Eighth Ward's population fell from 34 to 32,000 between 1855 and 1875, its facilities grew from

four to five.[171] But the Ninth did less well, keeping only six of its seven, while residents increased from 39 to 49,000.[172] But, on the whole, variety was the rule in Manhattan. In general, "American" communities fared well. For instance, between 1855 and 1875, Ward Fifteen's population rose by only 1,000, but it lost no schools.[173] Contrast this with German districts to the east where buildings were few. Indeed, even Irish neighborhoods outpaced the German. Though inhabitants shrank in the Irish Sixth Ward from 25,000 (1855) to 19,000 (1875),[174] the number of schools tripled. Perhaps relations with Tammany helped.

Fortunes varied uptown as well. By the 1870's, Ward Eighteen with 61,000 citizens saw its houses multiply from four to seven.[175] But the 58,000 (by 1870) in the adjacent Twenty-first made due with three. Farther north, however, matters worsened. District Nineteen, encompassing the crowded east side from 40th to 86th Streets, possessed only three centers in 1870. The lack of primary schools posed a problem. As late as 1872, only one building serviced the area's 117,000 residents.[176] The Board of Education's sole gesture of relief was to demolish the old structure near 86th and locate the new one more centrally. Still, young students living along the zone's periphery must have suffered greatly trekking to first grade in snow, sleet and rain.

Upon arriving, the child often found the same

overcrowding which afflicted earlier generations.[177] By 1859, even though the number of schools had grown substantially, congestion also had worsened. Nineteen out of fifty-two branches bulged with over 1,000 students each. Primary sections suffered especially; 614 youngsters packed into No. 13, 622 into No. 20 and 625 into No. 28.[178] Some buildings must have burst at the seams; No. 45 registered over 1,600 pupils in 1859, with 778 in the lowest grade, while No. 33 held 1,500 with 868 in junior classes, and No. 11 approached 1,600 with 860 downstairs.[179]

True, these are gross figures, not representing average attendance, but on low-absentee days school population often reached these levels. Unfortunately, post-war structures, like their ante-bellum predecessors, lacked enough space for proper instruction. When classes swelled to sixty, seventy and eighty students, education gave way to "keeping order." By 1873, the deteriorating situation forced officials to characterize overcrowding as "probably the most serious evil connected with our system."[180] Despite the adoption of measures "from time to time to abate the evil," the central Board conceded, "it still exists to an alarming extent."[181] Class size perennially bothered authorities: "seventy-five pupils are too many to be taught successfully by one teacher," went the reasoning in 1873, "yet to enforce a smaller number would be the means of driving thousands of pupils from the Primary Department and Schools."[182] Nor would the hiring of more

teachers fill the need, since there were "not sufficient separate class-rooms to render it possible for them to be employed."[183]

The Board of Education met the desperate need with feeble efforts. In 1873, it reported "the demand for more school accommodations from the upper portions of the city...is more frequent than ever before," especially in the Twelfth, Nineteenth and Twenty-second Wards.[184] Nevertheless, the same men admitted that "no buildings have been commenced during the year."[185] After thirty years of existence, local districts and the central Board still could not meet the demand. Despite limited city funding, the wards continued wasting their allotments on huge, expensive edifices. Perhaps leaders should have postponed new construction in favor of expanding the system rapidly through leasing. Though pursued too vigorously by police and fire officials, the policy seemed best suited for schools. But, except for primary divisions, educators had tried hard to avoid it. Events, however, gradually reversed this attitude. Overcrowding in the 1860's, 70's and 80's eventually forced the issue, and subsequent decades witnessed a frantic renting spree by school authorities.[186]

Conditions were poor for white students but worse for blacks. Many lacked a place to attend. By 1854, only four "colored institutions" served the scattered population. A single building on east 86th Street handled most uptown

students; the Eighth and Fourteenth Wards took the others. As a result of this distribution, black children living between 14th and 59th Streets from river to river had to travel unconscionable distances. Sometimes this could be dangerous. In the 1870's, authorities reported that "in some parts of the city," pupils enroute were "greatly annoyed and often abused and seriously injured by the persecution of ruffian boys."[187] Nevertheless, reform came slowly. By 1870, only about ten centers existed, far from adequate. Nascent black ghettoes near Sixth Avenue (the tenderloin district) lacked sufficient quarters. The Board of Education seemed unaware of the great black exodus from the South. Indeed, for the rest of the century segregation persisted and black schools remained too few and ill-located.

Quality, too, suffered in black ghettoes. Attendance wavered, since many families, being poor, had to send older children to work. Worse still, instruction itself proved inferior when compared with white programs. City-wide studies in the early 1870's showed "colored" institutions less proficient than white counterparts. In every branch of learning, the latter surpassed the former. Similar results occurred also in "Character of Instruction," "Discipline," "Attendance," and other categories,[188] thus forcing the central Board to conclude that "general management" of black education was inferior to white.[189] Yet, with all these symptoms bared, officials did little more than diagnose the problem.

To some extent, the city managed its school system poorly. Expansion was too ill-conceived and tentative. Admittedly, leaders tried their best to meet a growing demand for education but they could have done better. For, within the town's increasing commitment to students lay a discrimination which was variously geographic, ethnic and racial. Uptown suffered more than down, Germans more than "Americans," and blacks more than whites. In many places, district whimsies promoted uneven distribution. Poor planning, however, was also a factor. Clearly, after 1855, the various boards erred in preferring new construction to renting. Too often fortunes went to build plush, showcase structures designed to create a demand which could not be met. Surely, officials could have erected four modest structures for the $120,000 spent on P. S. 57. With better planning and more of a financial commitment from City Hall, progress might have been swifter.

Yet, on the other hand, New York deserves some credit. Once again, leaders had responded to need. With education fast becoming an indispensable tool, aldermen recognized the responsibility of government. After all, the real story lay not in the school system's failures but in its creation. Unlike public markets, the city made learning a major priority so that neither the chaos of growth nor the desertion by Albany could prevent Manhattan from teaching its children.

NOTES

[1]See Bridenbaugh, Wilderness and Revolt for sections on the early history of New York's markets.

[2]Valentine's Manual for 1862, p. 504.

[3]Ibid.

[4]Ibid., p. 505.

[5]Ibid., p. 503.

[6]Ibid., p. 504.

[7]Ibid., p. 505.

[8]Ibid., p. 503.

[9]Ibid., p. 504.

[10]Ibid., p. 505.

[11]Ibid., p. 506.

[12]Ibid., p. 507.

[13]Ibid.

[14]Thomas De Voe, The Market Book... (New York, 1862), p. 341.

[15]Valentine's Manual for 1864, p. 191.

[16]De Voe, p. 369.

[17]Ibid., pp. 374-375.

[18]Ibid., p. 392.

[19]Ibid., p. 403.

[20]Ibid., p. 404.

[21]Ibid., pp. 405-406.

[22]Valentine's Manual for 1864, p. 191.

[23]De Voe, pp. 459-460.

[24]Valentine's Manual for 1864, p. 191.

[25]DeVoe, pp. 520-523.

[26]Valentine's Manual for 1864, p. 191.

[27]De Voe, pp. 488-489, 513-514.

[28]Ibid., p. 511.

[29]Ibid., pp. 513-516.

[30]Ibid., p. 512.

[31]Valentine's Manual for 1859, p. 195.

[32]De Voe, p. 481.

[33]Ibid., p. 484.

[34]Ibid., pp. 588-589.

[35]Ibid., p. 528.

[36]Ibid., p. 580.

[37]Ibid., p. 485.

[38]Ibid., pp. 406-407.

[39]Ibid., p. 427.

[40]Ibid., pp. 427-428.

[41]Valentine's Manual for 1850 and 1851, see the sections on the organization of city departments.

[42]Aldermen, Documents, XVIII, Part I, #9. January 9, 1851, 210.

[43]Ibid., pp. 209-210.

[44]Ibid., pp. 212-213.

[45]Ibid., p. 212.

[46]Ibid., p. 214.

[47]Ibid.

[48]Check the Public Markets real estate section in Valentine's Manual for locations in any year.

[49]New York Times, January 4, 1866.

[50]The Citizen's Association to Comptroller Richard Connally, "The Present Meagre (sic) Revenue of the Public Markets...," October 1, 1867, p. 3.

[51]Ibid.

[52]Bridenbaugh, Wilderness, pp. 194-195 has information on "hucksters."

[53]Citizen's Association, Report, p. 10.

[54]Ibid., p. 6.

[55]Ibid., p. 7.

[56]Ibid.

[57]Ibid.

[58]Ibid., p. 6.

[59]Aldermen, Documents, VI, #25, October 21, 1839, 327-328.

[60]Citizen's Association, Report, p. 7.

[61]Ibid., p. 4.

[62]Ibid.

[63]Ibid., p. 9.

[64]Waring, p. 588-589.

[65]New York City, Board of Education, New York City School Buildings, 1806-1956 (New York, 1956), p. 1.

[66]Bridenbaugh, Wilderness, pp. 124-126, 286-288, 448-450.

[67]Ibid., pp. 286-287.

[68]Ibid., p. 448.

[69]School Buildings, p. 1.

[70]Ibid.

[71]Ibid., p. 2.

[72]Ibid., p.2.

[73]Ibid., p. 3.

[74]Ibid.

[75]Ibid., p. 4.The Society's schools now became known as "Public Schools." They should not be confused with the later city system.

[76]Aldermen, Documents, XII, Part I, #32, January 31, 1845, 523.

[77]Ibid., p. 524.

[78]Ibid.

[79]Ibid.

[80]Ibid., p. 533.

[81]Ibid., p. 534.

[82]Ibid.

[83]New York City, Board of Education, Twelfth Annual Report (New York, 1854), pp. 37-39. See also Thomas Boese, Public Education in the City of New York...(New York: Harper & Sons, 1869), pp. 1-70 for background.

[84]Twelfth Annual Report, p. 39.

[85]Boese, pp. 70-71,

[86]Ibid., p. 71.

[87]Ibid., p. 69.

[88]See Valentine's Manual for 1848, Department of Education section for the location of schools.

[89]See the Sanitary Condition of the City, passim. also see Annual Report, pp. 43-45.

[90]Ibid.

[91]Ibid.

[92]Ibid.

[93]Ibid.

[94]Ibid.

[95]Boese, pp. 69-70.

[96]Ibid., p. 74.

[97]Ibid., p. 81.

[98]Annual Report, p. 7 gives a typical budget breakdown.

[99]Ibid.

[100]Annual Report for 1849, p. 8.

[101]Ibid.

[102]Ibid.

[103]Annual Report for 1851, p. 9.

[104]Report for 1854, p. 7.

[105]Annual Report for 1851, p. 7.

[106]Ibid.

[107]Ibid., p. 6.

[108]Ibid., p. 7.

[109]Ibid., p.8.

[110]Ibid.

[111]Consult the budget section of the Board of Education's Annual Reports from the 1840's-1870's to see the city's rising contributions.

[112]School Buildings, pp. 6-10.

[113]Ibid.

[114]Ibid., p. 8.

[115]Ibid.

[116]Annual Report for 1853, see the buildings section for figures.

[117]Ibid., pp. 64-66.

[118]Annual Report for 1859, see the new schools section for Ward School No. 19.

[119]Ibid.

[120]Annual Report for 1867, see the new schools section for blueprints of School No. 57.

[121]Annual Report for 1873, p. 143.

[122]Ibid.

[123]Ibid.

[124]Ibid.

[125]Annual Report for 1854, p. 96; scan the tables provided.

[126]Ibid.

[127]Ibid.

[128]Ibid., p. 98.

[129]Annual Report for 1859, pp. 114-116; see tables for other schools as well.

[130]New York City, Board of Education , Journal,.. for 1872, see pp. 122-123 for figures on buildings.

[131]Annual Report for 1867, blueprint section shows School No. 57.

[132]Annual Report for 1854, p. 97.

[133]Ibid.

[134]Ibid.

[135]Ibid.

[136]Ibid., p. 98.

[137]Ibid.

[138]Ibid.

[139]Annual Report for 1859, see the real estate section.

[140]Ibid., p. 1.

[141]Marshall Spatz, "Schools for the City: New York's Public School Buildings" (unpublished paper), p. 14.

[142]Journal for 1854, p. 125.

[143]Annual Report for 1854, pp. 96-98.

[144]Ibid., pp. 98-100. As a result, primary school facilities were mostly leased buildings.

[145]For a full list of new buildings and renovated schools, see Annual Report for 1873, pp. 203-207.

[146]Annual Report for 1854, pp. 89-91. The original vouchers for school expenses are invaluable for seeing the big picture. These can be found at the Queens College Historical Documents Collection in the 1840's boxes. Some vouchers are in packets marked "schools," but others are loose. These boxes contain vouchers for both the Public School Society and the city system.

[147]Journal for 1854, p. 176.

[148]Journal for 1863, pp. 48-49.

[149]Annual Report for 1854, p. 89; Journal for 1863, p. 60.

[150]Journal for 1854, pp. 170, 125.

[151]New York Times, November 19, 1891 and November 18, 1868. See also January 3, 1894 and Spatz, pp. 5-6.

[152]Journal for 1872, p. 620.

[153]Journal for 1854, p. 97, for example.

[154]Annual Report for 1859. See the attached real estate report for the identity of those who conveyed land to the Board of Education up to that date. A comparison with aldermanic membership lists shows no irregularities. Though official reports discuss few instances of fraud, there probably were some irregularities during the Tweed period. Tweed himself had served as a School Commissioner in the 1850's. The best source on public education in the Tweed era is Marshall Spatz, New York City Public Schools and the Emergence of Bureaucracy, 1868-1917 (unpublished Ph.D. dissertation, University of Chicago, 1975), Chapter 2.

[155]An outstanding case occurred when John Schappert, a Tammany alderman and former School Inspector, sought to over-charge the Board of Education for a lot. New York Times, January 31, 1904, p. 10.

[156]See the Board of Education's real estate section in Valentine's Manuals for the years 1847, 1858 and 1870.

[157]New York City, Board of Education, "Letter of the President of the Board...To His Honor the Mayor, relative to Public School Accommodations" (New York, 1890), p. 12.

[158]Sanitary Condition of the City, p. 81.

[159]Ibid.

[160]Journal for 1872, p. 617.

[161]Ibid.

[162]Sanitary Condition of the City, p. 225.

[163]Ibid., p. 87.

[164]Ibid., p. 41.

[165]Ibid.

[166]Ibid.

[167]For the 1855 Census, see Valentine's Manual for 1859, p. 406.

[168]For the 1875 census, see Disturnell, New York As It Was, p. 85.

[169] Ibid.

[170] Ibid.

[171] Ibid.

[172] Ibid.

[173] Ibid.

[174] Ibid.

[175] Ibid.

[176] Ibid.

[177] Annual Report for 1851, p. 11.

[178] Annual Report for 1859, pp. 78-79.

[179] Ibid.

[180] Annual Report for 1873, p. 230.

[181] Ibid.

[182] Ibid., pp. 231-232.

[183] Ibid.

[184] Ibid., p. 18.

[185] Ibid., p. 19.

[186] Ibid., p. 227.

[187] Journal for 1872, p. 66.

[188] Ibid., p. 65.

[189] Ibid., pp. 61-62.

CHAPTER 8

LABOR AND CONTRACTING

Public works was a major urban industry in the 1800's. As New York expanded, personnel lists balooned in response to the unprecedented demand for sewers, water mains, roads, curbs and gutters. In every decade the trade absorbed thousands of the unemployed--good news for a city swollen with poor. For politicians eager to satisfy struggling "clients," construction served as a useful expedient. Indeed, for the average man ditch-digging on Tenth Avenue beat a trip to the Alms House. No wonder native and newcomer alike vied for these low-scale positions. Between 1830 and 1860, Irish, Scotch-Irish and native Americans dominated the payrolls as laborers and foremen with less powerful groups trailing behind. Yet, this was hardly surprising, for political influence was a valuable lever in a town where one's vote was the price of a job.

Of course, the hiring system was never totally closed. Every year brought some open calls for manpower. These occurred principally in springtime when the new building season began. Still, with positions limited competition was stiff. If given a choice, men usually preferred working

near to their homes. For this reason, many in the 1830's opted for the City Roads Department over the upstate Croton project. And why not? In the mid-30's both paid the same for unskilled labor, 87½¢ per day. And in the former, men with carts and horses earned even more, $1.62.[1] Organization was simple; four squads composed the agency. These crews usually averaged fifteen teams and fourteen laborers. An "overseer" supervised each group; multi-levels of foremen and assistants came with the more complex bureaucracies of the 1860's. In keeping with simplicity, the Jacksonian force was small; in 1836, the bureau employed only 150 men.[2] But despite these numbers, Roads was responsible for all street projects too small to contract for.

New Americans filled the personnel lists. Irish and Scotch-Irish accounted for nearly half the total. Many young men doubtless joined the agency during their early years in town, but few stayed long since "day labor" was rarely secure. The work force fluctuated seasonally, growing largest in spring and early summer, then sharply declining in cold weather months. Lay-offs were frequent, but the experience trained many for more skilled tasks.[3]

In addition to the Roads Department, Gotham's "Corporation Yard" or "Public Yard" also provided jobs. Unskilled labor here received up to $1.50 per day and "mechanics" approached $1.75.[4] These employees built fire engines, renovated public schools, markets, police stations and performed other tasks not suitable for contract. They also

collected and stock-piled bricks, stone, mortar and other materials used for projects around town. Employment was, perhaps, more secure here than elsewhere. The few existing records indicate little turnover in the Yard over an eight-month period.[5]

On the waterfront, the Superintendent of Wharves, Piers and Slips managed labor. His staff consisted of one "master builder" (earning $3.50 per day), a foreman ($2.08) and fifteen laborers ($1.37) who performed minor repairs on the public piers, bulkheads and slips. All major enterprises, of course, were subject to bidding.[6] Salaries were less in the Street Department's Paving Bureau which controlled sidewalk and curb repairs. Here, five foremen served for $1.75 a day. Compensation varied,however, among other laborers; pavers received $1.50, rammers $1.12½, cartmen $2.00 and outfit's twenty-six laborers, $1.00. Still, amounts were higher than in the Roads Department.[7]

Unfortunately, no payrolls exist to reveal the names and wages of those working for private contractors. These employers merely submitted dollar bids for sewer and paving jobs. The city accepted the lowest and permitted the winner to manage his own records. Organization remains somewhat a mystery, but the scanty evidence still extant indicates that sewer builders usually placed a single foreman in charge of crews ranging from ten to twenty men.[8] To a large extent, however, each project dictated the type and amount of personnel. In 1869, for instance, James Everard used seventeen

men to build a conduit in 74th Street, while another line required sixteen. Other jobs needed less. In that same year Everard hired three masons and nine others to replace a basin on Second Avenue and 118th, but only two masons and three workers to repair a culvert at Coenties Slip. At all locations wages were low; foremen received only $4.50 per week and the unskilled but $2.00--far less than city employees.[9] In fact, Everard's men might well have been the lowest paid in all public works. Exploitation seems a definite factor. The lack of documentation raises suspicions, as do the absence of advertisements in newspapers. Reformers probably were correct in charging that private builders cooperated with professional politicians in hiring the latter's impoverished "clients."[10]

Public payrolls are more available. Indeed, scattered records for the laying of Croton water mains cover sizable amounts of employees.[11] By 1842, the Aqueduct Board had eleven "work companies" installing pipes south of 42nd Street's reservoir. The size and composition of crews varied, although a foreman headed each. Apparently, all of these supervisors were "American," none were Irish. Pay was less uniform; most received $2.00 a day. Some, however, for undisclosed reasons earned more, like Thomas Wenman of the 1st Company who got $2.50.[12]

Many "companies" carried both skilled and "common laborers." The 2nd employed a caulker at $1.50 per day.[13] The 3rd listed a "caulker," "fireman" and "clayman" (each at

$1.00 per diem) plus a "pipe setter" ($1.25).[14] The 10th kept a "machinist" and "paver" earning $2.50 and $2.00, respectively.[15] The 1st had sixteen "common laborers" each receiving $1.12. But this wage exceeded that paid men in other Croton squads; all other unskilled people earned but $1.00.[16] Nor were the groups of equal size. The 1st had seventeen men, while the 2nd employed twenty-six and the 3rd thirty-six. Most remaining groups fluctuated within this range.[17]

A six-day week prevailed, though attendance was uneven. Absenteeism varied greatly among the divisions. For a two-week period (November 21-December 3, 1842), the 1st listed all members present. But this was uncommon. In the 5th Company, for instance, most men missed two or three days, as did those in other groups. The 10th had the poorest record; half the force failed to appear for three and sometimes five days in a fortnight. In addition, Croton workers frequently stayed half a day and then went home. This only prolonged the installation of water mains, since overtime was not allowed. It also forced industrious personnel to make up for slackers.[18] The explanation for this half-day practice remains unclear. Perhaps employees moon-lighted at other jobs, or city bosses deliberately over-hired to funnel money to starving "clients."

Immigrants mostly held unskilled positions. In 1842, no foremen were Irish, although the latter composed roughly half an average company. But the 50 per cent

figure is only a rough mean; some divisions had few Irish (the 6th), others had many (the 11th).[19] Very soon, however, these "foreigners" moved up to higher-paying jobs. In fact, by the mid-1840's, several Irish foremen appeared, although the number of American-born remains unclear.[20]

Turnover varied also with the outfit. Company 6, for example, changed little between the summer and fall of 1842,[21] but the 1st lost five men during the same months.[22] Most Croton workers eventually quit, but some transferred. Thus, between August and November of 1842, Daniel Daley went from team 2 to 6, while at the same time John Hays switched from 2 to 8.[23] And there was an occasional promotion. Jacob Wooley, a caulker in crew 3, later became its foreman.[24] Yet this was rare; few supervisors rose through the ranks. Usually common laborers enjoyed little upward mobility within the system. Records in 1849 show a significant turnover in the Croton enterprise. Payrolls for Company 3 show none of its 1842 members; even the foremen were different.[25] The same was true of other outfits.[26] The ranks, however, soon thinned out. By 1849, Gotham had reduced its main-laying squads to three. But wages had not increased; foremen still received $2.00 per day, caulkers $1.50 and laborers $1.00.[27]

In another vein, a check of payroll names against Tammany membership lists reveals no positive correlation. Although the organization had helped push the Aqueduct, its members served neither as bosses nor workmen. Nevertheless, the sachems's influence over hiring is an issue still in need of investigation.[28]

A decade earlier, however, members of all parties had intrigued at boosting the fortunes of unemployed friends. At the time, public works seemed the likely panacea, but depression soon hit this industry, too. To some extent, City Hall promoted the fall by hiring available Gothamites instead of contracting. During 1840, for instance, the town chose out-of-work residents to break 13,000 yards of stone for road-paving and construction.[29] But another strategy sought to ease the strain on builders. A select aldermanic committee advised guaranteeing them prompt reimbursement for current accounts. Politicians felt that for the Panic's duration contractors should not have to await assessment collections. Officials hoped that immediate payment and depressed supply costs would combine to stimulate construction and hiring. Councilmen defused opposition by stressing the measure's contribution toward restoring improvements and relieving the poor.[30]

To some extent, city leaders relied on the Croton Aqueduct to ease the pressure.[31] After all, it was the largest building enterprise of the era. In 1838 alone, authorities reported over 3,000 men employed along the line and predicted that payrolls would "be very considerably increased during the summer."[32] But, as with most public works, tenures were never secure. Indeed, forces fluctuated seasonally; in winter sub-freezing temperatures permitted only excavating, tunneling and quarrying; masonry awaited spring.[33]

Croton, however, suffered particular problems. Unlike short-term street projects, these larger efforts often witnessed labor unrest. Throughout the 1830's, strike rumors plagued Croton, promoting dissension between builders and workers. In 1838, trouble finally occurred when a revolt over wages erupted in Section 15. Contractor Timothy Ferrell had paid 68½-75¢ per day during winter and then posted a spring salary hike for unskilled laborers, ranging from 75-81½¢. His men, however, demanded figures approaching $1.00. Ferrell refused to comply, causing the crew to proceed "along the line of aqueduct in a tumultuous manner from the Croton Dam to Sing Sing...until they amounted to several hundred persons." The fever soon spread to other sections. Authorities finally stopped the "mob" at Mt. Pleasant (in Westchester County) and Ferrell fired the ringleaders. But most employers bended on salary demands and raised the average pay for unskilled people to 87½¢. Nevertheless, peace remained elusive as wages dropped in subsequent years, igniting further protests.[34]

Besides this, other problems hindered the project. Of these, intoxication was among the most serious. Local residents were the prime culprits. Indeed, dozens of profit-seeking farmers erected shanties "under the denomination of boarding houses, where whiskey [was] sold the lowest order of laborers." But rather than ban the practice, Westchester County officials instead granted licenses.[35] Such permissiveness was inevitably detrimental, for nightly

excess invited daytime abuse. But penalties were stiff. Contractors maintained discipline by proscribing alcohol in construction zones and firing inebriates or those "who may attempt to smuggle the prohibited article on the line of the works."[36]

At night, however, the infamous "boarding house" featured all types of antics. Brawling was a favorite pastime, usually involving but a few men. On occasion, though, the pugilistic spirit might infect the whole crowd. The worst "riot" occurred in April, 1838 and claimed one life. It began during a "drunken frolic" and stemmed "from an old grudge, growing out of some sectional difference between the parties while in Ireland." According to reports, the fight was "most desperate, resulting in broken heads and maimed bodies and limbs."[37] Following the tragedy, contractors tightened discipline further by raiding these taverns, discharging agitators and pressuring the county to curtail liquor sale. But the Croton Aqueduct, massive, long-term and distant from men's homes, had produced an extremely combustible labor force. And officials were fortunate that violence flared rarely.

Central Park faced less turmoil because its Manhattan location allowed workers to commute daily from home. Hence, with the baneful influence of the boarding house absent, peace largely prevailed. This was essential, for the Park

was a huge project wholly within the city limits. Like Croton, paylists were staggering. Already by January 1858, over 1,00 toiled at clearing debris from the grounds.[38] Ten months later the number stood at 2,500[39] and soared above 3,600 the following year.[40] In 1860, the figure stabilized at 3,500; of this amount, however, only 1,000 were contract employees, the rest were "day labor" hired by the town.[41] But things soon changed. Once site clearance had ended, payrolls declined, since planned activities required far fewer men. Even in 1861 scarcely 1,500 names appeared,[42] and that fell to 1,207 by 1862.[43] But these are annual totals. In 1861, the largest daily force was 1,224 or 80 per cent of the whole, while for the next twelve months the record stood at 608 or 50 per cent of 1861's figure.[44] Other days witnessed even lesser attendance.

Employment fell throughout the 1860's. In 1863, the number finally dropped below 1,000, hitting 985.[45] Until the end of construction in 1871 crews remained at low levels with the average group fluctuating between 350 and 500 men.[46] Surprisingly, the amount was higher during the Civil War than in 1866 or 1867, although 1868 produced a sharp upsurge.[47] But these cutbacks did not force exhaustive schedules upon workers. In 1861, for example, they put in a maximum of 260 days, though by 1862, the sum declined to 210 and never again exceeded 260.[48] The same trend governed management. Supervisors were never plentiful; the Park Commissioners usually kept them to a minimum. Thus, despite an average of

2,500 laborers in 1860, the mean number of foremen stood at 46, with 32 assistants. In the following year, the figures slipped to 30 and 18, respectively. And in 1862, the number sank again to 22 and 7.[49]

Besides increased efficiency, reform also played a role in lowering expenses. The swollen payrolls of the late 1850's had resulted largely from Park officials catering to political demands. As it did twenty years earlier, Panic in 1857 once again transformed Tammany Hall into a surrogate employment agency. Witness the testimony of Frederick Law Olmsted whose baptism came early--even before his appointment as Park Superintendent.

One day, while visiting the Chief Engineer's office, he entered to find the anteroom "crowded with applicants" clutching letters "chiefly from members of the Common Council." The routine was simple. After recognizing the signature, a clerk checked the bearer's name against a master list of those whom the signee "preferred among all...to whom he gave letters."[50] Only these elect would eventually gain employment. There was not "the slightest consideration given to the apparent strength or activity of the laborers;" political connections alone counted.[51] And, in turn, each man realized his sinecure derived "from the service he was expected to render at primary meetings and otherwise with a view to the approaching election."[52]

But although a boon to party fortunes, the arrangement bred a laxity which shackled Park operations. To Olmsted,

both authority and discipline seemed non-existent. Indeed, during a subsequent field visit the newly-selected Superintendent found work gangs scoffing at his presence. For them, "the idea that...[he] might expect a day's work for each day's due bill was thought a good joke."[53] The "most striking illustration" of this defiance occurred sometime later when a spot inspection brought him suddenly upon a foreman delinquently reading a newspaper. Though caught but hardly flustered, the man casually noted his boss's arrival: "Hello Fred; get 'round pretty often don't you?"[54]

Such contempt flourished while City Hall controlled the work force. And Olmsted's superiors saw no hope of reform, because Tammany Mayor Fernando Wood regarded the project as a patronage outlet. Who was to argue? Since the mid-1850's Wood had championed the Park, tenaciously defending it against all adversaries. And with crucial city funding also dependent upon his favor, it was little wonder that Park officials treaded carefully about him, unwilling to cross their powerful benefactor. At times, even the usually-principled Olmsted was solicitous. This was the case in 1858 when Tammany aldermen voted more Park appropriations as an anti-depression measure. True, Olmsted sneered at the "general impression that the pretence of work was merely a form of distributing the public money to the poor,"[55] but when applicants engulfed his office demanding jobs, he quickly complied. Within a week, he had a thousand men "economically employed," although he threatened to

discharge anyone "who failed to work industriously."[56]

Gradually, however, Olmsted's words came to hold greater meaning as Fernando Wood's position declined. The end came in 1857 when the embattled Mayor, weakened by both the concerted attacks of civic reformers and by divisions within the Democratic Party, finally fell from office. His hand strengthened, Olmsted intensified efforts to weed out slackers. A firm disciplinarian, he no longer tolerated disruptions. In fact, among a host of men dismissed, were two entire "gangs" who "walked out" in sympathy for striking colleagues on an adjoining site.[57]

On the other hand, Olmsted could be generous. Indeed, reliable employees enjoyed long tenures. And with Wood gone, both the Superintendent and the Commissioners successfully resisted political pressure for sharp turnovers. At each turn, they countered critics with sound reasoning. Since "a large portion" of the work demanded "in some respects the characteristics of skilled labor,"[58] these officials felt the force "should not be continually changing, but that so long as fidelity and efficiency are exhibited, each person should be continued in the field of duty in which he has by experience become especially serviceable."[59]

Such views violated the tradition of spoils, but, in many respects, the project was unusual. Even more than Croton, the Park elicited a special feeling from its builders. Men did more than dig trenches and bore through

cliffs; they planted trees, terraced hills and laid bucolic paths. In the course of a decade, many developed a kinship to the job. Then too, the enterprise employed thousands of independent contractors on a short-term basis. Many of these--painters, carters, fence-setters, etc.--possessed a small crew or worked alone. These specialists, free of having to supervise large crews, could concentrate on their own tasks and deliver a sound performance.[60]

Another factor promoted stability. Daily pay was reasonably high, although it varied depending upon skill. In 1858, foremen received $1.50, their assistants $1.25, masons, bricklayers and stonecutters $1.75 and carpenters $1.50. Men with double teams earned $3.50 and drivers with horse and cart $2.00. Common laborers, however, brought home only $1.00, barely more than the Croton wage of 1838.[61] Over the next two years salaries rose a little. Now foremen made $2.00, assistants $1.50, stonecutters and masons $2.00, carpenters $1.75 but laborers remained at $1.00. By 1866, however, all wages had increased; foremen got $3.00 and masons, stonecutters and carpenters even more, $3.50. In addition, the per diem rate for double teams reached $5.00 while that of laborers hit $1.90.[62] This represented a triumph particularly for the latter group whose progress had been somewhat uneven. After suffering a 10 per cent decline in daily pay ($.90) during 1861, members won increases every year after November, 1862.[63] Eventually their

compensation probably surpassed those of like crews working for city contractors. But then, in most categories salaries were roughly commensurate with those in the town's private building industry. Indeed, by 1868, the average carpenter garnered $4.00, bluestone cutter $4.50, operative mason $5.00 and laborer $2.50.[64] Most Park totals approached these figures.

But this prosperity was short-lived. Various factors including the 1873 Panic combined to force budget cutbacks upon Olmsted's project. Spiraling unemployment there compelled many "regulars" to look elsewhere for jobs. Some probably joined private builders, while others signed on to a variety of uptown improvements, including the new Boulevard, St. Nicholas Avenue, Riverside Drive, Morningside Avenue and other thoroughfares. With work plentiful there, personnel lists grew with each year. By 1873, the Department of Public Works's Bureau of Roads engaged 1,330 men and teams on these and other west side undertakings.[65] Work quality, however, won increasing emphasis and slackers found their positions less secure. In 1873 alone, management discharged 218 men and teams "for inefficiency, neglect of duty, and other causes."[66]

Sound organization was the agency's basic strength. The Bureau followed tradition by dividing its force into units led by foremen. No one entered the payroll without a "written appointment" by the Commissioner of Public Works.[67]

This precaution probably evolved in reaction to the political favoritism characteristic of Tweed's era. Within the Department, power flowed from the top down. Bureau chiefs issued orders to "general foremen" who each supervised a "division" of"gangs." "Gang foremen" came next in the pecking order. They were "responsible under oath for an accurate return of the time worked by each man... and for a daily written report, stating the location and work upon which has been engaged, the time expended, and the number of men employed, etc."[68] In addition, these leaders were held accountable "for the efficiency of the men under their charge and for the economy in the conduct and management" of their projects.[69] To facilitate record-keeping, the Department maintained a Time Office on 125th Street near Eighth Avenue. This unit, conveniently located at"a point central to the greater portion of the work," processed daily time sheets. A Disbursing Clerk and eight assistants maintained files and computed all payrolls.[70]

Salaries were reasonable. In 1873, General Foremen received $6.00 for an eight-hour day and others $4.50. Carpenters earned $4.00, fifty cents higher than the 1866 Central Park rates. But not all trades won pay hikes; blacksmiths remained at the $4.50 level, while bricklayers, blasters, "rockmen" and other specialists enjoyed different amounts. Of course, laborers occupied the lowest bracket. Two categories divided these men; "skilled" made $2.24 a day and "regulars" $2.00.[71] Again, these totals were roughly

commensurate with private pay scales.

While "near parity" made city employment alluring, a politicized hiring system governed its access. In fact, prior to the Tweed Ring's fall in late 1871, conditions resembled the early years of Central Park. Once again, skill and hard work counted for nothing. In most cases, a note from one's patron was all the dossier a job applicant needed. This was especially true of the newly-created Public Parks Department. For Frederick Law Olmsted, appointed a Commissioner in 1871, events must have seemed strangely familiar, only now the corruption had become more widespread. Indeed, the parade of visitors harassing him daily was a scene reproduced in city offices everywhere. Moreover, thanks to Tweed's prodding, no solicitor wanted for nerve.

Examples of brazen conduct were legion. While in his office one day, Olmsted met with a "delegation" who presented him "with a pack of printed tickets, each bearing a blank appointment signed by Tweed." The spokesman quickly moved to ease Olmsted's shock. "That was the way we arranged it last year, and we don't think there can be anything better." The Commissioner, hardly reassured, promised to study the matter.[72]

At another time, four "gentlemen" claiming to represent a "statesman of national importance" requested that Olmsted replace minor Park officers with their sponsor's selections. It meant nothing that existing employees

had performed well for years, because, according to the lobbyists's reasoning, the men "had had their suck."[73]

This view was typical of most patrons. And, buttressed by it, many would go any length to further the career of the most hapless of proteges. Witness the case of one benefactor who wanted his young favorite appointed as a topographical engineer. Though at first interested, Olmsted rebelled upon learning that the fellow had never drawn a map. But, undaunted, the sponsor persisted.

> The fact is he was a little wild a few years ago, and ran away to sea on a whaler, and when he came back he brought a whale's tooth, on which he had made a picture of his ship as natural as life. Now I think that a boy who could do that, you could do most anything with in a drawing way.[74]

Argument was but a part of the strategy, timing was another. But, here again, tactics varied. Some lobbyists came weekly and stayed only minutes, others came monthly and stayed several hours, making their pitch a test of endurance. Whatever their variations, these antics doubtless slowed the wheels of government while also diluting the quality of public works labor. Too often a bureaucrat, wearied by the length of an interminable visit, conceded defeat by dispensing a job. At times, the pressure grew unbearable. On one occasion, Olmsted fled to a colleague's office only to find it thronged with place-seekers. Once inside, he asked when his friend found time to work. The latter replied:"only before and after office hours when they think I am gone."[75] And such was the case throughout city government. One can only imagine how the sychophants arm-twisted private contractors.

This hiring system prospered because impoverished workers gladly exchanged their votes in return for employment. But, once on the payroll, these men faced a hard life. Indeed, those who built the sewers, paved the roads and laid the street mains of New York worked much and earned little. And, not surprisingly, few escaped the town's "lower classes." Sparse records indicate that few street employees could afford moving to Brooklyn, Jersey or the opulent east side. Most probably lived close to their jobs in low-rent districts. This seemed the case with those building Central Park and adjacent roads. One upper west side survey made in the early 1860's found large amounts of Irish and Germans "who lived in shanties." Investigators discovered that "many [were] day laborers employed by contractors in various kinds of work, as in grading, paving and sewering streets, and in the removal of rock, or in excavating for building purposes."[76] A large group surely existed on the city's periphery (a perennial construction zone) from the 1830's onward, but more precise data awaits future research.

Like residence, job security was also meager. The immigrant floodtide after 1840 produced a labor glut which intensified competition, kept wages low and made employment transitory. Of even greater concern, however, was the fear of injury, for accidents were common in most public works. Unfortunately, victims enjoyed scant protection when hurt, since in the years before the Narramore ruling (1899),[77]

employers rarely paid compensation. A fortunate invalid or widow might receive a paltry hand-out, but such altruism was often capricious.

Sometimes, a large-scale tragedy would force sympathy. In 1854, for instance, the roof of the Manhattan Gas-Light Company's retort house on 14th Street collapsed while being repaired. The accident killed four and injured sixteen others. The contractor and company exchanged allegations, with neither accepting blame. In a fit of generosity, however, the gas outfit awarded $20 each to the widows of two victims who died when crushed by a falling derrick. But other families balked at the sum and resorted to suit. In the end, adverse publicity induced the utility to pay $780 to the remaining thirteen.[78] But this was unusual. More often those hurt in sewer and paving projects, etc. went to the hospital without compensation. The law stated that employees bore an "assumed risk" for any injuries, and this existentialist approach made public works, in particular, a hazardous field.

Contractors played a key role in building New York's infrastructure. It was they who possessed the skill for translating inscrutable blueprints into parks, streets and docks. And it was they who hired, trained and supervised the thousands of workers who built the sewers, gas and water systems of the nation's largest city.

The profession's routes lay in the private building industry. Throughout most of the colonial era, architect and builder were one. But as developers downtown abandoned home construction for large stores and offices, specialization occurred.[79] In the 1760's, carpenters emerged as the first contractors. They were responsible for the superstructure. Eventually, as edifices grew taller and heavier, foundation became crucial, auguring the mason's rise.[80] By 1805, "builders" appeared who combined the skills of architect, carpenter and mason. Their multi-functional talents proved quite popular, because lot owners preferred having one firm estimate a project's cost and then "execute...the whole."[81]

Manhattan's growth in the eighteenth century energized the private building industry while also stepping up the need for public works. Masters everywhere expanded their operations, hiring more journeymen and training apprentices. And with the market still booming in the 1800's, many journeymen went into business for themselves. Indeed, the amount of shops seemed to multiply yearly. After 1820 especially, one notices a marked increase in the number of stoneyards and carpentry shops above 14th Street.[82] No doubt many of these firms divided their time between private projects and the construction of schools, police stations and other public buildings.

Street contractors, on the other hand, were usually stonecutters or yard owners trained in masonry.

Typical was Patrick McBarron, a major paver of the 1830's, who owned a large "brownstone" yard as did another contemporary, Robert Pettigrew, who performed much paving, curbing and guttering for the city.[83] Of course, these men also supplied and sometimes contracted for the erection of private buildings. Why not? It was good business to diversify one's activities. A few entrepreneurs even specialized in different areas within the field of public works. James Everard, for example, bid for paving, curbing and sewering while also engaging in private masonry on the side.[84] Terence Farley's interests stretched still farther. A leading paver in the 1850's, his later success as a land investor, builder and developer permitted his early retirement from contracting.[85]

Besides masons, carpenters also performed some street and sewer work, but they were less in demand after 1840. On the waterfront, however, they were a valuable commodity. Indeed, the town engaged dozens in wharf and bulkhead construction.[86] A few even made it their specialty. Philip Mabie, for one, made a career of dock building before leaving the business to his son Lewis.[87]

In fact, fathers frequently drafted their sons into the profession. This was true of Alexander Masterson who taught his boy paving. In time, Peter, having acquired both money and skills from his father, established his own yard[88] and later became an alderman.[89] Despite this success, however, the elder Masterson owned an even better story.

Born in Scotland in 1797, he borrowed funds for passage to America. Once arrived, he labored as a journeyman for several years before securing his own stoneyard. To relieve the financial strain, he formed a partnership with Robert Smith and together they acquired the Tuckahoe Quarries. Their company flourished until Smith's demise in 1854. Ensuing years saw Masterson acquire new partners and prosper further before retiring to his estate in White Plains, New York. By 1855, he had already amassed a fortune exceeding $200,000. Like other leading contractors he had diversified his activities, performing less street work than his son, while concentrating more on the erection of large public and private buildings. In the former category his contributions were numerous, the New York Customs House, Assay Office and the Old Exchange at Wall Street being but a few.[90]

Other stories resembled Masterson's. Another Scotsman, John Pettigrew, had risen from journeyman to become a major contractor. His specialty was sewers. He, too, guided a son into the profession and like Masterson boasted $200,000 in assets by 1855.[91] In fact, sewer projects helped enrich many. James Everard was another beneficiary. Originally, he had come from Ireland as a boy with his father. The latter soon gained employment as a day laborer and settled his family off Chatham Square near the Bowery. In a few years his son became apprenticed to a brickmason. Adolescence saw the young man rise to journeyman.

Not satisfied with the income, James bolstered it by working nights as a scene shifter in the Park Theater. After serving in the Mexican War, he joined the New York City Police where he served for three years before returning to masonry. At first, Everard specialized in private contruction, but he soon branched out to paving and sewering. And with the town's infrastructure expanding feverishly, his wealth soared. His success continued throughout the century and in the 1890's he finally retired to his property in Connecticut.[92]

Like Pettigrew and Everard, many professionals rose from the ranks of unskilled labor. Although some took the apprentice route, many graduated from street work. Indeed, several prominent contractors of the 1860's and 70's labored as young men in the 1840's, digging trenches for the Croton water mains. Jeremiah Crowley, for instance, a member of Company 2 in 1846, later became a major sewer installer.[93] And that same unit also produced John Orr, another leading builder.[94] Missing records would doubtless reveal still more names as would those of other projects around town.

The industry was a major source of upward mobility. With most professions closed to them, second-generation Americans, in particular, found construction a prime road to advancement. But as Manhattan expanded so rapidly,

both native and newcomer alike vied for the profits in erecting its infrastructure. Competition was keen, but the work was dirty and hard. It lacked the status of banking or glamor of fashion, but for those in the trade it was honorable labor.

Yet, many New Yorkers viewed it with scorn. In fact, clouds of suspicion have long shrouded its reputation. Indeed, although thousands of contractors helped build the city, scandal too often has marred their accomplishments. Such misconduct was especially prevalent in the 1800's, because municipal government had expanded too quickly and officials lacked experience in combating fraud. Thentoo, the rise of "professional politicians" and "machines" hardly discouraged graft.

Of all contract abuses, collusion was perhaps the most irksome. Though always difficult to discover or prove, authorities knew the practice thrived. In brazen cases the Common Council would annul agreements. In 1856, for instance, the city temporarily voided C. L. Purdy's deal to build an addition to Jefferson Market.[95] Three men, Purdy ($2,290), David Knapp ($2,340) and James L. Miller ($2,350) had bid for the shed.[96] Purdy as low bidder had won, but officials later consulted other builders and found their average estimates one-third below Purdy's. In fact, one "respectable bidder" put the cost at $700.[97] Investigators further reported that Knapp and Miller had never attended the pre-bid meetings. Later, Purdy admitted that he "merely went up and

looked at the market and specifications and guessed" the cost at $2,500.[98] Auditors, convinced of "collusion, directly or indirectly," reasoned "there must have been some shrewd 'guessing'" when the three far exceeded the "fair price."

Other schemes also prospered. Many contractors surely made "gentlemen's agreements" and submitted "dummy bids" to pre-determine winners. Such pools, however, destroyed competition and furthered price rigging which, in turn, raised construction costs. Moreover, these interlocking relationships bred still another practice which raised suspicions. Rival bidders sometimes served as the winner's "sureties," guaranteeing payment to the city in the case of his default. In the 1850's, for instance, Charles Devlin did this for John Healy and others, while William P. Cumming often bonded for his brother J. P. Cumming and vice versa.[99]

Yet, notwithstanding these events, hundreds of contractors performed their work honestly, charging a fair rate for expenses and finishing on time. Occasionally, a few specifications might be ignored, but this was more the exception than rule. In a certain year, a builder might hold ten jobs and fail only one. Despite the black mark, could one brand him a thief? An ambivalence thus characterized the industry: although laxity and corruption existed, hard work and integrity more than counterbalanced it. In fact, it was not unusual for two or more men to submit bids below the city surveyor's estimate.[100]

There were broken agreements, but many resulted from unavoidable factors. Chronic pressure plagued the business, for men assumed great risks when they signed legal pacts promising to complete major projects on schedule. A failing performance often meant bankruptcy. Indeed, more than one builder plagued by fickle supporters, incompetent labor or deficient materials foresaw a default and escaped town in time.[101]

Even when successful, contractors usually waited months for compensation. It was city policy in the 1830's for sewer installers to receive money only after officials had collected all assessments. This could mean delays of several years. On many occasions companies finished before obtaining their first check. Events like these strained even the solvent.[102] And the situation grew worse as public works moved northward. Uptown lots, "unimproved and unproductive," did not realize the income of those in lower wards. As a result, land owners here often failed to meet charges on time, further slowing reimbursement.[103] Worse still, the city's practice of paying by installment brought added woes, since overhead debts could not be postponed. Moreover, the town usually dragged out the process; agreements providing for ten and even twelve payments were not unknown.[104] And when lot owners refused to meet assessments at all, contractors could be "compelled to await the extreme and ultimate measure of

collection by the sale of the [assessed] property--"[105] an action that might take years.

Such conditions drove many from the profession. By 1837, aldermen reluctantly agreed "that rich men only are able to undertake these contracts." For, as one observer noted, "it requires no process of reasoning to show that where works are numerous and for large amounts competition becomes very limited." Thus, by hurling these risks at entrepreneurs the government only invited collusion and fraud.[106] There were, however, some attempts to remove the temptation. Some lawmakers, seeking to promote competition by helping smaller firms, advocated paying all charges within sixty days of confirmation. Hopefully, too, this would curtail the soaring costs of public works, since authorities had increasingly regarded "prices...paid, much beyond what would have been a fair compensation, had any certain time of payment been fixed."[107] In fact, some reformers charged that large builders were including covert penalty charges in their bids for delayed payment,[108] despite receiving up to 7 per cent interest on the principal (starting thirty days after confirmation).[109]

In the 1840's and 50's, there were several attempts to ease the burden on nascent contractors. Most efforts centered on eliminating reimbursement delays.[110] But this invariably called for city advances, a practice condemned by fiscal conservatives. Eventually, Comptroller Azariah Flagg and others convinced the government to abandon the policy.[111]

The reasoning was inescapable: a metropolis like New York which usually lived from hand-to-mouth could hardly bear such a burden. Fortunately, however, the dilemma subsided in future decades as prosperity inflated uptown lot values. Thanks to these gains, more land owners could meet their assessments promptly, thus reducing the chance of default.

But this occurred only in the 1850's and 60's. In previous decades the substantial risks and losses tended to limit the number of contractors. In the 1830's and early 40's, for instance, Lewis Griffin and William Hockman built and repaired most of the town's docks and bulkheads.[112] As time went on a few new entrepreneurs made winning bids but progress was slow.[113] And matters were scarcely different with street improvements. By 1835, John Ritchie, George Furst, Arthur Quin and John Mollard installed most sewers,[114] while William Forgay, Robert Pettigrew, Thomas Cumming and Christopher Keyes dominated paving.[115] Few other names appeared on town vouchers.

This absence of competition encouraged narrow specialization. With the market cornered, a compartmentalization of functions ensued. And this effect lingered into the 1860's. Already in the 1830's and 40's, those who built sewers avoided paving, while Forgay and others stayed clear of waste tunnels.[116] Few looked to over-extend themselves. By 1840, the pattern still held, although George Furst handled some curbing and guttering in addition to conduits.

Subsequent years would alter competition more than

specialization. Indeed, the 1840's witnessed the appearance of numerous small contractors. With payment delays curtailed by law and prosperity, men like Sam Boyd, Owen McCabe and William Torrey entered the sweepstakes. Furst, Cumming and Pettigrew still led the field, but Peter Quin, Patrick Doherty and others now challenged. Yet, large-scale builders were still a minority; most firms sought only one or two jobs.[117] By 1850, however, the rivalries intensified as more bidders vied for the action. Now, Patrick Murphy, Matthew Murray, James Devlin, Daniel McGinn, Patrick Riley, Patrick McCafferty and John Casey, etc. all sought and won sewer pacts.[118]

The surnames of these newcomers clearly reveal an Irish ascent to skilled and semi-skilled status. But this was hardly surprising. The group had been a force in city improvements since the 1830's. Common labor had been the typical role for Irishmen, although by the 1840's some had graduated to foreman and a few even to contracting. Paving, in particular, reflected the trend with Patrick McGlynn, Michael Treacy and Edward McGuire leading the way. In fact, every sector of public works saw the Irish moving upward; although other new builders prospered, too, including James Hunnels, Richard Eldridge, Harrison Williams and James Humes.[119]

The Tweed era of the 1860's and early 70's witnessed greater competition in contracting. No longer did four, five or even ten men monopolize the town's public works.

But neither did the Irish dominate; at best, they controlled little more than half the projects in these years.[120] Yet, although these Irish bosses surely influenced the industry, no more than one or two per cent of New York's street builders were members of Tammany Hall. Only a few large entrepreneurs like Terence Farley, James Everard and Michael Gavin joined the club. Again, however, this finding is not significant, since even in the Tweed years Tammany membership was not a prerequisite for winning public works.[121]

Specialization as well as monopoly declined after 1860. The drop was not sharp, but more firms competed in diverse fields. In 1860, for example, Matthew Murray installed sewers, culverts, basins and sidewalks, while William Baird branched out from paving into sewers. And, in the same vein, William and John Cumming split functions within their family, with William chasing the paving contracts and John the sewers.[122]

Surprisingly, the Tweed Ring's fall did not generate a significant turnover of city contractors. Although new men appeared, Thomas Crimmins, Patrick Farley, L. W. Johnson, John B. Devlin, James Everard and many of the same individuals who prospered under Tammany continued winning projects after 1871.[123] In fact, most of them thrived well into the 1880's. But the trend toward diversification slowed after 1880, as many nascent firms seemed content specializing either in sewers or paving.

Work location was another key factor. Some employers

preferred projects within reach of their yards. In 1867, for instance, James Everard concentrated on downtown sewer construction. The year saw his crews toil in Cherry, Norfolk, Rose, Willett and Monroe Streets among others; apparently, he had no dreams of draining the suburbs.[124] But other men did. R. H. and G. A. Treacy limited their efforts to northern sites, usually between 70th and 100th Streets and on both sides of the Park.[125] Then too, many contractors believed location irrelevant. In 1867, William Baird installed sewers on 23rd, 32nd, 74th and 79th Streets and elsewhere.[126] Another large builder, Michael Gavin, followed suit; his crews were all over town--Tenth Avenue, Washington, York and Chrystie Streets plus Harlem.[127] The pattern seemed to vary with each employer.

Aside from contracting in Manhattan, the quest for profits led these entrepreneurs into other fields as well. Many supplemented their regular incomes through land speculation. Indeed, this was the ultimate temptation for anyone privy to the location of new improvements and aware of their effects on real estate. Few could resist the action and some betted heavily. Terence Farley, the paver and builder, was a prime example. Among his many transactions was the purchase in 1869 of the northeast corner of Fourth Avenue and 74th plus a 75th Street lot for $60,000.[128] In the same year, he bought land at 57th

and First for $25,000,[129] and the next saw him pay $62,500 for the southwest edge of Lexington and 59th.[130] Farley, however, did not restrict his speculation to to northern property. Among other downtown transactions, he paid $25,000 in 1870 for a site on Norfolk near Grand.[131]

He divested himself of property as well. In 1870, he sold a 58th Street plot for $24,000, making nearly a $5,000 gain.[132] And the next year saw Farley and partner receive $52,500 for ground on Eighth and 109th.[133] In fact, Farley often invested with associates, many of whom were Boss Tweed's intimates. In 1871, he, William Hitchman and two others unloaded several downtown tracts for a $22,000 profit.[134] At other times he sold to Tweed's men; in 1869, for instance, James Ingersoll bought the southwest corner of 68th and Madison from Farley for $78,000.[135] But although he was the most salient wheeler-dealer amongst town builders, many others, too, played the game.[136] James Everard was a frequent participant, buying many lots in the Harlem vicinity. At times, he combined contracting with speculation. Thus, in the 1860's he paved 125th Street from river to river, a project which brought prosperity both to his property and other land fronting the thoroughfare.[137] Then too, John Keyser, one of the Tweed Ring's favorite builders, purchased real estate all over Manhattan as did a score of his colleagues.[138]

Contractors, therefore, supported themselves in a variety of ways, private construction, stone supplies,

diversified public works and real estate speculation being a few. Yet, there were other means. A few men earned extra profits by extending their street operations to other cities as well. Distance and overhead discouraged most builders, but there were exceptions. Thus, William Forgay, though a prominent paver in ante-bellum New York, also surfaced roads in New Orleans.[139] Most men, however, preferred business ventures in Manhattan. Hence James Everard, after making a fortune in building and real estate, joined with a partner in purchasing a brewry. He apparently viewed beer-making as a hedge against possible depression in construction and land.

In addition to side investments, politics won the interest of several men. In 1843-44, John Pettigrew, paver, campaigned for and won the Seventeenth Ward's seat on the Board of Assistant Aldermen. Pettigrew, unconcerned with possible conflicts of interest, captured a place on the Street Committee where he voted on all road projects and ordinances.[140] Besides, he also sat on the Assessment Committee which handled payment controversies relating to contractors.[141]

Terence Farley used political office to further his interests as well. Throughout most of the 1860's, he was the Sixteenth Ward's alderman.[142] After contenting himself for a few years on the Committees of Public Health and Lands and Places, he eventually infiltrated such influential bodies as Street Railways, Roads, Sewers,

Finance and later, Assessments. From this vantage point, he knew in advance of new projects and streetcar routes. Such information must have proved invaluable for both his contract bidding and land speculation.[143]

Peter Masterson, paver, also joined the government. In the mid-1860's, he was the Thirteenth Ward's alderman. Masterson wasted less time than Farley in securing key assignments. In his first term he requested and won positions on both Roads and Sewers.[144] Though it seemed unethical, Masterson and others represented tradition. Apparently for men of this age, conflict of interest was no grievous sin. Earlier, in the 1830's, Lambert Suydam, President of the Manhattan Gas-Light Company, upon being elected alderman, immediately joined the Gas and Lamps Committee.[145] So too, in the 1860's, shipbuilder Francis I. A. Booles of the Twelfth Ward served on both Sewers and Wharves, Piers and Slips from which he was in a position to control the construction of waste outlets at the rivers and ensure local boatworks preferred wharfage space. Such policies, however, were especially harmful when city and waterfront interests diverged.[146] Surely the presence of builders in government substantially threatened the Public Good.

Yet, for the most part, the contracting industry was a boon to Manhattan. Between 1840 and 1870, New York grew from a "walking city" to metropolis. Despite the confusion

of new streets every year, the town successfully laid out its infrastructure. And the economy enjoyed an added benefit. Indeed, the building process gave thousands of workers, native and immigrant alike, a chance to feed their families at a time when mechanization burdened most fields with uncertainty and unemployment. Wages were low but, then, employers faced sizable risks. With bankruptcy a perennial fear, it was little wonder that some men resorted to graft. Nevertheless, many ran their firms honestly. They pursued the "main chance" like other Americans; joined the middle class, bought real estate and sometimes dabbled in politics. But most of all, they provided the skill and manpower which made New York a public works leader.

NOTES

[1]Aldermen, Documents, V, #8, July 2, 1838 (mis-printed 1836), 129-133; for Croton wages see V, #5, July 2, 1838, 57.

[2]Ibid.

[3]Ibid., #8, pp. 129-133.

[4]Ibid., pp. 96-97.

[5]Queens College Documents Collection, Compare Vouchers #882, 3924 and 1015 in Box marked 1841 "Repairs and Supplies." These meager records, however, suggest little turnover.

[6]Aldermen, Documents, V, #8, 104-107.

[7]Ibid., pp. 108-111.

[8]Voucher "A" #105, January, 1869, located in box marked "Miscellaneous Vouchers."

[9]Ibid.

[10]One example is RRBG, IX, March 9, 1872, p. 109. The writer argues that politicians intervened with private contractors in hiring laborers.

[11]Aldermen, Documents, XXII, #15, March 26, 1855 and #19, April 16, 1855. See also the vouchers in boxes with packs marked Croton Aqueduct Department for years "1841, 1842, 1843."

[12]Vouchers, compare #5027 with 5020, 5032 and the other seven.

[13]Ibid., #5028.

[14]Ibid.,#5020.

[15]Ibid.,#5036.

[16]Ibid., # 5027, compare it with other vouchers.

[17]Ibid.

[18]Ibid.

[19]Ibid.

[20]See, for instance, #4508, September 22-October 3, 1846, payrolls.

[21]Ibid., compare #5032 and #1992.

[22]Compare #5027 with#1705.

[23]Ibid., compare #1706 with #5032 and #5034.

[24]Ibid., compare #1989 with #5020.

[25]Ibid., compare #2709 with #5020.

[26]Ibid., compare #2709 with #5028 (Company 2).

[27]Ibid., #2709, March 29-31, 1849.

[28]Check the above vouchers against Tammany membership lists at Queens College.

[29]Aldermen, Documents, VI, #69, April 20, 1840, 686.

[30]Ibid., IV, #4, June 7, 1837, 31-33.

[31]Ibid.

[32]Aldermen, Documents, V, #5, July 2, 1838, 57.

[33]Ibid., pp. 55-56.

[34]Ibid., p. 57.

[35]Ibid., pp. 58-59.

[36]Ibid., p. 58.

[37]Ibid., p. 59.

[38]Frederick Law Olmsted, Jr. and Theodora Kimball, Frederick Law Olmsted: Landscape Architect, 1822-1903 (New York: G. P. Putnam & Sons, 1931), p. 43.

[39]Ibid., p. 51.

[40]Ibid., p. 52.

[41]Aldermen, Documents, XXVI, Part I, #6, January 31, 1861, 3.

[42]Ibid., XXIX, #6, February 10, 1862, 3.

[43]Ibid. XXX, Part I, #8, February 2, 1863, 2-3.

[44]Ibid.

[45]Ibid., XXXI, Part I, #8, February 1, 1864, 7.

[46]Third General Report of the Board of Commissioners of the Department of Public Works...from May 1, 1872 to December 31, 1873 (New York, 1875), p. 316.

[47]Ibid.

[48]Aldermen, Documents, XXIX, #6, 3; XXX, Part I, #8, 3.

[49]Ibid., p. 4.

[50]Frederick Law Olmsted, Jr. "The Beginning of Central Park; a Fragment of Autobiography by the late Frederick Law Olmsted," Landscape Architecture II (July, 1912), 158.

[51]Ibid., pp. 160-161.

[52]Ibid.

[53]Ibid., p. 161.

[54]Ibid., p. 162.

[55]Olmsted and Kimball, p. 64. Although this event occurred within weeks of Wood's losing office, the Tammany influence (even though the organization itself was divided) over the Park was still too strong for Olmsted to buck.

[56]Ibid.

[57]Ibid.

[58]Tenth Annual Report of the Central Park Commissioners, p. 71.

[59]Ibid.

[60]Aldermen, Documents, XXXV, Part I, #7, February 1, 1868. The voucher section shows the numerous small contractors engaged in Central Park work.

[61]Ibid., XXXIV, Part I, #6, February 11, 1867, 6.

[62]Ibid.

[63]Ibid.

[64]RRBG, I, May 9, 1868, 11.

[65]Third Annual Report of the Department of Public Works, p. 310.

[66]Ibid.

[67]Ibid., p. 313.

[68]Ibid.

[69]Ibid., p. 314.

[70]Ibid., p. 315.

[71]Ibid., p. 314.

[72]Frederick Law Olmsted, "The Spoils of the Park," February 6, 1872, p. 16.

[73]Ibid., p. 16.

[74]Ibid., p. 18.

[75]Ibid.,pp. 16-17.

[76]Sanitary Condition of the City, p. 303.

[77]Henry Pringle, The Life and Times of William Howard Taft (New York, 1939), p. 140.

[78]Manhattan Gas-Light Company, Minutes, August 11, 1854, pp. 90-94.

[79]History of Architecture and the Building Trades of Greater New York (2 vols.; New York, 1899), I, 387.

[80]Ibid., p. 388.

[81]Ibid., p. 389.

[82]Robert Ernst, Immigrant Life in New York City, 1825-1863 (New York: King's Crown Press, 1949), p. 75n.

[83]Doggett's Business Directory...for 1846-47 (New York: J. Doggett, 1847), p. 216.

[84]Wilson's Business Directory...for 1857-58 (New York: J. F. Trow, 1858), p. 285.

[85]Wilson's for 1870-71, p. 89.

[86]See New York City vouchers at Queens College, under the heading, "Docks."

[87]Wilson's for 1870-71, p. 116.

[88]His surname is spelled Masterson or Masterton.

[89]His yard was located at Desbrosses and West Streets.

[90]William M. MacBean, ed. Biographical Register of Saint Andrew's Society of the State of New York (2 vols.; New York, 1925), II, 160-161; Moses Yale Beach, ed. The Wealth and Biography of the Wealthy Citizens of the City of New York (New York, 1855), p. 50.

[91]Beach, p. 60.

[92]New York Times, June 1, 1913, p. 7.

[93]See Croton Aqueduct Department, Voucher #4506.

[94]Ibid.

[95]Councilmen, Documents, III, #3, January 3, 1856, 2.

[96]Ibid.

[97]Ibid.

[98]Ibid., p. 3.

[99]Aldermen, Documents, XXVI, Part I, #5, January 16, 1859, 299-300.

[100]Ibid., XIX, Part II, #25, April 19, 1852, 553.

[101]See above, p. 122.

[102]Aldermen, Documents, IV, #25, July 31, 1837, 170-172.

[103]Ibid., p. 170.

[104]Ibid. See also vouchers and money checks at Queens College Historical Documents Collection . Also see, Aldermen, Documents, III, #45, October 10, 1836, 257-258.

[105]Ibid., IV, July 31, 1837, 170.

[106]Ibid., p. 171.

[107]Ibid.

[108]Ibid.

[109]Councilmen, Documents (1856), #9, February 11, 1856 offers a good review of the law and the problem.

[110]Ibid., pp. 6-8.

[111]See above, p.117.

[112]Queens College, Vouchers Box for 1835, packets marked "Docks and Slips."

[113]See Vouchers for 1841.

[114]See Vouchers for 1835, packets marked "Sewers."

[115]See Vouchers for 1835, packets marked "Paving."

[116]Ibid.

[117]Vouchers for 1840, see packets marked "Paving," "Sewers" and "Streets."

[118]Vouchers for 1847, "Sewers."

[119]Ibid.

[120]Aldermen, Documents, XXVII, Part I, #7, December 31, 1859, 10-16, for instance.

[121]Compare the Tammany membership lists with names on city vouchers at Queens College Historical Document Collection.

[122]Aldermen, Documents, XXVIII, Part I, #7, February 25, 1861, 40-45.

[123]Compare the Third Annual Report of the Department of Public Works, pp. 324-327 with city vouchers for the 1860's up to 1871. For the latter, see the Aldermen's, Documents, each year's annual report by the Street Commissioner.

[124]Aldermen, Documents, XXXV, Part I, #2, January 6, 1868, for example.

[125]Ibid.

[126]Ibid.

[127]Ibid.

[128]RRBG, September 11, 1869.

[129]Ibid., October 23, 1869.

[130]Ibid., December 24, 1870.

[131]Ibid., March 19, 1870.

[132]Ibid., February 19, 1870.

[133]Ibid., June 24, 1871.

[134]Ibid., June 17, 1871 and May 13, 1871.

[135]Ibid., March 6, 1869.

[136]Ibid., 1868-1871 see the "Conveyances."

[137]New York Times, June 1, 1913, p. 7.

[138]See RRBG, 1868-1871, the "Conveyances."

[139]Eastern Dispensary, Annual Report for 1866, p. 19.

[140]Valentine's Manual for 1843-44, pp. 41-43.

[141]Ibid.

[142]Valentine's Manual for 1860-1864 , 1868, see Aldermanic Committee sections.

[143]Valentine's Manual for 1862, pp. 45-49.

[144]Valentine's Manual for 1863, pp. 33-35; for 1866, pp. 50-52.

[145]See Aldermen, Documents, I, Lamps and Gas Committee Reports.

[146]Valentine's Manual, 1860-1863; see Aldermanic Committee sections.

CHAPTER 9

CENTRAL PARK
AND THE BOOM OF UPTOWN REAL ESTATE

Unlike London, Paris and other European urban centers, New York boasted no large park. Prior to the 1850's, town policy had traditionally dictated small facilities. For most of the eighteenth century, Bowling Green was the main area. Laid out in 1733, it attracted throngs of Sunday strollers. Notwithstanding its popularity, the city refrained from building more until the 1780's.[1] In 1789, the government added another when it razed Ft. George on Manhattan's tip and "filled" the Battery. Earlier, Chancellor Robert Livingston and others had urged landscaping the four-acre "Commons" (today on the site of City Hall Park); tree planting began there in 1793.[2]

Later years saw workers toil in various places, including a tract at 47th near Fifth.[2] By 1800, this proliferation of "public spaces" forced the Common Council to create a Department of Lands and Places for overseeing maintenance.[3] Under this agency recreation grounds prospered. Indeed, by 1838, the city had added seven more

"squares," raising total park acreage to 170.[4] Yet, despite these efforts, New York lacked a real showcase. The town delayed action on such a venture until the 1840's, when William Cullen Bryant, Andrew Jackson Downing and others forced the move.

Bryant's voice boomed the loudest. In 1844, he warned that "commerce is devouring inch by inch the coast of this island, and if we would rescue any part of it for health and recreation it must be done now." Other cities had acted: "Madrid and Mexico City [had] their Alamedes, London its Regent's Park, Paris its Champs Elysees and Vienna its Prater."[5] In The Evening Post and elsewhere Bryant fed the booster spirit of townsmen. In desperate tones he urged officials to secure vacant uptown lots immediately, because "the advancing population of the city is sweeping over them and covering them from our reach."[6] But, lacking a groundswell of support, politicians did nothing.

Continued procrastination induced Andrew Jackson Downing, the famed landscape architect, to add his influential voice to the chorus. In 1849, Downing argued that a large facility "would not only pay in money, but largely civilize and refine the national character, foster the love of rural beauty, and increase the knowledge and taste for rare and beautiful trees and plants."[7] Besides, he asserted, "the true policy of republics is to foster the taste for great libraries, parks and gardens which all

may enjoy."[8] Surely, Manhattan could learn from Imperial Europe.

By 1851, the campaign of Bryant, Downing and others had so stirred the public that both mayoral candidates supported the issue. Following his election, Mayor Ambrose C. Kingsland continued the fight, claiming "that [some] provision should be made for the thousands whose dwellings will, ere long, fill up the vacant streets and avenues north of Union Park."[9] Eventually the clamor led to an aldermanic study of the proposal. And with top officials pushing the scheme, city and state soon approved plans to build at Jones Woods on the upper east side.

Opposition arose immediately, however, as Downing and others attacked the site's location and size. They recommended a more centralized place, north of 59th Street between Fifth and Eighth Avenues. Only in these spacious grounds, Downing argued, could New York build a park to the measure of its greatness.[10] For months controversy swirled about the question of site. Finally, in 1851, incessant pressure upon the city resulted in the appointment of a Select Committee to investigate both Jones Woods and other alternatives. Aldermen Daniel Dodge and Joseph Britton composed the body.[11]

Following several months of study, the two submitted a report favoring "Central Park." Before defending their choice, however, they first answered critics

who opposed the great project. Two main factors justified action. Public health was foremost, since "it has ever been considered in all large cities, an important duty to those entrusted with authority, to provide for the health of present and future citizens."[12] Though unwilling to allocate enough money for hospitals, these officials, nevertheless, favored a park. At the same time dispensaries were being cut back, human welfare required the "setting apart for public grounds, even at considerable expense, certain spacious tracts, which may be laid out into extensive walks and drives."[13]

The booster spirit certainly played a role. Like other Manhattanites, the aldermen realized that Europe's great towns all had large retreats. Indeed, "the most beautiful and useful features" of London, Paris, Madrid and Vienna were "the extensive and ornamented grounds, to which large portions of the population [could] daily ...resort." This was in sharp contrast to New York which was "entirely unprovided with anything of this kind on a scale at all commensurate with its wants, or its grandeur in other respects."[14]

With supportive arguments fully developed, site stood next on the agenda. As stated, two candidates vied for approval. Jones Woods, a small forest nestled along the East River, posed an attractive possibility. East of Third, it ran from 66th to 75th Streets and offered a fine view of Queens.[15] Dodge and Britton, however, favored the "Central"

area, bounded by Fifth and Eighth Avenues between 59th and 106th Streets (later extended to 110th). Like many, they felt the latter's unique advantages far offset the high expense.[16]

Size was a key factor. Many felt Gotham deserved a massive facility. With population speeding towards a million, how could Jones Woods amply serve townsmen? By 1900, its 153 acres would be overrun. Hence, the Committee reasoned,when building a public park "it is important that the ground secured should be sufficiently spacious for the purposes, not only of the present generation, but of a very numerous posterity."[17] Therefore, "Central," with its 760 acres seemed best. And though huge, it still could not be "too large for the use of a city, destined, in all human probability, to equal, and perhaps to exceed, in population, every other." Its size thus symbolized the trait most respected by nineteenth-century boosters, bigness. In an era which preferred quantity to quality this choice was inevitable.[18]

Other considerations swayed members. Such a center, they asserted, needed spacious grounds for aesthetic reasons. Only vast acreage would permit the woods to be "laid out into a very great length of serpentine road, which [could] not only...produce startling effects of the distant landscape, [but] also bring the peculiar natural and artificial beauties of the place into the best points of view." Such a "long drive" would permit architects to lead strollers

"through constantly varying scenery." Only Central Park could host such a route; Jones Woods, already bifurcated by the new Second Avenue, could not.[19]

Geography, too, was a major concern. At the uptown site, elevations varied from 140 feet above sea level to 40 below. The aldermen therefore found the surface "exceedingly diversified," with much of the land "the most uneven and rocky on the island." Moreover, its ledges, hills and ravines contrasted favorably with the more level terrain of Jones Woods.[20] And though the latter commanded a picturesque view of the East River and Queens, its rival offered a dazzling panorama of the Hudson and Jersey. And "Central" boosted an additional asset: the planned Croton reservoir would contribute one and a half miles of lake shore, which, according to Britton and Dodge, would "more than counterbalance" Jones Woods's location.[21]

Furthermore, the larger tract had other [illegible] advantages. Unlike the Jones thicket, the uptown acreage was mostly bare, permitting landscapers to work freely without high cutting and pruning costs. Transplanting, too, could procede faster than at "Jones," where trees stood "so thick that probably eight out of every ten [would have] to be cut down." Here, trimming would have to be "gradually and carefully executed, to prevent the falling timber from destroying those trees which are intended to be preserved." This would entail great delay and expense.[22]

In addition to these concerns, real estate was a factor. Investors surely wondered how an expansive retreat would affect nearby land. Controversies emerged as promoters chased profits. The park's borders soon became an issue. The Committee estimated that if Jones Woods succeeded, "half a mile of valuable riverfront [would] thereby be forever abstracted from commercial uses." This raised fears, since the city's "rapid growth[and]...commercial character seem[ed]to forbid the diminution of its riverfront."[23]

But the other site, completely surrounded by lots, would present no such problem. In fact, the aldermen reasoned, "ornamental grounds [traditionally] attract upon their borders ornamental structures in the way of public buildings for institutions of learning [and] academies of fine arts." Only Central Park had the room for such enterprises."[24] To buttress their view, they pointed to London where, "in addition to the public institutions, rows of elegant private houses, the residences of wealthy citizens have added to the architectural beauties of the borders of St. James's, Regents's and Hyde Parks."[25] Surely a center so bounded would stimulate building. Besides, their candidate boasted another advantage: it was spacious enough "to permit the selling off for the above purposes of portions of its border." Such property would"command large prices and reduce the expenses of original cost." And conveying additional lands by sale or lease "could provide revenues sufficient to pay for and maintain the Park."[26] The Committee's argument

seemed unassailable. How could Jones Woods compete with its rival?

Additional factors only sealed Jones's fate. Size was again the key, because both Dodge and Britton felt the larger complex would spark a building fever uptown. They saw Central Park leaving "sufficient space for the woods would attract, and induce people to build up that part of the city, probably as densely as any part."[27] Indeed, many believed the project singlehandedly would catalyze uptown lot values skyward to twentieth-century levels.

Still another real estate consideration favored the northern location. While Jones's surface was "gently undulating," and therefore not difficult to build upon,[28] its rival presented staggering problems. Pervaded by sloping hills and sudden fissures, the uptown acreage was "almost entirely useless for building purposes." Moreover, the extension of Sixth Avenue from 65th to 73rd Streets would result in abrupt grade changes and "very heavy assessments." Engineers believed the avenue would require a forty-foot embankment to ensure proper draining. Adjacent lots would also need elevation to avoid flooding. And most people estimated the cost of grading these lots at double their present worth.[29]

Still another variable entered the equation. The Committee knew the assessment albatross had long

retarded uptown growth east of Fifth. A park, however, would eliminate this problem, since natural water courses and grades would be retained. For years tax officials had estimated suburban property at amounts three and four times its actual worth. And since, by law, no improvement levy could exceed half a lot's valuation, speculators could escape huge grading liens and force them upon the town. Hence wary aldermen viewed Central Park as a convenient panacea.[30]

Project expenses also entered the picture. The Committee rejected Jones Woods because its buying price surpassed (with streets ungraded) $700,000,[31] while its rival's (with streets ungraded and minus the Croton Reservoir acreage) approached $1.2 million. Of course, the men argued, these figures were deceiving, since the latter's cost per lot was cheaper.[32] The logic, therefore, seemed inescapable. For Dodge and Britton, size, geography, location, cost--every factor--recommended the selection of Central Park.

Support quickly mounted for their position. The Board of Aldermen adopted their report early in 1852 and won state approval for site purchase in July of that year. For a while there was talk of two parks, but influential businessmen opposed the smaller project. In an 1853 "memorial" to the legislature both Mayor Jacob Westervelt and Peter Cooper

criticized the smaller plot because it occupied East River frontage, "none of which ought ever to be taken from the purposes of commerce, as the whole will eventually be required, including...the Battery."[33] This view eventually won out, resulting in the repeal of the Jones Woods Act shortly thereafter.

With location settled, attention focused next on assessments. In November, 1853, five court-appointed Commissioners began the appraisal of land, a job which took three years.[34] The interim gave opponents a chance to rally their forces. A variety of interests composed this group. Some were lingering opponents of Jones Woods, others believed the complex too expensive. Downtowners were particularly outspoken. In 1855, "a delegation of property owners from below Fourteenth Street" visited Mayor Fernando Wood to lobby against the facility. Among other things, they claimed "it was too far...out of town... [and that] it would destroy downtown property, by drawing property and residences away from the city." The petitioners also railed against the expense, deeming it "impossible to bear." Indeed, for those who opposed the diversion of public works uptown, Central Park "was visionary, moonshine, and a thing for generations to come."[35]

Many groups feared the project's size would surely breed corruption. Several motives inspired this view: reform was one and investment another. No doubt many feigned a love of honest government to shield their own ravenous designs.

Numerous speculators, willing to concede only ungraded sections to the improvement, coveted the dryer more valuable lots for their own ends. A common strategy pervaded these efforts: stall the park in legislative committee. The move paid off. By 1855, the state began a reappraisal. Angered by this setback, Mayor Fernando Wood countered by insisting the enterprise be approved, including the additional acreage from 106th to 110th Streets. Further delays ensued. Finally, with the state unable to reach a decision, the city acted. In 1856, the Common Council appointed Wood and the Street Commissioner as "Commissioners of Central Park." To buttress public support, they, in turn, created a Board of Advisers featuring Washington Irving, George Bancroft and other influential luminaries. Together they formed a united front which eventually secured Albany's approval of the enlarged site.[36] With victory assured, uptowners braced for the revolution to follow.

Authorities immediately selected Egbert Viele, the noted topographical expert, as Chief Engineer. From the beginning, he faced a difficult task, for numerous problems plagued the enterprise. Clearing the construction zone was perhaps the worst. Everywhere shanties, tenements, small homes and rubbish lots covered the land. Authorities quickly invoked eminent domain, permitting lot owners to sell their property either for cash or Central Park stock. Tenants could remain for another twelve months provided

"the premises shall be vacated on a notice of ninety days."[37] In the end, it took over two years to prepare the district.

In April, 1857, the state finally chose the permanent Commissioners.[38] They reappointed Viele and began looking for a permanent Superintendent. Politics was a factor. With Viele and most Commissioners Democrats, Republican forces wanted one of their own for Superintendent. Honesty and talent were additional prerequisites. After a brief search officials settled on Frederick Law Olmsted, a little-known landscaper. Once hired, however, his rise was meteoric. A year later, after submitting (with Calvert Vaux) an insightful design, he became Architect-in-Chief. These events thrust him into reluctant conflict with Viele, who himself had hoped to blueprint the Park. Their stormy relationship eventually produced the latter's resignation. But Viele was only one of several obstacles hindering Olmsted. Aside from the pressure of Viele and Wood, the appointment in September, 1859, of penurious Andrew H. Green as Park Treasurer greatly disrupted operations. For years Green's tight restrictions on much-needed spending threatened construction. But, despite all the stumbling blocks, Olmsted persevered and the project advanced.[39]

Whatever the front office problems, other functions ran smoothly. Organization was especially sound. As with the Croton Aqueduct, officials apportioned the work into four Divisions (running from south to north) about ten to fifteen streets in length.[40] And the plan held up well under

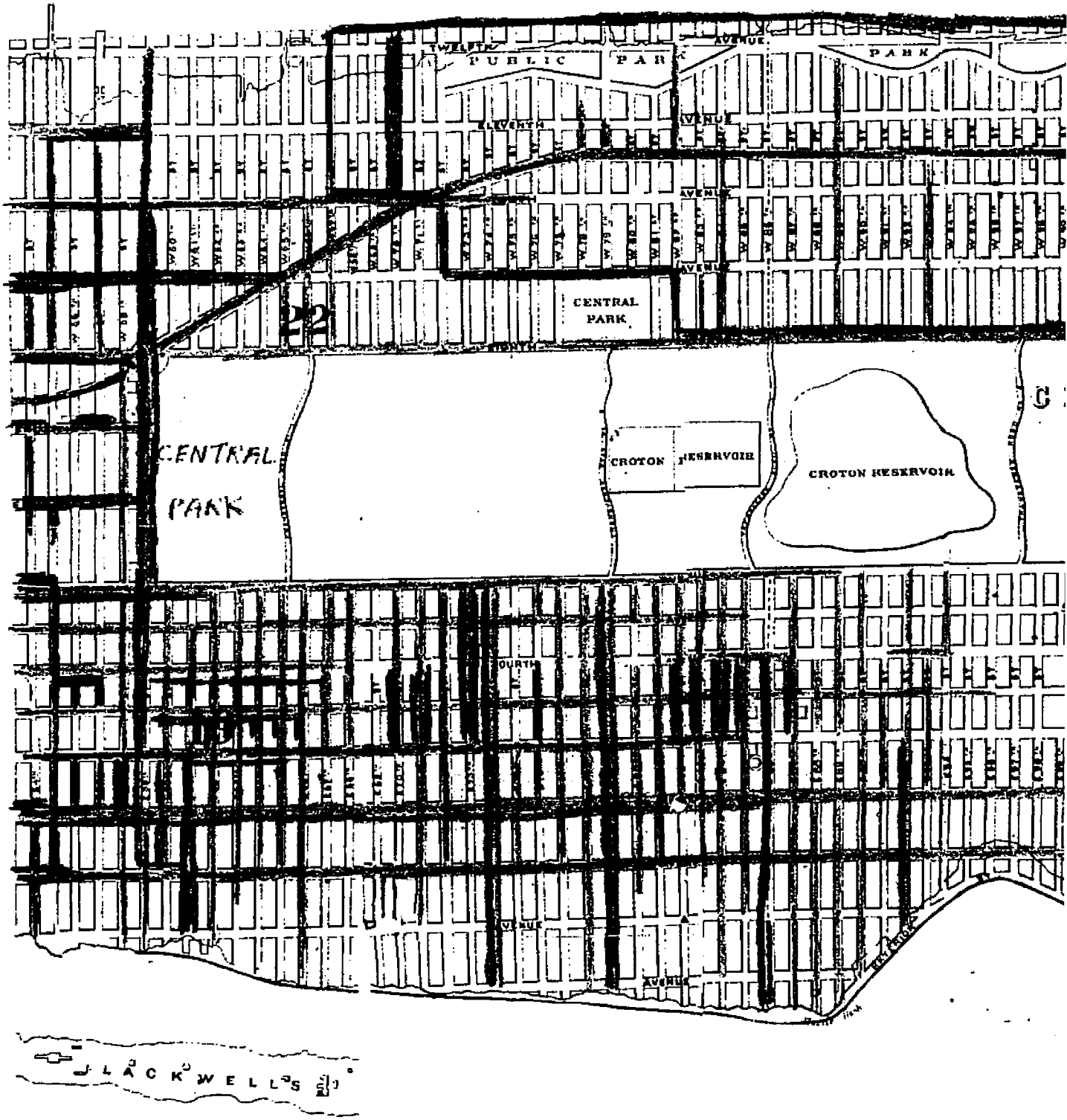
the feverish construction of 1858. In that year, the Commissioners spent over $500,000 to drain the lower section, grade the Drive, finish the lakefront and build three bridges.[41] By 1861, the grounds below 79th Street were "mainly complete," the western portions to 86th seemed "well advanced,"[42] and officials confidently predicted an opened route to 104th Street. Moreover, Transverse Roads #1 and 2 also neared an end; paving only awaited the laying of gas and water mains. In fact, by 1868, despite a declining labor force, many divisions were practically finished. Outside the Park, work progressed on other fronts as well. Assessments and surveys for grading and altering Eighth, Sixth and Fifth Avenues continued. And men toiled in numerous smaller thoroughfares. Thus, with the special grading of 81st Street successful and the regulating of Seventh Avenue in full swing, the Commissioners took pride in a decade of accomplishments.[43]

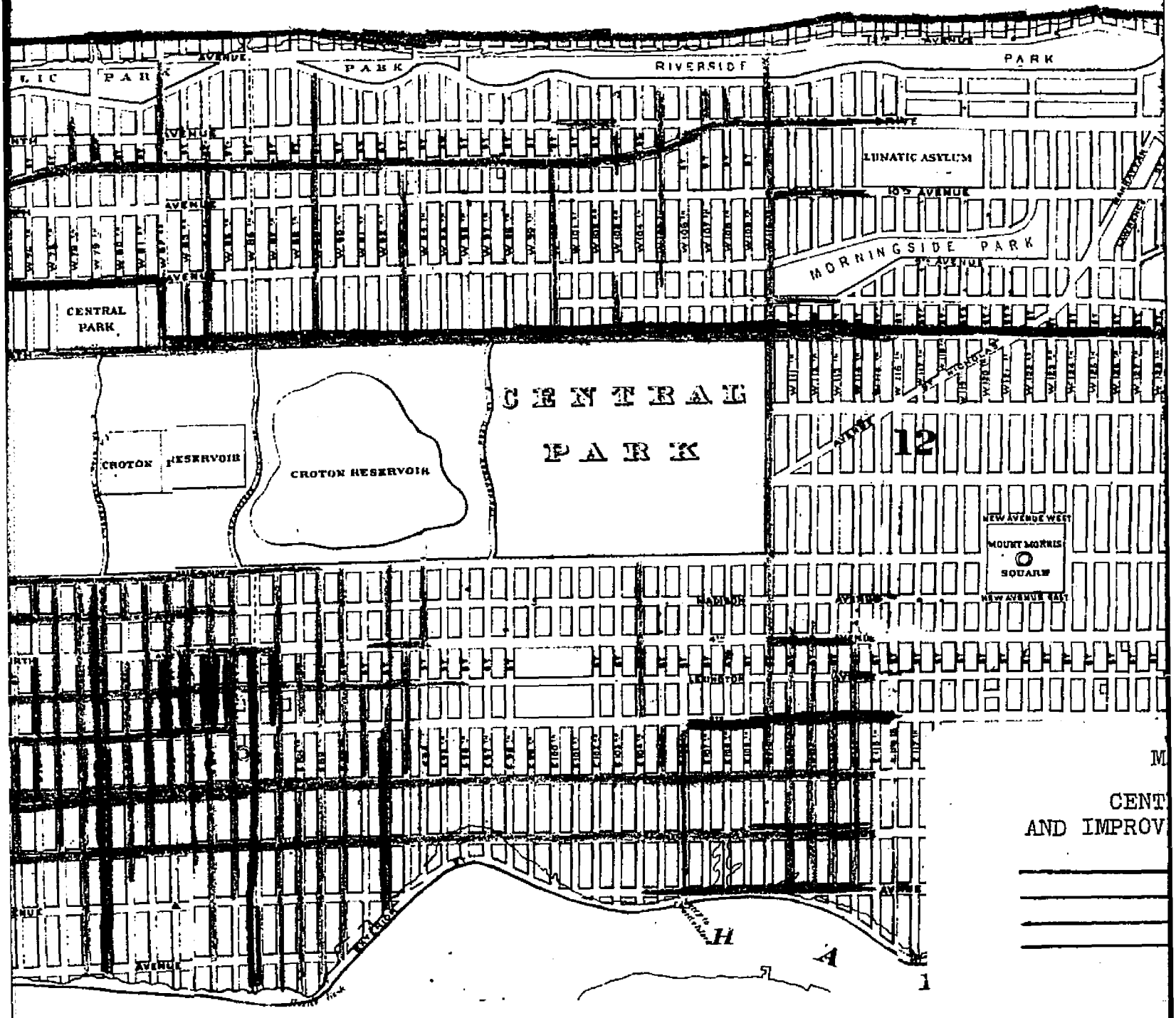
Except for the early years, the Park at no time became a "job." By 1860, Olmsted had solidified his position, permitting him to withstand Tammany pressure over hiring.[44] Contracting, too, was honest, with pacts widely diffused among builders. Indeed, from the beginning, officials had enlisted hundreds of private entrepreneurs, large and small, to provide supplies and perform construction.[45] The accurate recording of each voucher helped keep corruption to a minimum. Even the New York Times, after first opposing the project, reversed stance in 1866, proclaiming that "speculation

crept not into squandering funds."[46] But praise and best wishes could not sustain the building program. Gradually, funds ran low, prohibiting further progress. By 1873, panic so plagued the city that officials called a halt to labor. Later years would see the finishing touches, but New York had its Central Park, a mecca already drawing millions yearly.

As expected, the new center popularized surrounding neighborhoods. Almost immediately, the verdant, country-like atmosphere of upper Manhattan lured many downtowners. The arrival of horse-cars after 1850 had promoted commuting. Now residents could live near the Park and still reach City Hall in an hour. Even before the Civil War, Fifth Avenue's ascendancy was already underway. For, as status increasingly demanded a home near the trees, eager citizens flocked up the fashionable avenues (Fifth east to Second) and spread through the cross streets. The east sixties, seventies and crossing routes proved the most popular. This settlement pattern was a mere intensification of Fashion's earlier preference for Second and Third Avenues. But Olmsted's creation was the catalyst; it had triggered a land boom from the fifties to Harlem.[47]

As single and multi-occupancy dwellings rose everywhere to meet housing needs, public works grew in response. As MAP 17 shows,[48] the period 1857-1871 saw gas mains


PUBLIC PARK
PARK
CENTRAL PARK
CENTRAL PARK
CROTON RESERVOIR
CROTON RESERVOIR
BLACKWELLS


RIVERSIDE
PARK
LUNATIC ASYLUM
MORNINGSIDE PARK
CENTRAL PARK
CROTON RESERVOIR
CROTON RESERVOIR
CENTRAL PARK
12
MOUNT MORRIS SQUARE
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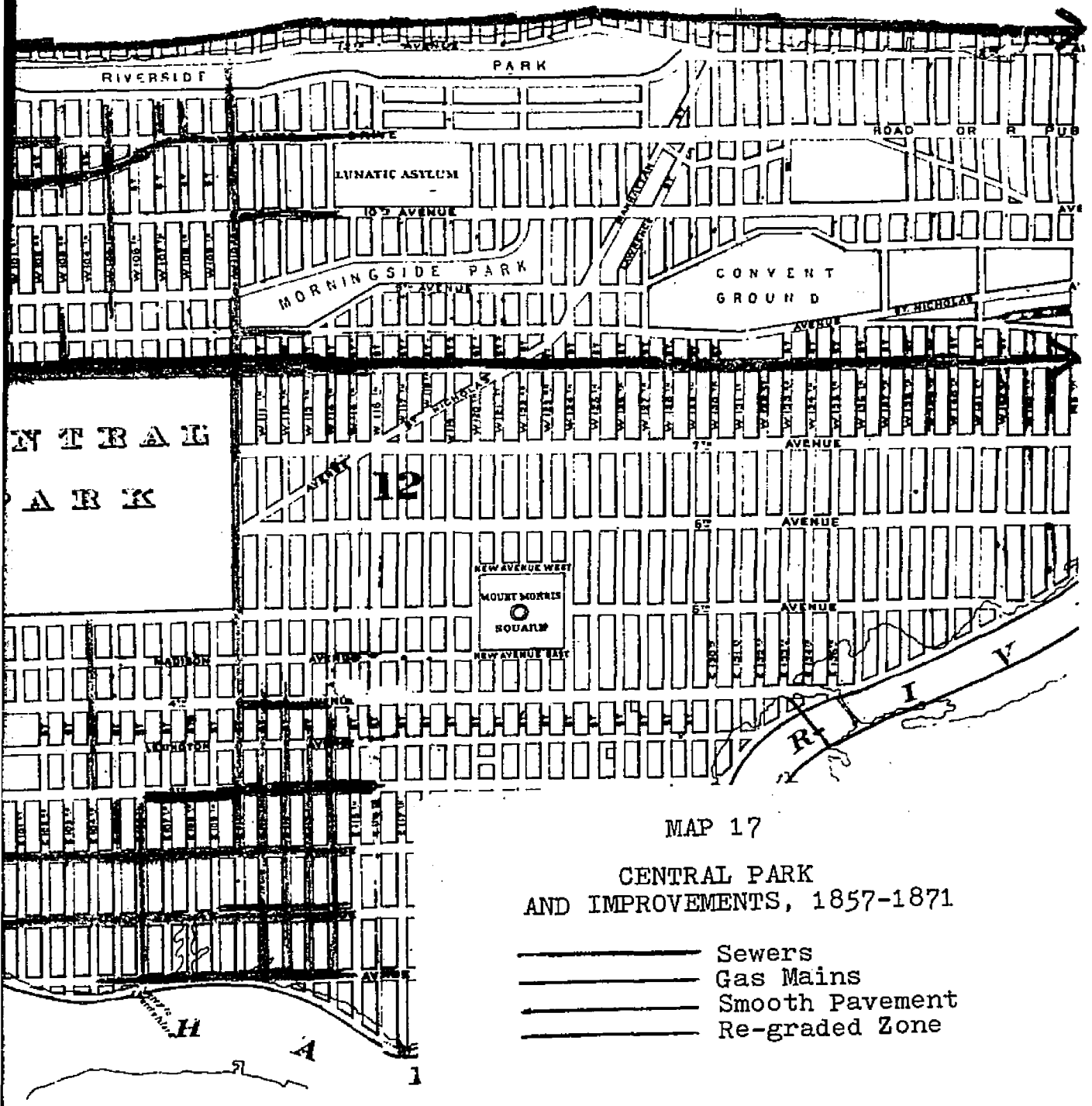
CENT
AND IMPROV



MAP 17

CENTRAL PARK
AND IMPROVEMENTS, 1857-1871

——— Sewers
——— Gas Mains
——— Smooth Pavement
——— Re-graded Zone

criss-cross most major arteries. Third Avenue residents had enjoyed the utility for several decades, but now service spread east of Fifth up to Harlem. Sewers came also. Once un-drained acreage now boasted much pipeage. Soon networks spread north and south of the 59th Street main with Lexington and Fourth (Park) Avenues also included.

Smooth pavement appeared, too. Both Fifth and Eighth Avenues approaching the Park and its 59th Street border would suffer no cobblestones. New surfacing also graced populated thoroughfares like Second and Third Avenues, with crossing arteries winning consideration by 1871. Although many downtown sections remained ignored, the flourishing east side enjoyed the best roads in Gotham. But the same was not true across town.

In the beginning, boosters were certain the west side would prosper. All streets above 50th would surely enjoy public works. And in the early years this optimism seemed justified. Already by 1862, improvements graced major thoroughfares, with Eighth Avenue paved well past 86th, Ninth opened to 63rd, Tenth to 74th and Eleventh to 59th.[49] Above these points, however, few roads existed. North of 59th, for instance, only 86th serviced traffic from Eighth to the river.[50] All others lay partially closed.

Improper grading left most routes in chaos. Throughout the west side, lots and roads merged suddenly with craggy slopes and running streams. One outraged physician reported that "much of the ground above Sixtieth Street

between Eighth and Ninth Avenue, is permanently so wet, in consequence of obstruction to the natural drainage, as to be unfit for tillage--" much less habitation.[51]

Furthermore, since few sewers serviced the closed arteries west of Eighth Avenue, there was "considerable standing water in excavations, made in grading the streets for building purposes."[52] As a result, these ubiquitous pockets breeded malaria and other maladies which retarded land development and forced middle and upper-class home owners eastward. There was no doubting this, for building patterns were stark. On one survey, investigators found that "below Fifty-ninth Street,...dwellings [were] most of brick, above Fifty-ninth Street chiefly wooden; and above Seventieth Street, with the exceptions, entirely such."[53] Unlike their crosstown rivals, west side thoroughfares saw no brownstones; instead wooden shanties and tenements shouldered each route. Thousands of immigrants barely scratched out a life here, residing in "pig-pens," cultivating "gardens" and raising hogs. No respectable family would live in these run-down disease nests. The few who risked owning first-class homes suffered. In 1860, for example, builders erected thirty such dwellings along 50th from Eighth to Ninth Avenue (supposedly well downtown and "safe"), but the absence of sewerage led "occupants of several of these houses...to complain of an offensive odor arising from the cellars."[54]

Such conditions only retarded settlement, which,

in turn, slowed the advance of utilities. Property owners knew that only a massive re-grading could drain the water, eradicate disease and permit construction. Fortunately, Central Park played a key role in helping the district because it taught leaders the value of planning. In the end, successful reclamation of the lands east of Eighth inspired the state to aid the west side.

Various groups including the West Side Association spearheaded a campaign which resulted in an 1866 act requiring the Park Commissioners "to make further improvements in the city of New York."[55] The law ordered new surveys of the zone shown in MAP 17.[56] Authorities had "to prepare maps, plans, and profiles," embracing changes that would benefit both the "property affected, and the public interests."[57]

For years west siders had complained that the official city map, submitted in 1811, had failed to recognize their section's varied terrain. The original plan had called for a street grid with rectangular blocks 800 X 200 feet.[58] Although this strategy had served downtown well, it failed in the north where streams ran at oblique angles. Lot owners urged abandoning the scheme in favor of diagonal roads like Manhattan and Lawrence Streets.[59] In their own report, the Commissioners agreed that western routes "were laid out without any reference to topography" and proposed alterations.[60] At the same time, however, they warned that confusion would follow any change,

because many residents had built according to the old map. Therefore, under any new plan, those who thought they owned a corner or had access to a lane might find themselves displaced. Even worse, the colossal blunder of 1811 had plagued the area with numerous road segments. Indeed, the Commissioners noted that

> here a street or part of a street has been worked--there a monument of the plan stands in the shape of an abandoned attempt to cut a street through a mountain of rock. Here an avenue has been essayed, there a bit of paving done--here curb and gutter is set according to the methods of these later days--here the land has been acquired for a portion of a street--there it has not. Everywhere a mingled mass of tangled legislation and execution, surrounds the question of proposed amendments with difficulties that must be solved to a great degree by considerations of expediency.[61]

No wonder west side real estate lay moribund.

By 1865, however, a solution seemed near. Authorities reasoned that since the terrain west of Eighth resembled Central Park's, reform might be effected. The legislature responded by ordering the Commissioners to alter the west side grade. An elaborate plan provided for constructing new boulevards and streets while discontinuing some older ones. But controversy immediately arose over two sections (today largely the acreage comprising Riverside and Morningside Parks) with extreme grade disruptions. Many residents favored the principle utilized in 1853: landscape those grounds too rugged for building. But the Commissioners, though aware "that property overlooking this chain of parks would be largely enhanced in value," balked at the scheme.[62] The obduracy of both camps produced

a multi-year stand-off which ended when Albany ruled in favor of residents.[63] The victory brought new hope to lot owners who now braced themselves for the guaranteed boom. By 1868, all looked to a future when public works and fine buildings would blanket the district. And lot values reflected this optimism. Land values soared as investors prepared for a migration westward. Once finished, Morningside and Riverside Parks would surely wrest Fashion from the grasp of Fifth Avenue. But these dreams were delusive, for the bubble would burst in less than five years.

The west side story was but a small part of the real estate coup that was Central Park. Documentation is skimpy, but suspicion persists that promoters exerted great influence at Albany in obtaining these improvements. Witness the case of John McClave. In 1868, the Real Estate Record ran a story on this daring land speculator. McClave, the "wild Irishman," had amassed a $15 million fortune in just eleven years. While interviewed by the journal, he explained how brokers won lucrative profits from uptown lots.[64] He characterized successful realtors as "those who possess a creative mind, who suggest and further improvements, and who develop a property by selling part to the man who intends to build."[65]

Fortified with this view, McClave and colleagues had lobbied for changes. His success was astounding.

The Record reported "nearly all the improvements that are about to be made...[by] the Central Park Commissioners were originated and successfully carried through the legislature by him."[66] Indeed, the alteration of the west side Plan, the building of Morningside and Riverside Parks and other projects all received powerful impetus from McClave's profession. And the same could be said of Central Park, too. In fact, McClave believed it his duty to plant public works in the minds of legislators and then push for enactment. For his own part, McClave, who made his fortune speculating uptown, left nothing to chance. When developing neighborhoods, he explained, "one has to anticipate the character of the improvements, the grades...[and] be on the alert to ascertain early where new streets are to be opened."[67] Hence a good broker often traveled the road to Albany.

Since public works and real estate were always inter-connected, McClave had "no faith in buying farms and mapping them out into streets and avenues, unless they [were] contiguous to the grand improvements." Vacant lots, in particular, were a realtor's worst enemy. McClave felt "the only way to create an intrinsic value in real estate [was] to put capital upon it."[68] To accomplish this, he advocated appending to land titles "a set of restriction papers which compel the erection of buildings in a uniform line with the street, none of which are to be less than three stories, or to be converted into private stables, breweries, factories or other nuisances likely to depreciate property."[69]

No wonder these suburbs boomed. Such strategies could only bring profits. And, not surprisingly, public works combined with primitive zoning measures throughout the 1860's to catalyze uptown values beyond expectations.[70]

McClave himself more than warranted the Record's praise. In 1859, he led a successful campaign against an ambiguous law to widen Seventh Avenue above the Park. The following year he helped "in procuring the same improvement for the Sixth Avenue" and the "new Boulevard." His lobbying also resulted in "making the old Manhattan Square a part of the Park." In all, his efforts had boosted the value of nearby property between 100 and 500 per cent.[71] Clearly, the real estate community, though not the sole force behind Central Park and related projects, nevertheless played a decisive role in preparing uptown for economic development.

In fact, the Commissioners themselves gauged the Park's effect on surrounding land. After 1855, their reports annually chronicled the rising assessed valuation of nearby wards. And the increases were significant. To the north, the Twelfth's worth surged from $8.1 million in 1856 to $28.1 million by 1868. West of the Park, the Twenty-second's grew from $10.2 million to $36.2 million in the same period, while eastward, the Nineteenth's raced from $8 million to $53.6 million in the same twelve years.[72] These figures described areas whose average lots, prior to 1859, could scarcely bring $600. McClave and comrades

had done their job well; between 1854 and 1875 the city spent over $62.4 million on uptown improvements.[73]

Throughout the 1860's, brokers feverishly promoted these northern lands. In some cases, whole blocks went up for auction. In 1869, for example, the entire square bounded by Seventh and Eighth Avenues between 147th and 148th Streets went on sale.[74] And similar deals occurred that year, as west side values soared meteorically. In their advertisements realtors claimed that with the grading "of this most beautiful and accessible part of the city" established and the new Boulevard "rapidly progressing," it followed "as a matter of positive certainty that every available spot between the Central Park and the new Boulevard--the two greatest points of attraction--...will be wanted in a very short time for the buildings of the first class."[75] A lack of sewers hardly mattered, for brokers guaranteed that "as improvements progress the value of lots will increase,...to a point as high, if not higher, than has been reached in any other part of the city."[76] With the future painted so bright, no wonder investors flocked in waves to land auctions.

Prices reflected the feverish craze. In 1869, for example, with the altered grade almost a reality, the block girded by Eighth and Ninth Avenues from 70th to 71st Streets went for $400,000.[77] A single lot on Eighth and 72nd worth $600 in 1857, commanded $18,000 just nine years later. And those in the cross streets, sold earlier for $400,

now brought $5,000-$7,000.[78] In 1868, 63rd Street land near Eighth Avenue earned $60,000, while that on 87th near Twelfth went for $25,000.[79] And prosperity flourished at other sites, too. But this was nothing compared to the burgeoning eastern market.

With horse-car lines already running to Harlem on Second and Third Avenues, east side building activity was frantic at Civil War's end.[80] By 1870, Gotham's zone of fashionable residence encompassed Third to Fifth Avenues and 42nd Street northward to 59th. Amidst the boom, prices soared. One Fifth Avenue plot fronting the Park, worth $13,000 in 1867, garnered $24,000 the following year.[81] In 1855, tracts north of 59th Street brought $400 each, yet 1871 saw $275,000 bid for three at 79th and Fifth. By 1872, the mania led one real estate agent to offer $50,000 "for any inside lot on Fifth Avenue fronting Central Park" below 73rd Street. Seven years earlier, similar land had brought only $12,000-$14,000.[82]

Values rose steadily until the Panic of 1873. By 1872, building sites located in the cross streets between 60th and 80th Streets from Madison to Fifth Avenues earned at least $20,000 each.[83] And these prices were low; many sales exceeded $50,000. Thus, in 1871, 69th Street land west of Madison sold for $61,000.[84] Corner plots, of course, went for more; in 1868, the northeast edge of Fifth and 69th brought almost $57,000.[85] Such figures later prompted one expert to estimate that between 1868 and 1873 the worth of

vacant ground above 59th Street "seemingly increased fully 200 per cent, and (some) 300 or 400 per cent." And though the post-war 'Greenback Era' had stimulated prosperity everywhere in town, "the speculation which raged north of 59th Street was not by any means so intense south of that thoroughfare."[86] Clearly, Central Park had been the catalyst McClave and friends had hoped for.

All agreed the project had launched uptown's development years ahead of time. For fifteen years it had induced enormous real estate profits. But when the bubble finally burst in 1873, a vicious depression bankrupted thousands. Central Park, once hero, now turned villain. Almost immediately, catastrophy hit holders of east side land near or fronting Olmsted's masterpiece, as sky-high prices plummeted within months. 59th Street lots near Fifth which brought $40,000 in 1873, went for $15,000 just three years later,[87] while those on 57th selling for $50,000 in 1873, shrank to $25,000 forty months after.[88] Down on 45th Street, ground worth $30,000 before the Panic fell to half value. Fifth Avenue property itself failed miserably. A corner lot owner who once refused $75,000, settled for fifty after the crash. And, an inside lot held for $60,000 in 1873, yielded only $29,000 two years later.[89]

Cynicism mounted with losses. Central Park, once the

cause célèbre of realtors, became the object of scorn by the mid-1870's. One critic charged that "in each successive step of its progress and development it has been the brilliant but false beacon that has lured [land investors] to destruction."[90] For twenty years it had served "as a powerful lever in the enhancing of speculative values" by lulling investors into expectations of yearly value appreciations even without building. Indeed, he concluded, "the ideas of but one Central Park with one margin thereto, of but one grand boulevard, of but one Fifth Avenue have been the watchwords of nearly a generation of land speculators."[91] But the Panic shattered all delusions. By 1875, realtors conceded "the dream of $50,000 and $100,000 lots has passed into history." With these grounds now barely "commanding the amount of mortgages secured by them," all realized previous values "were purely speculative." In retrospect, some compared these lands to "the unproductive fancy stocks of Wall Street."[92] Experts recognized the "unstable values of these fancy lots" were as nothing compared to the "stability of...improved avenues and thoroughfares [downtown] ."[93]

In fact, thousands of acres suffered little from depression. Despite Panic conditions, 42nd Street property opposite Grand Central Station declined only slightly in price as did Mr. C. L. Anthony's mansion at Fifth and 38th and Mr. Cunard's Broadway lot at 18th. All three enjoyed "well sustained values."[94] On a larger scale, "fashionable

residence quarter[s]," stretching from Third to Sixth Avenues and 14th to 42nd Streets, stayed within 25-33 per cent of pre-Panic amounts. The moral was clear: built-upon land was a more stable investment. Having learned this, many looked to a new era "when actual [not contrived] demand for improvement and growth of [the] city shall create a market" free of "fleeting and unstable values."[95]

But Central Park was not the sole cause of uptown real estate's collapse; the enormous proliferation of road alterations was an equally culpable factor. During the 1860's, it had frequently happened that "as the streets ready for improvement were gradually occupied, the demand arose for an extension of improvements."[96] And, if granted, the property owner had usually discovered too late that sewers and pavement had "cost him in many cases nearly the fee simple of his land." Invariably, these burdens had forced him to double his asking price.[97] Nearly all holders of vacant property had felt this rise simultaneously. Worse still, speculators had intensified matters by standing "ready to relieve any tired or disgusted owner of his holdings and crowd the market values still higher."[98] The result was disastrous.

Some realtors also blamed inflated prices on the "slow and dilatory preparation of streets and avenues for building purposes." This group contended that limiting public works to specified sections of town "creates an actual scarcity of building lots and enhances the value

of those susceptible of immediate improvement,"[99] which was very undesirable. But, the reasoning went, if modernized streets could at once blanket the city, "the excess of building lots thus brought into the market would...be likely to cause an equalization or decline in their value."[100] Advocates of this view pointed to Harlem Plains where "the Boulevards and cross streets [were] laid out and improved in the highest syle of Tammany art--opened, regulated, curbed, guttered and sewered, gas and water mains laid, with miles of Telford-McAdam pavement" and rapid transit.[101] But prices, once shot sky-high by speculation now had fallen to reasonable levels, because "the whole Plains [were] brought to market at one time and upon an equal footing."[102] This forced an equalization of worth, with no one section favored, resulting in average costs "as low or lower than the prices ruling just before the improvements were begun."[103]

Nevertheless, whatever the complicated origins of the land panic, no explanation could ease suspicions. Many New Yorkers persistently argued that Olmsted's creation had "served the purpose of the speculator in a manner that has never been equalled in the annals of land speculation in this or any other country."[104] Still, despite its shortcomings, the center transformed uptown's growth from a creep to a leap. The abyss of 1873 aside, Central Park not only energized northern districts, it brought dignity to Gotham, Arcadia to the overwrought and instant fame to city planning.

NOTES

[1]Pomerantz, p. 288.

[2]Ibid., pp. 288-290.

[3]Ibid., pp. 290-291.

[4]Olmsted and Kimball, p. 20.

[5]Henry Hope Reed and Sophia Duckworth, Central Park: A History and Guide (New York:Clarkson N. Potter, 1967).

[6]Ibid.

[7]Ibid., p. 4.

[8]Ibid.

[9]Olmsted and Kimball, p. 25.

[10]Reed and Duckworth, p. 15.

[11]Aldermen, Documents, XXIV, #5, January 19, 1857, 6. See also Olmsted and Kimball, p. 28.

[12]Aldermen, Documents, XVIII, Part II, #83, January 2, 1852, 1462.

[13]Ibid., and p. 1478.

[14]Ibid.

[15]Ibid., p. 1463.

[16]Ibid., p. 1464.

[17]Ibid.

[18]Ibid., p. 1465.

[19]Ibid., p. 1466.

[20]Ibid., pp. 1470-1471.

[21]Ibid., p. 1475.

[22]Ibid., p. 1476.

[23]Ibid., p. 1478.

[24]Ibid., p. 1476.

[25]Ibid., pp. 1466-1467.

[26]Ibid., p. 1467.

[27]Ibid., p. 1470.

[28]Ibid., p. 1471.

[29]Ibid., p. 1472.

[30]Ibid., pp. 1472-1473.

[31]Ibid., p. 1479.

[32]Ibid., p. 1480.

[33]Olmsted and Kimball, p. 29.

[34]Aldermen, Documents, XXIV, #5, January 19, 1857, 7.

[35]RRBG,"Supplement"following Vol. XV, March 18, 1875, p. 3. See Fernando Wood's testimony to the West Side Association.

[36]Aldermen, Documents, XXIV, #5, 7, 130-134.

[37]Ibid., XXIII, # 19, (1856), 4-5.

[38]For the appointment of the Central Park Commissioners, see Ibid., XXIV, #5, 102.

[39]For a good history of the project, see Elizabeth Barlow, Frederick Law Olmsted's New York (New York: Praeger, 1972), pp. 20-25. The detailed story of the Park's planning and building has been told before and will not be repeated here. For even more on the subject see Olmsted and Kimball, passim.

[40]Aldermen, Documents, XXIV, #5, 46-76.

[41]Second Annual Report of the Central Park Commissioners, pp. 58, 2.

[42]Fourth Annual Report..., p. 2.

[43]Aldermen, Documents, XXXV, Part I, #7, February 1, 1868, 54-59.

[44]Barlow, p. 24.

[45]Aldermen, Documents, XXVII, Part I, #6, January 30, 1860, 25-110, passim.

[46]New York Times, August 19, 1866.

[47]RRBG, see the Conveyances in each issue from 1868-1871 for specific sales.

[48]See the notes for Maps 4, 5 and 6.

[49]Sanitary Condition of the City, p. 299.

[50]Ibid.

[51]Ibid., p. 304.

[52]Ibid. The Plan covered all lands north of the line running from Gansevoort Street through Greenwich Lane, Art and Houston Streets.

[53]Ibid., p. 303.

[54]Ibid., p. 307.

[55]Eleventh Annual Report..., p. 131.

[56]Ibid.

[57]Ibid.

[58]Ibid., p. 132.

[59]Ibid., p. 135.

[60]Ibid., passim. See also the Commissioners's map in the Report.

[61]Ibid., p. 134.

[62]Ibid., p. 148.

[63]Ibid., pp. 151-153. The Commissioners suggested a terraced wall rather than an expensive chain of parks.

[64]RRBG, II, October 31, 1868, 3-4.

[65]Ibid., p. 4.

[66]Ibid.

[67]Ibid.

[68]Ibid.

[69]Ibid.

[70]See Ibid., February 27, 1869, p. 1 for an example of building requirements in land transactions.

[71]Ibid., October 31, 1868, p. 4.

[72]Valentine's Manual for 1869, p. 182.

[73]RRBG,'Supplement," March 18, 1875, pp. 4-5.

[74]RRBG, II, February 6, 1869, 1.

[75]Ibid., February 13, 1869, p. 3.

[76]Ibid.

[77]History of Real Estate...in New York City, p. 61.

[78]New York Times, April 20, 1866.

[79]RRBG, December 12, 1868; December 19, 1868, see "Conveyances."

[80]See Insurance Company Maps for the 1860's.

[81]RRBG, I, May 2, 1868, 1.

[82]Ibid., IX, June 22, 1872, 287.

[83]Ibid.

[84]Ibid., VII, May 20, 1871, see "Conveyances."

[85]Ibid., March 27, 1869.

[86]History of Real Estate...in New York City, pp. 62-63.

[87]RRBG, XVIII, October 14, 1876, 762.

[88]Ibid.

[89]Ibid.

[90]Ibid., XVI, December 4, 1875, 775.

[91]Ibid.

[92]Ibid.

[93]Ibid.

[94]Ibid., pp. 775-776.

[95]Ibid., p. 775.

[96]Ibid., December 11, 1875, 790.

[97]Ibid.

[98]Ibid.

[99]Ibid.

[100]Ibid.

[101]Ibid.

[102]Ibid.

[103]Ibid.

[104]Ibid., XVIII, November 18, 1876, 851.

CHAPTER 10

NEW YORK IN THE TWEED YEARS, 1860-1871

The election of William Marcy Tweed to the County Board of Supervisors in 1857 presaged a new era in city government. In less than a decade he had built a machine whose influence stretched from Gotham to Albany. Through puppet Mayors John T. Hoffman and A. Oakey Hall, Tweed controlled Streets, Docks, Schools, Fire, Police--every municipal operation. There had been coups before but nothing like this. Profit was the guiding force, as the "Ring" tied its purse to the town's coffers. More than ever before, growth became the by-word of city policy. As a result, public works entered a golden age which only enhanced Manhattan's future.

This regime came to power at a critical time. Flux ruled the scene, as thousands fled north to escape conditions downtown. Congestion, insalubrity and immigration had combined to push native families into unprepared suburbs. The Civil War, too, played a role, transforming industry, disrupting commerce, aggravating racial tensions and slowing local improvements. In short, confusion reigned everywhere, as stranger and veteran alike struggled to

comprehend the changes sweeping New York. Gone was the city of 1835. The fashionable quarter, for instance, once centered at Bowling Green and later in the Fourth Ward, had shifted several times since 1830, moving from Stuyvesant to Washington Square. Finally, by 1865, it had reached Fifth Avenue, as newly-opened Central Park lured construction up to and beyond 59th Street. And, with fine houses and apartment buildings rising almost daily, predictions arose that 86th would soon be in sight.[1]

Meanwhile, impoverished groups remained downtown in a prison of clogged, disease-ridden streets. By 1860, areas east of the Bowery and Third Avenue were still "filling up with foreigners."[2] Wards Ten, Eleven, Thirteen and Seventeen housed the German community, while Four, Five and Six--literally the width of Manhattan from Reade to Canal--served as home for New York's Irish.[3] Repelled by the poverty and disorder of the ghetto, native Americans "sought refuge in the western side of the city, particularly in the districts comprising the old village of Greenwich between Canal and 14th Street west of Broadway to Houston, and west of Sixth Avenue." And thousands also retreated to Chelsea, between 14th and 34th, west of Seventh Avenue.[4]

Clearly, by the late 1850's, New York's residential district lay north of 14th. Although many boarding houses still dotted parts of Union and Madison Squares, the "invasion by the storekeeper...had already produced

marked effects upon the character of the district."[5] Office buildings and large shops rose everywhere, as business engulfed downtown. West of Broadway, many private homes still lined Church, Lispenard and nearby roads, "but they were fast disappearing before the onward march of trade." Investors gradually blanketed the lower west side with factories and warehouses. Barclay, Warren, Robinson and Murray Streets in the Third Ward, for example, hosted the hardware, glassware, crockery and china trades.[6]

With wholesalers stationed downtown, retailers pursued customers northward. Following the horse-car lines, "residences and stores sprang up along their routes." In fact, by 1868, "Third Avenue was almost continually built up as far north as 86th, and Second Avenue was well lined with buildings."[7] Even the larger markets were "in progress of transference from a centre which may be placed, approximately, considerably south of 14th Street to a centre near to 23rd Street."[8] In the early 1860's, the famous dry-goods king, Alexander Stewart, had spearheaded the movement, building a new five-story structure on Broadway near 10th. Soon Arnold Constable, Stern's and other companies came, transplanting the trade to this new section. And other industries followed; by 1875, New York Life Insurance, the Park Bank and the Equitable Life Assurance Society had all settled nearby.[9]

By June, 1868, over $3,345,000 worth of new buildings

were in progress on Broadway south of 14th. And heavy activity prevailed north as well, attracting hundreds of speculators. In fact, Boss Tweed himself paid $600,000 for the northeast corner of Broadway and 21st.[10] With real estate patterns changing everywhere, the entire city was in flux.

Despite substantial real estate growth, physical problems still plagued many neighborhoods in the 1860's. For instance, the area west of Broadway and south of Reade, composing parts of the First and Third Wards, suffered from poor drainage, while much of the land west of Greenwich Street was "made." Even the more elevated lots east of the thoroughfare barely escaped high tide. Unfortunately, colonial builders had failed to incline the table terrain. By 1850, many road grades had yet to be altered. As a result, damp cellars abounded and violent storms flooded many buildings in the district.[11]

Local streets posed other problems. In the absence of improvements, arteries built before 1800 remained narrow and crooked. Though some had received alterations over the years, Morris, Rector, Carlisle and Cedar Streets, Trinity Place and other lanes were still "so narrow as barely to afford space for ordinary vehicles to pass each other."[12] Such conditions limited traffic, and, in doing so, stunted the section's commercial growth.

In fact, lower Broadway, the area's prime business center, suffered a serious defect. Officials had covered it with Russ in 1849, but it proved too slippery, affording "an unsafe footing for horses." Thousands of carters and wagon owners avoided the road as broken leg statistics mounted yearly. But newer, safer pavements did grace some thoroughfares in the section. Battery Place, Fulton, Greenwich, Chambers and others enjoyed Belgian blocks as did the once iron-planked Courtlandt Street. Cobblestone, however, presided elsewhere including Morris, Rector and Canal Streets.[13]

Paving in this section illustrated a pattern reproduced around town. Authorities usually laid smooth surfaces along routes already widened or straightened. Rarely did a thoroughfare, un-improved since colonial times, see its original cover replaced with trap blocks. Usually, for reasons of economy, roads had to await multiple improvements. Perhaps public works lagged in the lower Broadway district because of the large immigrant population. About half the families were Irish, a quarter German and the rest Scandanavian or "American." Many residents were struggling laborers, mechanics or retail shopkeepers. There were "but few of the educated and refined class;" most inhabitants were of the "floating character."[14]

By 1865, over 1,500 buildings stood west of Broadway below Canal Street, many, the shells of once magnificent

mansions, were "now frequently converted into tenant-houses."[15] Over 240 such dens, three to six stories high, covered the area. So-called "rear houses" dotted back alleys. These hideous-looking, ill-ventilated flats thrived in a city-wide housing shortage and reflected the passion of speculators to utilize every square foot of downtown property. Short of light, flooded by storms, cold in winter and often hosting a ground-floor stable or grog-shop, these rear and front tenements insulted the conscience.[16]

Landlords planted taverns at sidewalk level both to earn extra profit and lure tenants. Over 400 existed in the First and Third Wards. A related specie, the "Billiard Saloon," prospered along Greenwich. Prostitution flourished also, as many landlords reserved rooms for the girls. Indeed, lower Greenwich was a major vice center where it was "common...particularly at night, for large numbers of prostitutes to pursue their calling."[17]

Second and third-class retail shops along Greenwich and Washington served the local populace, while wholesale stores occupied upper thoroughfares. As the central business district moved northward, the lower Third Ward declined into warehouses, small stores and run-down dwellings. Despite the ubiquitous presence of sewers, many building owners had yet to make pipe connections. Garbage and disease were everywhere, as neighborhood apathy infected City Hall.[18] No wonder the lower west side languished for years.

Communities east of lower Broadway also suffered poor drainage, since most of the land east of Pearl was "fill." Over 2,000 buildings, many stores and warehouses, covered these Irish, working-class areas. But, in contrast to its western neighbor, the Second Ward enjoyed both old and new office buildings, some fashionable residences and fewer tenements. Commerce boomed as shipping offices and supply yards engulfed the waterfront, while grain and flour warehouses stood nearby. And, throughout the 1860's, real estate values continued rising in this section "so densely crowded with high buildings."[19]

Worse conditions, however, existed in the east side neighborhoods farther up, between Beekman and Houston. Though business prospered in the elect streets shouldered by office buildings, much of the district suffered with disease-ridden housing. The one-time swampland north of Beekman Street was now filled ground. Here the city's leather industry concentrated, with its many thousand workers packing the tenements. The Fourth Ward alone contained over 700 of these dwellings, half of which lacked sewer hook-ups. This was a major problem in Gotham's poorer neighborhoods. The town would spend thousands to construct mains, but landlords, anxious to save money, would resist house connections. As a result, medical authorities reported much "liquid waste...emptied on the sidewalk[s] or into the street[s]."[20]

Disease ran wild. as east side neighborhoods experienced

frequent sewage floods. In 1865, officials discovered more than four hundred families "whose homes [could] only be reached by wading through a disgusting deposit of filthy refuse." This acidic matter not only endangered health but corroded pavements. The locale needed help, but town policy only mirrored landlord apathy. Unfortunately, politicians reserved Belgian blocks for but a few streets: Bowery, Chambers, South, Chatham and part of Pearl; the rest endured their cobblestones.[21]

Hygiene fared worse in the Sixth Ward than in the Beekman area. In the former, 95 per cent of the inhabitants were immigrant or of foreign extraction. Irish accounted for three-fourths of the total, Germans, Jews and Italians the remainder. Fever nests were everywhere; the monstrous Toombs Prison at Baxter and Duane was perhaps the worst. Now filled, the site had once hosted the forty-foot deep Collect Pond. For many years the section had been a swamp.[22] The government should never have allowed house construction, but, in the absence of restrictions, investors built wildly, leaving tenants to endure inhuman conditions. Little help came from poorly-designed sewers. Only the Roosevelt and Canal Street tubes carried wastes and sub-surface waters to the rivers. Many others backed up, clogging culverts for months on end. And, as with other downtown localities, raw sewage frequently ran through streets full of children.[23]

The Sixth Ward was mainly a factory district,

where type, lead pipe, shot, iron, brass, pewter, box, stove, sugar and confectionary manufactures predominated. The populace was lower class, un-educated and what improvements they achieved came straight from Tammany Hall. For in this community, vice and corruption prospered together. Indeed, the district's 400 dram-shops and 29 brothels easily dwarfed the influence of six churches and three public schools. Tenement life was the dominant theme for the 23,000 who thronged these beastly structures. Here, machine politics found sturdy roots.[24]

Farther north, in the Seventh Ward, lived a mixture of Irish and German laborers. East of the Bowery, mostly retail stores lined Grand, Division, Catharine and Jackson Streets, while tenements rose everywhere else. Again the pattern repeated: nice retail shops filled select routes, while run-down flats, factories and warehouses crowded the others.[25]

In this section, too, sewer mileage outstripped quality. Many structures (like those under Broadway and Henry Street), built before 1850 with primitive methods, failed to carry liquid wastes to the rivers. Worse still, uncooperative winds blew the noxious gases back over the neighborhoods.[26] The Seventh Ward, like most downtown, suffered for being the first in New York to receive waste tunnels. Since early models were of brick and other inferior materials, they cracked and ruptured in a matter of decades. But more recent communities, though

serviced late, were, in the end, rewarded with the best in modern engineering. As a result, there was little vitrified pipe in the Seventh Ward until the 1880's and 90's.

Local nuisances rivaled Gotham's worst. Instead of slaughter houses and fat-boiling establishments,[27] residents faced a decaying waterfront. In fact, most local piers and bulkheads were "old, decayed and filthy." For instance, the dock at Catharine Slip lay "in complete ruins," and No. 49 was "bodily sunken into the mud of the river."[28] Nearly every wharf along this stretch of East River craved renovation. Contemporaries bemoaned the district's sleazy appearance. Its dilapidated waterfront, bordered by "dozens of work-shops, factories and foundaries" plus its myriad tenements, many with clogged sewer connections (if any at all), stamped the Seventh Ward unmistakably ghetto. In just thirty years, the once-proud mansions fronting Henry, Scammel, Cherry and Madison Streets had yielded to rows of decaying tenements. And it would be decades more before Brooklyn Bridge would restore prosperity once again.

Farther north and still east of the Bowery, a heavily German population struggled against an adverse environment. Here too, a few major arteries enjoyed Belgian pavement while most streets persevered with cobblestone.[29] As elsewhere, many thoroughfares endured poor planning. Improper grading often rendered whole streets

unsanitary; in fact, one physician characterized parts of 6th and 11th as little more than "dung-hills." But citizens could scarcely hasten improvements in the face of government apathy.[30] Indeed, City Hall pushed no program to ease conditions. Thus, many local sewers went uncleaned for years, while numerous routes such as Third and Fourth Avenues (from 7th to 9th and 10th to 11th) had none at all. First Avenue lacked conduits from Houston to 14th as did parts of Chrystie, Forsyth, Eldridge and Allen Streets.[31] Such deficiencies only retarded growth and made real estate patterns inconsistent. Therefore, on Second Avenue, north of 7th Street, private homes abounded, while arteries to the east lay "covered with tenant-houses"--mostly of brick and ranging from three to five stories. In the Tompkins Square area alone, thirty-seven blocks contained 1,700 of these structures hosting 18,000 families. As elsewhere, landlords cared little for sidewalks, Belgian pavement and sewers. As a result, the neighborhood below 14th Street deteriorated for want of improvement.[32]

By 1865, black and native white populations once north of Reade had migrated heavily uptown to escape immigrants. And the latter, too, soon found themselves being "crowded out by the encroachments of mercantile business." The transition, however, was piecemeal, as many local manufacturers occupied "only parts of buildings, used otherwise for trade or residences." Not till the 1870's would industry take over.[33]

The west side just north of Canal was mostly filled land. Despite low terrain, portions of Watts, Laurens, Clark, Sullivan, Grand, Spring and Broome Streets still lacked sewerage. Many waste outlets entered the Hudson above low tide, permitting winds to blow odors back over neighborhoods. In addition, the Canal Street main lacked proper traps, a condition which at high tide allowed salt water invasions of local cellars.[34]

Though predominantly "American" and middle class, residents here, too, suffered from poorly-graded roads. Sullivan, Thompson, Laurens and Watts were all higher at their corners than at mid-block, which resulted in "accumulations of slops and waste in the gutter[s] along the street[s]."[35] Few places downtown claimed well-planned facilities.

Flux was perhaps the dominant theme, for this was a changing neighborhood where old and new real estate patterns mixed. Older tenements stood two to four stories high, while newer six-floor models offered speculators more rent per lot. Again, public works maps were deceiving. Though water and sewer networks criss-crossed the district, authorities reported "many tenements without either water supply or waste privileges." Thousands of dollars worth of pipes sat neatly in the streets, servicing no one.[36]

But conditions were better farther uptown. West of Sixth Avenue between Houston and Gansevoort all thoroughfares enjoyed water and sewerage. Here as in other new communities

sanitation was above standard. Yet again, the paving norm held; only Sixth Avenue, Bleecker and Greenwich Streets--the main roads--boasted trap blocks, all others had cobblestones.[37]

Real estate patterns also made for better living conditions. Over 70 per cent of this section's buildings were private homes, with sub-standard housing accounting for only 10 per cent. Factories, too, were scarce; there were only 63.[38] With native Americans largely predominating, the tenement blight so common downtown was largely absent. Only the waterfront needed attention. Although officials reported the piers in "fair condition," the basins required dredging, because in hot weather they emitted "a most intolerable stench from the reeking slime, the dead animals, entrails &c., which collect in them, and undergo putrefaction during summer." Nevertheless, the ward was still one of the best downtown, residential sections.[39]

Mostly Irish and native Americans inhabited the west side between 14th and 20th Streets. This, too, was a working-class district where many residents toiled in factories, on the docks or at the big gas works near 18th and Tenth.[40] The neighborhood displayed real estate tendencies more typical of uptown. Stores of all classes hugged the avenues, while private homes and three to five-story brick tenements lined the cross streets. Here and there a fashionable block flourished; thus, about fifty

brownstones "of modern construction...exclusively situated on West Fourteenth Street" offered some contrast to the visitor's eye.[41] But, on the whole, most buildings lacked the barest necessities. Doctors reported, for instance, that tenement landlords rarely extended Croton pipes from yard to house. Worse still, local sewerage offered little relief, since many house drains leaked or required street connections.[42]

Health hazards existed near the river as well. In a short-sighted move, City Hall raised the 15th Street pier to a height which impeded waste flow to the Hudson. The action left pavements "constantly covered with this obstructed sewage" for over three years. Not only did residents brave frozen wastes each winter, but the calamity also rendered"Eleventh Avenue at the corner of Fifteenth Street impassible for loaded vehicles, [forcing] a private individual...to construct a bridge across this slough that his teams might pass in safety."[43]

In this community as others uptown, sparse population allowed nuisances to prosper. Slaughter-houses, for example, abounded north of 14th Street. In the midst of a tenement block on 17th near Tenth Avenue, one butcher permitted "blood and filth...to flow across the sidewalk into the gutter" past throngs of playing children. Combine this with the "offensive odors" emitted by the Manhattan Gas Works and one can imagine the chronic dangers plaguing residents.[44]

Vacant lots posed another problem; 17th Street alone had twenty-four. Physicians characterized them as places of "deposit for ashes, garbage, dead animals and old boots."[45] Such conditions only retarded local growth. And this could be costly, since nearby districts might profit from a neighbor's distress. Indeed, north of 20th Street on the west side lay a newer community with tenements "of the better order." Here, private homes were "nearly all of recent construction, built of brick or brown stone, having all the modern improvements: gas, Croton water-baths, furnaces, water closets and proper sewer connections." Few buildings exceeded thirty years of age. And, not surprisingly, the local population was "of the better class"--almost totally "American."[46] These were the fortunate ones whose class and ethnic origins permitted escape from downtown ghettoes.

Farther uptown, however, variety again ruled. From Third to Sixth Avenues, north of Houston, many fine residences dotted cross streets. But, between First and Third, tenements mixed with private houses, while the wetlands east of First were "positively insalubrious." And real estate values reflected the trend.[47] As a result, Tweed Ring investors largely ignored land east of Third (see MAPS 18 and 19).[48] Records show that few of these lots went for more than $10,000 in the 1860's.[49] John Keyser, a Tweed intimate, paid a mere $3,500 for ground on 10th Street west of Avenue D, and conveyances show this was a typical

price.[50] Figures rose but slightly as one proceeded westerly across First Avenue. Sales here usually approached $10,000. Thus, in 1870, Tweed himself purchased a 9th Street plot off Second for $8,350.[51]

From Third Avenue westerly, buildings improved as one entered the fashionable neighborhoods. A 28th Street lot near Sixth Avenue worth $13,800 in 1854, held a $36,000 value by 1872.[52] Land on 36th (east of Sixth) brought $80,000 in 1868.[53] While, farther downtown, Tweed bought 23rd Street ground (east of Fourth) for $30,500,[54] and a lot and house on 9th (west of Third) for $18,000.[55] Although prices fluctuated greatly, depending on property size, amounts from Third Avenue west usually exceeded $10,000. In fact, holdings on 34th Street and Sixth brought $70,000 as early as 1870, though wetlands on the same road near First Avenue could not realize $10,000.[56]

Certain streets might define a neighborhood, but the pattern was never very neat. In 1865, for example, despite Second Avenue's damp location, sections of it compared favorably with Gotham's best. As one observer noted, Second "from Fourteenth to Eighteenth, in respect to all sanitary considerations, will compare favorably with the same extent of Fifth Avenue: or, again, Eighteenth Street, nearly to the corner of First Avenue, is well-built up with highly respectable private residences."[57] Variety marked Sixth Avenue, too. Though usually elegant

up to Central Park, it possessed "several tenant-houses, and especially rear houses which could assert no privilege."[58] Exceptions, therefore, marred the tidy patterns of every neighborhood.

East side avenues were crucial real estate arteries. One commentator even reported the "bourgeoise... distributed throughout the entire district by means of the avenues."[59] Why not? These lanes were usually the first to receive smooth pavement, gas, water and other improvements. In addition, they served as uptown's prime transportation routes. In short, they played a key role in defining high and low-rent neighborhoods. Second and Third Avenues illustrate the point. By 1865, both enjoyed horse-car railways well past 59th. Yet, to the east, drainage was poor as the terrain sloped riverward. Second Avenue, therefore, marked the boundary between inland prosperity and waterfront decline.

A comparison of real estate values bears this out. The corner of First and 57th went for only $25,000 in 1869,[60] while Avenue A at 86th yielded just $3,000 the year before,[61] and 93rd Street at Second brought $15,000 in 1871.[62] But, as one moved farther west, prices rose dramatically. Farther uptown, the southeast side of 109th and Fourth sold for $66,250 in 1871.[63] Downtown also saw large gains. Tweed himself purchased the southeast edge of Fifth and 42nd for $40,000 in 1870--and that was a steal.[64] Earlier in 1868, Tammany king-pin Elijah Purdy paid $88,000

for Fifth Avenue ground off 48th.[65] To the west, on Broadway, values soared--witness the sale in 1869 of the northeast corner at 33rd Street for $287,625.[66] Of course, avenue prices west of Second were lower, but, up and downtown, they still outpaced values to the east.

Often geographic factors, lack of public works and the type of local population kept a neighborhood submerged. Thus, the damp areas east of First Avenue (north of Houston), composed of Irish and German laboring classes, languished for years amidst sleazy tenements. Since poverty and unemployment plagued inhabitants, speculators were content to cover lots with low-rent dwellings. Feeble profits hardly warranted equipping flats with running water and sewer connections.[67] And, little could be won from city fathers whose apathy endorsed both cobblestone roads and rotting waterfronts. As yet, local prospects hardly invited urban renewal.

But, inland, especially along booming Third Avenue, investments prospered. Here, land values greatly affected a neighborhood's appearance. In fact, conditions often differed radically from one road to the next. On east 26th Street, for example, First Avenue hosted a cobblestone pavement "usually covered with mud."[68] Poor paving and obstructed gutters marred sections of the thoroughfare. But Second Avenue fared better and Third even more so. In fact, observers reported Third as

"usually kept in a very good condition." Here again, terrain was crucial. First Avenue's swampy location discouraged investors; the cost of draining sunken lots for building was prohibitive. Instead, developers opted for the higher, dryer lots of Second, Third and arteries westward.[69]

First Avenue physically reflected its plight, as nuisances blighted various sections. A manure-heap disfigured land near the river from 38th to 39th Streets. Here, health officials reported, "hundreds of loads of manure are brought from the stables in different parts of the city [daily] ; putrefaction is excited as much as possible,...and at the proper season the compost is shipped for use in the country."[70] Worse still, dumping grounds covered many vacant squares along the thoroughfare. A particularly bad one lay north of 33rd. A corporation owned the block and rented it to a cartman who collected six cents per load from the city. Unfortunately, this disease nest attracted scores of the tattered-clothed poor. There, on any day, doctors lamented, "large numbers of women and children contend for bits of coal and wood, old clothes, rags, paper and other material of use to them."[71]

Such conditions were doubly serious, because avenue fortunes affected side streets as well. As Map 4 indicates, roads west of Third enjoyed far better paving than eastern ones. A hierarchy seemed to exist: for the most part, Third Avenue (and cross streets) enjoyed nicer

buildings and higher land values than Second which possessed similar advantages over First. But positions were hardly secure; by 1870, Fifth would lead the others.[72] City officials not only understood these subtleties, but informally allowed them to influence policy-making. Hence public works tended to concentrate in new, popular areas more than elsewhere. Quantitatively, downtown neighborhoods may have enjoyed more sewer and water pipeage, but, qualitatively, uptown lots won most modern improvements.

Sewers were a prime example. No leaky, brick structures would service uptown, only vitrified pipes would do. Similarly, upper Manhattan roads would not labor under Russ or other defective pavements; city authorities would only lay trap blocks, macadam or other reliable surfaces. Metallurgical advances permitted the laying of water and gas lines more resistant to natural forces, less likely to leak and easier to tap for house connections. As the century wore on, northern lots benefited most from technological advances in public works. In fact, by 1865, many contemporaries considered the east side above 33rd Street "the healthiest locality in the city." The section's broad thoroughfares (from sixty to one hundred feet wide) meant "no crowding for business purposes." Moreover, many of the roads had trap blocks as their original pavement. And, in further contrast to downtown, areas west of First Avenue possessed a well-planned drainage system, with most routes enjoying proper grading.[73]

North of 40th, there were none of the crooked, narrow arteries so common below. All uptown streets were at least fifty feet wide (with 42nd, 57th, 79th and 86th one hundred feet in length) and avenues (except Lexington) approached one hundred feet.[74] In addition, most populated communities boasted sewers, water mains, gas pipes and trap-block pavement. Conditions above east 40th contrasted with those downtown. Although the former contained residents of all economic classes, it lacked the stifling congestion of lower Manhattan. Despite many Irish and German inhabitants, tenements were scarce. Of the district's dwellings, over two-thirds were private homes, many less than ten years old. The average structure was brick with brown stone front, rising three stories high. Rooms were spacious and equipped with gas lighting, Croton pipes and water closets.[75]

There were dram shops, stables, shanties and "small factories," but in these uncrowded surroundings, they presented less problems than elsewhere. Even the tenements, most, recently built, were superior to their downtown counterparts. Built of brick and averaging only four stories, many had both Croton water and gas. Few contained the infamous "cellar apartments, those damp breeding grounds of disease." But still, even here, ventilation was poor. Nevertheless, the investors who built these flats designed them for laboring classes several rungs up the ladder from those downtown.[76] In all, the section displayed a marked potential for real estate growth.

Optimism marked the mid-century years in New York. Depite the poverty, disorder and congestion of the city, land boomed in the 1860's. Lots everywhere brought prices scarcely imaginable in pre-war decades. Thus, as population and construction broke all-time records, officials strained to keep public works apace. But injustice marred the process. Clearly, certain neighborhoods--usually uptown and fashionable--edged out others, fraying tempers, creating uproars and altering the strategies of real estate speculators.

By 1865, Manhattan boomed as Civil War profits and later the "greenback era" inflated prices everywhere. Downtown lots surpassed previous highs. In 1868, for example, the Y. M. C. A. bought the southeast corner of Fourth Avenue and 23rd Street for $75,000 "and $125,000 was offered for it immediately after it was purchased."[77] Farther uptown, 191 feet of land at Broadway and 35th brought $219,000.[78] Promoters marvelled at the meteoric rise in values during the century. For instance, one lot on the east side of Broadway near Lispenard which brought $7,000 in 1814 went for $125,000 only fifty years later.[79] While, in 1871, Boss Tweed paid $600,000 for Broadway ground at 21st which failed to bring $150,000 just seven years earlier.[80]

Downtown rates responded to the rapid change of land use. Roads other than Broadway shared in the prosperity.

In 1870, Tweed purchased a Mercer Street lot near Bleecker for $120,000,[81] but this was unusually spectacular. In a more normal transaction, contractor Terence Farley paid $25,000 in 1870 for a site on Norfolk near Grand,[82] while, a year later, he combined with William Hitchman to buy the northeast corner of Mott and Houston for $25,650.[83] These prices were amazing, since tenements and factories had long ago expelled fashionable housing.

Nevertheless, despite the brisk sale of lots downtown, suburban real estate held the greatest allure. As store rents soared along lower Broadway and other roads, shopowners moved northward where landlords charged one-fourth the rate.[84] And the enthronement of Fifth Avenue as Gotham's fashionable route only intensified the exodus. Another factor aided the movement: as rents rose uptown from $1,000 to $3,000 by 1870, it "induced many property owners...to convert fine dwellings into stores and offices."[85] Soon these lots commanded good prices both for commercial and residential uses. With conditions favoring both buyer and seller, a mini-boom ensued. Of the 879 first-class dwellings erected in New York during 1868, five-eighths were above 40th Street. Never had the district claimed so many elegant homes.[86]

Yet, growth was no stranger to the upper east side. For years it had led its cross-town rival.[87] Clearly, transportation was the key. By 1840, the omnibus had extended the city to 23rd Street. And building activity

took a further leap northward in the 1850's with the coming of the horse-cars. Indeed, by 1865, construction flourished as these vehicles brought 90th Street within an hour of Wall. As early as 1858, street cars plied Second Avenue to 122nd Street and Third to 86th.[88] As a result, "residences and stores sprang up along their routes, and although in 1868 the east side still wore a suburban aspect, Third Avenue was almost continually built up as far as 86th Street, and Second Avenue was well lined with buildings."[89]

Another east side benefit lay in the section's proximity to Harlem. Since the early century, this fledgling community had attracted much attention. Harlem was Manhattan's window to the Bronx. It thrived as a distant suburban center throughout the pre-war era. Downtowners themselves extended Third Avenue as an artery to the village. As previously shown, long before the horse-car railways, landholders paved the entire thoroughfare and placed it in the "Lamp District." By the 1820's, road traffic was heavy and the railroad's arrival in the following decade promoted still more interaction. In fact, throughout the ante-bellum years, New York stretched mightily to draw this peripheral town to its bosom.[90]

Though part of the city by 1873, Harlem's location had long posed a problem. Police, fire and educational facilities had to be extended there. Hence, as early as the 1820's, promoters worked to spread the lines of communication, transportation and

commerce closer to Harlem. Second and Third Avenues seemed the most direct routes. By the 1820's, the building process had begun; omnibus and streetcar only intensified it. Total victory came in 1880 when elevated trains brought all of eastern Manhattan within an hour of Wall Street.

The upper west side enjoyed far less success. Prior to the 1870's, these lots, though lacking public improvements and transportation, brought prices rivaling eastern sales. In 1868, two blocks of the Talman Estate (between Tenth and Eleventh Avenues from 66th to 68th Streets) cost $200,000. A month later, the southern block alone went for $172,000.[91] And land promoters boosted speculation still further with claims that nascent Riverside Park (from 72nd to 113th Streets near the Hudson), "if ordinary justice is done in the engineering and landscape gardening,...will exceed the Central Park in attraction." In fact, realtors predicted, the avenue bounding the grounds's easterly border "will be lined with residences as far surpassing the present Fifth Avenue as that surpasses Bond Street, Leroy and Lafayette Places, of former times."[92] But investors placed their hopes in the area's growth <u>potential</u>. No one foresaw the bust of '73.

Clearly, a struggle existed after 1865 between the upper east and west sides, for Manhattan could not yet support booms in both areas. Investors would have to choose. The east side ultimately won out, because it held the

"central spine" of the city. Transportation had been crucial to winning this prize, but realtors pointed also to geography. Thanks to being "flat and low," the section enjoyed an uncomplicated terrain which permitted easy grading and quick installation of utilities. Thus, by the 1860's, land officials reported "a feverish activity... to secure property on the backbone of the city between Fourth and Fifth Avenues...say from 14th to 125th Street."[93] The triumph was complete. Topographical peculiarities and poor planning had combined to deprive the west side of utilities and paved streets, while its cross-town rival had suffered none of these maladies.[94]

Finally, in 1868, these events led the Real Estate Record to predict that "notwithstanding the great inducements offered to builders on the west side...and the impetus given to the move in the direction of the new Boulevard, the great majority of buildings will be erected on the east side."[95] Only the adventurous investor could afford to build on un-regulated slopeland. Hence most home owners veered eastward, because, as one man put it:

> people do not care to pay two or three or ten times as much for a plot of ground as for the house they erect upon it. The demand for small one-family, moderate-priced houses is almost universal, and such cannot be erected on the west side of the city and insure anything like a respectable return on an investment. [96]

For years east siders sought and received improvements while their adversaries failed. By 1865, the latter

craved instant help. But, even with city action, public works on a massive scale would mean ruinous assessments. Already westernites sagged under heavy payments for Riverside and Morningside Parks. In fact, as liens increased in the section, real estate declined further.

In contrast, prices along eastern avenues continued rising. A Third Avenue lot near 59th, though distant from Central Park, brought $60,000 in 1867 and $70,000 a year later.[97] While, in the same period, Third's southwest corner at 61st went for $150,000.[98] Fashion was a key. By 1870, Fifth Avenue from 42nd to 86th was the center of first-class housing. This influence had spilled over from Second and Third Avenues west to Sixth. Fifth best fitted the needs of wealthy New Yorkers. It lay between the business district and Harlem-Yorkville. In addition, it bounded Central Park while avoiding both First Avenue's wetlands and the west's disruptive terrain. Sixth, Fifth and parallel routes north of 42nd offered a convenient location, near the city but still far away from downtown congestion.[99]

Throughout the late 1860's till the Panic, lot values between Eighth Avenue and the Hudson experienced steady decline. This resulted from the cadaverous state of public works. The West Side Association repeatedly berated the town for failing to open the Boulevard quickly.[100] In 1869, the Real Estate Record reported that members "are determined that the laws relating to the assessment of

taxes shall be amended; that the opening of streets (west of Central Park)...shall be hurried up...and that all desirable improvements shall be hurried up."[101]

The group suspected that Commissioners of Estimate and Awards had witheld their reports on these projects. Already Commissioners William "Boss" Tweed, Hugh Smith and James Sweeny had spent four years researching a report on Riverside Park assessments.[102] This alone delayed sewers, pavement, gas and water mains for a decade. In addition, many property owners faced tax valuations based on the increased value of their land derived from the improvements--even though work on most had scarcely begun.[103]

Inhabitants knew no end of frustration. Finally, after months of waiting they saw the Commissioners file incompetent papers. Morningside Park proved a real fiasco. By 1870, realtors described it "as a monument of the mystery and uncertainty so eminently characteristic of the whole street opening business under the regime of our metropolitan Hausmann's."[104] Awards were at least 33 per cent too low for those losing ground to the project and the taxed area was cut so small that it victimized residents with exorbitant liens. Worse still, there were several blocks of lot owners liable for payments on both Riverside and Morningside Parks.[105] Thus, with the area in chaos, it was little wonder that the middle class turned eastward for housing.

The Tweed Ring came to power gradually. Its leader, the son of a furniture-maker, emerged from the lower east side. Like many young Irishmen, Tweed began his career as a fireman. He made contacts early and watched his fortunes rise. He served briefly in various capacities: alderman, congressman, education commissioner and later county supervisor. Finally, in the late 1850's, Tweed and associates captured Tammany Hall where they promptly restored unity through reconciliation and purging.[106]

Once in power, Tweed engaged a motley crew. Only trusted aides handled account books. For this reason, his friend, Richard "Slippey Dick" Connally served as Comptroller and James Watson as Auditor. Nepotism thrived under Connally; both his son (Auditor in the City Bureau) and son-in-law (Deputy Receiver of Taxes) won employment. Under their supervision, vouchers were "safe." Other loyal cronies filled key positions. Peter Sweeny, a trained lawyer, became both a Parks Commissioner and City Chamberlain.[107] W. E. Woodward was Clerk to the County Board of Supervisors. William "Billy" Hitchman controlled the Fire Department and Alex "Alec" Frear Emigration, Charities and Correction, while Thomas Fields, a former corporate attorney and state legislator, ran the Public Parks Department. With such control over city offices, the regime could act as both employment agency and real estate developer.[108] Who was to argue? The machine had friends everywhere including the press. Indeed, Joseph Howard and Stephen J. Meany among others penned

favorable copy. And, buttressed by this support, the Ring was quick to strengthen its power. Each year saw its grip over City Hall tightened.

Despite the regime's traditionally bad reputation, there were actions which benefited Gotham. For one thing, Tweed lobbied vigorously for the city charter of 1870 which profoundly changed the structure of public works. The instrument not only restored control of the Police, Fire and Health Departments to the town, but also brought needed centralization to government. For the first time, a Docks Department supervised waterfront improvements and a Public Parks office maintained recreation lands. Most importantly, the new Department of Public Works became the focal point of city policy. No longer would the out-dated Street Commissioner handle gas mains and sewers. Now competing jurisdictions would collide less often. The centralization of public works into a single agency was the first step toward effective city planning.[109]

The Ring also set other crucial precedents. As shown previously, Tammany support for the 1865 "Sewage Act" had marked the beginning of waste"systems' in New York. Moreover, the Tweedites were receptive to technological innovations. The 1860's saw Democratic councilmen and bureaucrats support vitrified pipe as a cheaper, more durable substitute for brick conduits. These men hardly

feared the change. TABLE 1[110] shows how quickly they adopted the new models.

TABLE 1

PERCENTAGE OF NEW SEWERS LAID EACH YEAR

Year	1864	1865	1866	1867	1868	1869	To April, 1871
Pipe	6.8	71.7	82.1	86.6	85.6	82.0	69.2
Brick	93.2	28.3	17.9	13.4	14.4	18.1	30.8

In addition, the Tweed-controlled government not only improved the quality of pipeage, but also maintained a reasonable production (see TABLE 2).[111]

TABLE 2

LINEAL FEET OF SEWERAGE LAID
BETWEEN 1850 AND 1860 (in thousands)

1850	61.5	1861	29.3
1851	63.0	1862	19.6
1852	65.6	1863	20.9
1853	73.5	1864	23.5
1854	73.5	1865	39.0
1855	38.6	1866	46.7
1856	49.2	1867	66.7
1857	10.4	1868	86.5
1858	36.2	1869	72.1
1859	41.8	1/1/70 to 4/10/71	79.5
1860	37.1	4/10/71 to 4/10/72	63.6

Paving, too, attracted municipal interest. Here again, the Tweedites, not satisfied with Russ or Belgian trap blocks gave Hamar, macadam and other modern surfaces a chance. And, as TABLE 3[112] indicates, the regime laid miles of these compositions throughout the city.

Tweed's government, therefore, exerted a strong

influence over sewers and pavement. And there were notable advances in gas and water pipe installation as well.

TABLE 3

LINEAL FEET OF SMOOTH PAVEMENT
LAID BETWEEN 1840 AND 1867 (in thousands)

1840-59	99.7	1864	32.2
1860	32.4	1865	17.7
1861	19.2	1866	62.5
1862	24.6	1867	49.2
1863	37.0		

Furthermore, Tweed had a hand in building or improving major uptown parks, beginning sea wall construction on the waterfront and launching Roebling's bridge to Brooklyn. The regime's accomplishments radically altered Manhattan's appearance. Numerous projects won approval, especially the "many betterments in the unsettled portions of the city."[113] Under these leaders, Gotham finally serviced its sprawling suburbs.

Yet, a great ambivalence marked the Ring's accomplishments. Centralization of power was both an aid to government and a tool for Tweed. He doubtless created the new Department of Public Works and became its first Commissioner to control spoils. The 1870 charter, though a crucial instrument of reform, was also his license to steal. It gave Tweed, Richard Connally and Mayor A. Oakey Hall a headlock on all road projects. In one stroke it deprived the Common Council of its vote on improvements below 14th Street. Instead the

authority went to a "Board of Street Openings" composed of the Mayor, Comptroller (Connally) and Public Works Commissioner (Tweed). In short, state law awarded this body "all the power...as to laying out, opening, widening, straightening, extending, altering and closing streets or avenues"--south of 14th Street. This new set-up dovetailed nicely with an 1869 statute which gave City Hall the right to assume half the costs of street extensions and alterations above 14th Street and the total expense below. True, the measure opened the town to large-scale development, but it also enabled Commissioner Tweed to create and finance projects at will. No wonder contractors paid kickbacks.[114]

In yet another coup, Tweed extracted legislation awarding his office the right "to change the grade between Eighth and Ninth Avenues of any streets intersecting the Eighth Avenue, between Fifty-ninth and One Hundred and Twenty-second."[115] Under this law, Tweed could have let even more contracts, since every grade change would have required costly new sewers, paving, curbing and guttering. He could now promote or retard real estate growth anywhere in Manhattan. Fortunately, by 1871, his days in office were numbered.

After 1860, sewers centered largely above 42nd Street (see MAP 4). Sparked by the creation of Central Park, uptown

sections filled with single and multi-occupancy dwellings which demanded service. Upper and middle-class residents here would not tolerate wastes flowing through their neighborhoods. And the town, too, stressed the cosmetic appearance of these communitites approaching the Park. All had to be clear and sanitary where city-scape blended with countryside. As a result, areas south and east of the Park won most new sewerage. Modern conduits ran up Fifth, Seventh, Madison and Lexington Avenues, as well as numerous road segments east of the Park. After 1858, downtown received little attention. Even in the forgotten Tenth and Thirteenth Wards, packed with German tenements, the government still ignored the sanitary needs of the populace; residents simply lacked political clout. Instead, most of the vitrified mains went north to pad the bankrolls of speculators.

Gas, too, reflected the uptown accent (see MAP 5). After 1857, the utilities laid most new lines north of 34th. Below 59th, networks traversed every cross street, river to river. But once in the sixties, pipes veered mostly eastward where geography and policy had combined to lure settlers. And soon gas supplied the grid up to Harlem, once again stimulating real estate there. By 1872, these lots prospered while the west lay obscured in a glimmer of oil. The spoils of victory seemed poorly divided.

All New York shared the lust for smooth pavement; neighborhoods vied to shed their cobblestones (see MAP 6). But again, the upper east side won out, while ghettoes

downtown retained creviced pavements. The city could not afford to improve all roads at once. Therefore, in lower Manhattan only heavily-trafficked streets like Wall, South, West and Washington saw progress. Irish and German wards east of the Bowery, though crowded and disease-ridden, went disregarded. But more opulent districts girding Lafayette Place, Madison and Union Squares received undue attention, as did uptown. Usually, authorities preferred laying trap blocks in northern locations where dirt roads could be inexpensively graded, regulated and paved. As a result, Second, Third, Lexington and Fifth all got new surfacing, while routes flanked by lower-class residents and stagnating real estate (like Avenues A and First) earned little notice. And the pattern continued until the 1890's when modern coverings became universal in streets west of First Avenue.

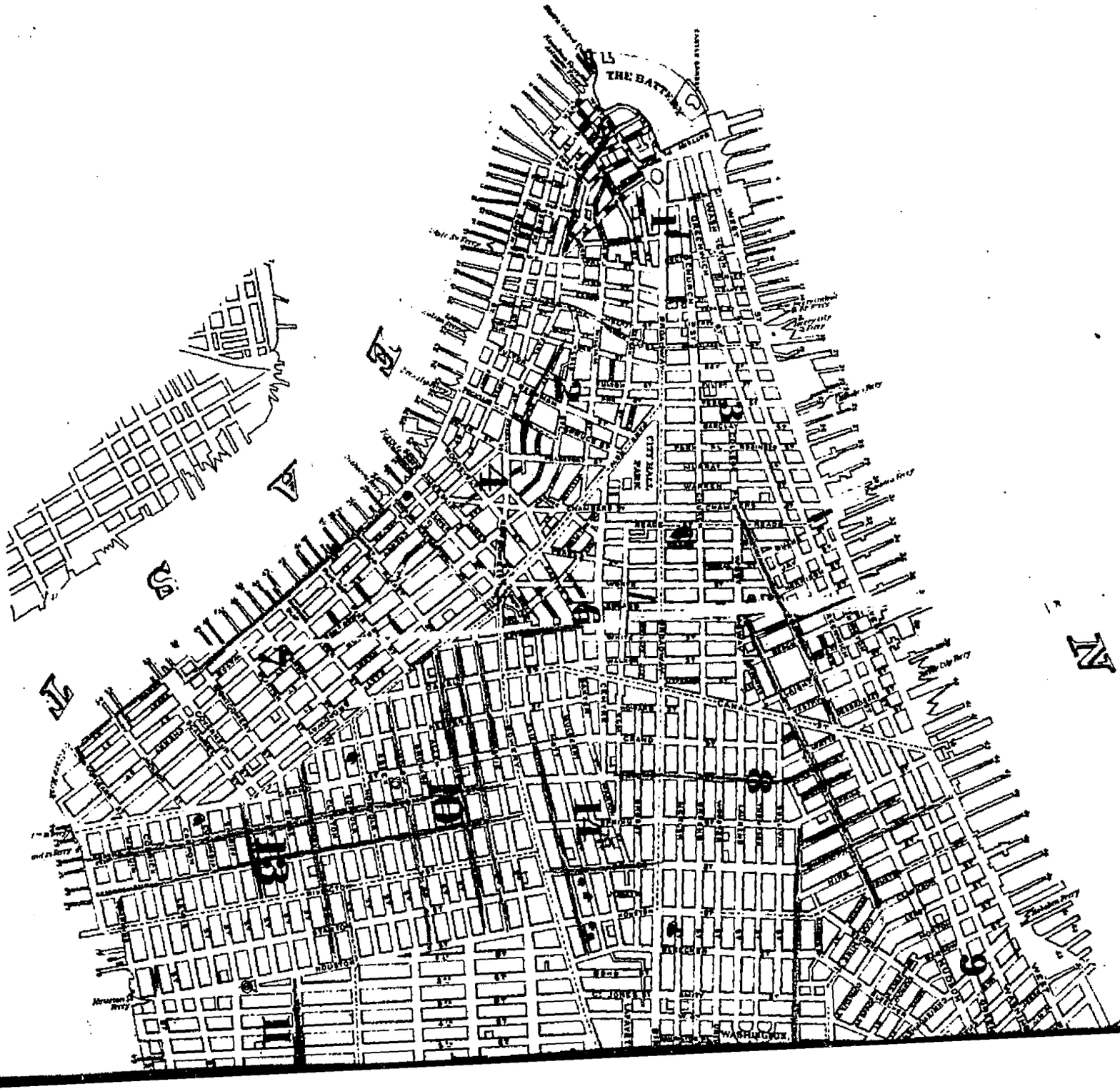
Of course, the upper west side was victimized, too. Grade disruptions, delays in altering the official street plan and public construction snags had reduced the area to a wasteland of craggy hills. Without sewers, no roads could be paved. And, with ill-defined routes running hither and yon few families could chance building homes. Amidst the chaos, gas and water mains, too, boycotted the section, leaving residents to fend for themselves.

Another factor influencing real estate and improvements was the Tweed Ring's control of government. From 1858 until its fall in 1871, the Ring, through elections, bribery and charter revisions, had strengthened its hold

over New York. By 1868, the machine had reached its apex. And though the Tweedites made millions through inflated construction costs, kickbacks from contractors and other schemes, real estate was perhaps its favorite pastime. Why not? The Ring controlled public works. Indeed, MAPS 18 and 19 show that members sometimes backed projects which enhanced their own lands's value. With occasional exceptions, these men owned many lots above 25th Street. South of 59th, speculation concentrated between Second and Seventh Avenues approaching Central Park. By 1868, most of these thoroughfares already had sewers, gas and water. Many large tenements and middle-class homes lined the roads in the wake of Fashion's migration northward.

But these mid-town investments, though substantial, were not the main focus of Ring activity. Action centered farther north above 50th. As the maps indicate, Tweed, Richard Connally, Peter Sweeny and others bought heavily into Harlem and Yorkville. There was some west side action, though eastern investments almost tripled that number. Thus, one might ask: Why did Tweed as an Estimates Commissioner for Riverside Park hold up assessment and construction? Perhaps the machine used Central Park as a giant block against Fernando Wood, the West Side Association and other Riverside proponents. Clearly, if a battle existed over which direction Manhattan's growth would take, east siders would benefit by delays in the west.

In fact, most public works concentrated between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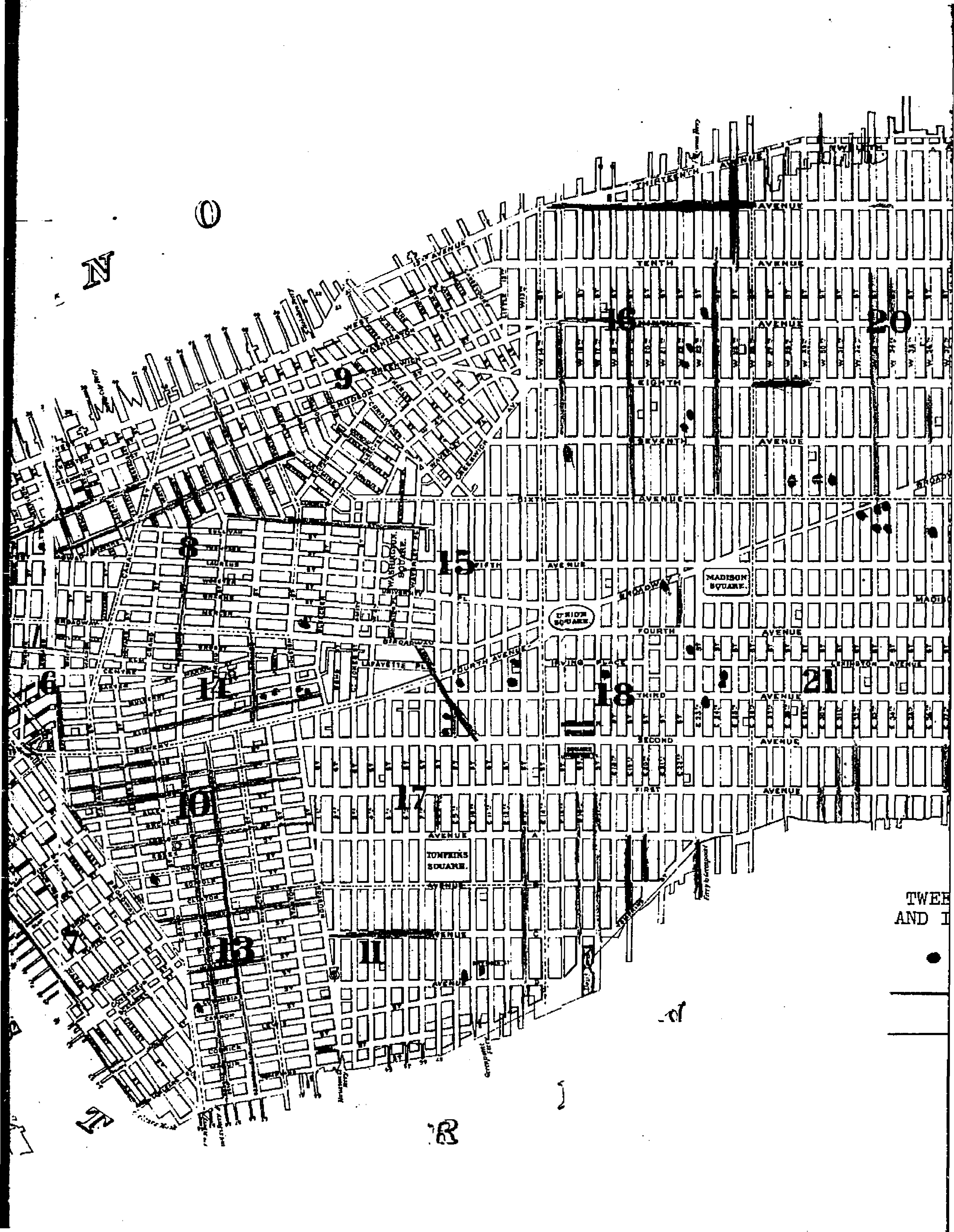

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FOURTH AVENUE
LEXINGTON AVENUE
IRVING PLACE
THIRD AVENUE
SECOND AVENUE
FIRST AVENUE
BROADWAY
MADISON SQUARE.
UNION SQUARE.
WASHINGTON SQUARE.
TOMPKINS SQUARE.
LAFAYETTE PL.
UNIVERSITY PL.
BOWERY
CENTRE
HUDSON
GREENWICH
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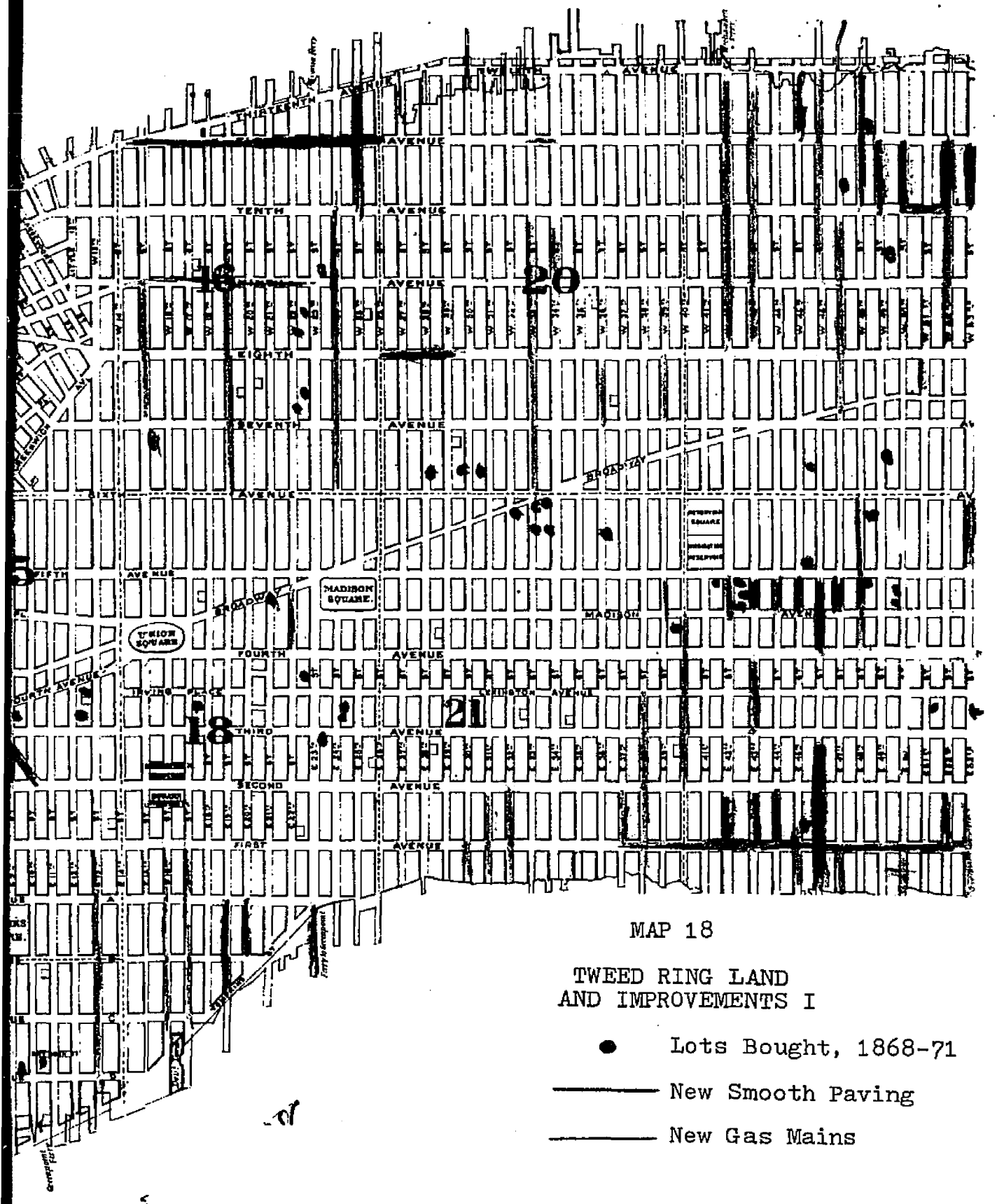


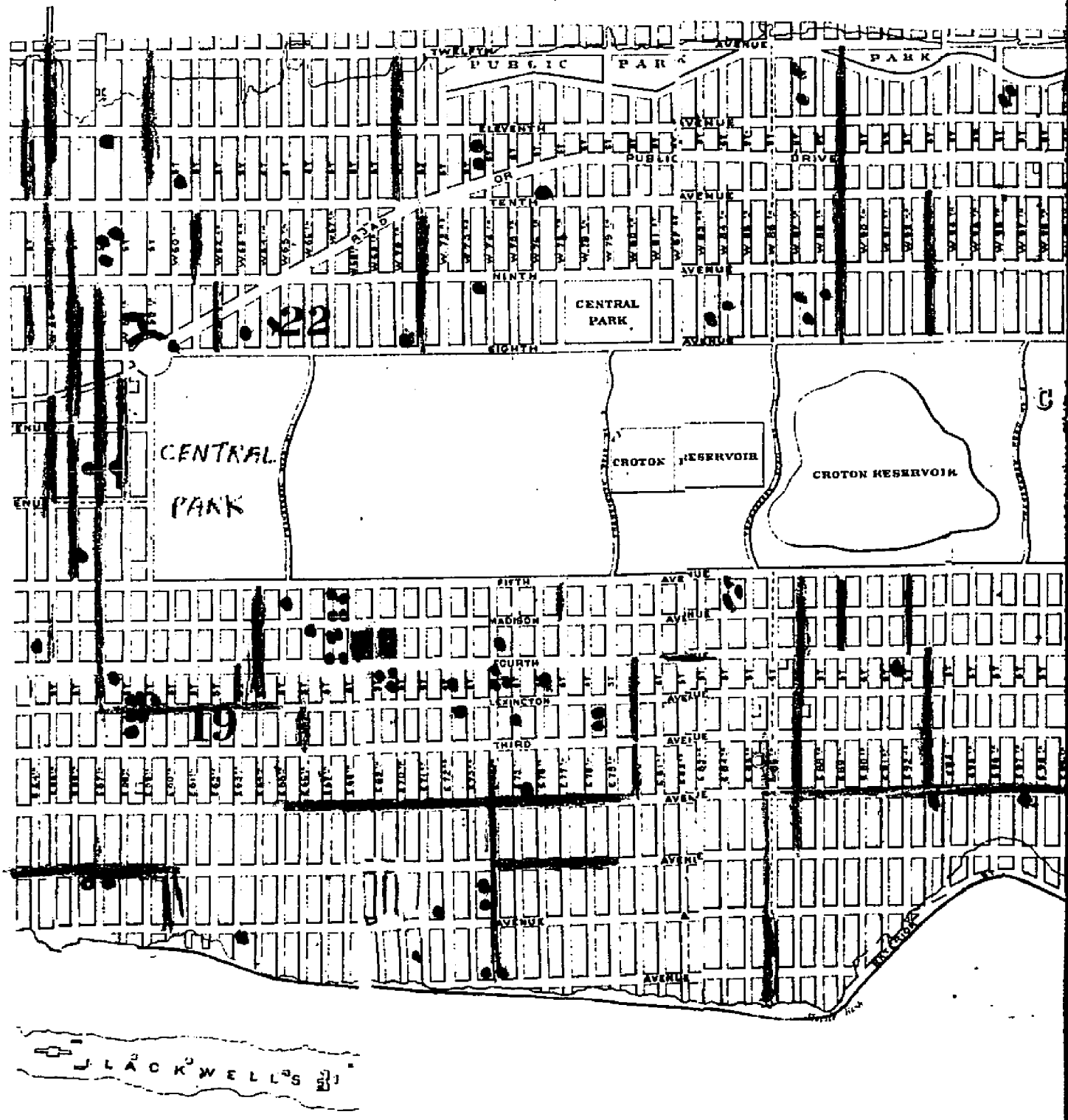
MAP 18

TWEED RING LAND
AND IMPROVEMENTS I

● Lots Bought, 1868-71

——— New Smooth Paving

——— New Gas Mains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RESERVOIR
CROTON RESERVOIR
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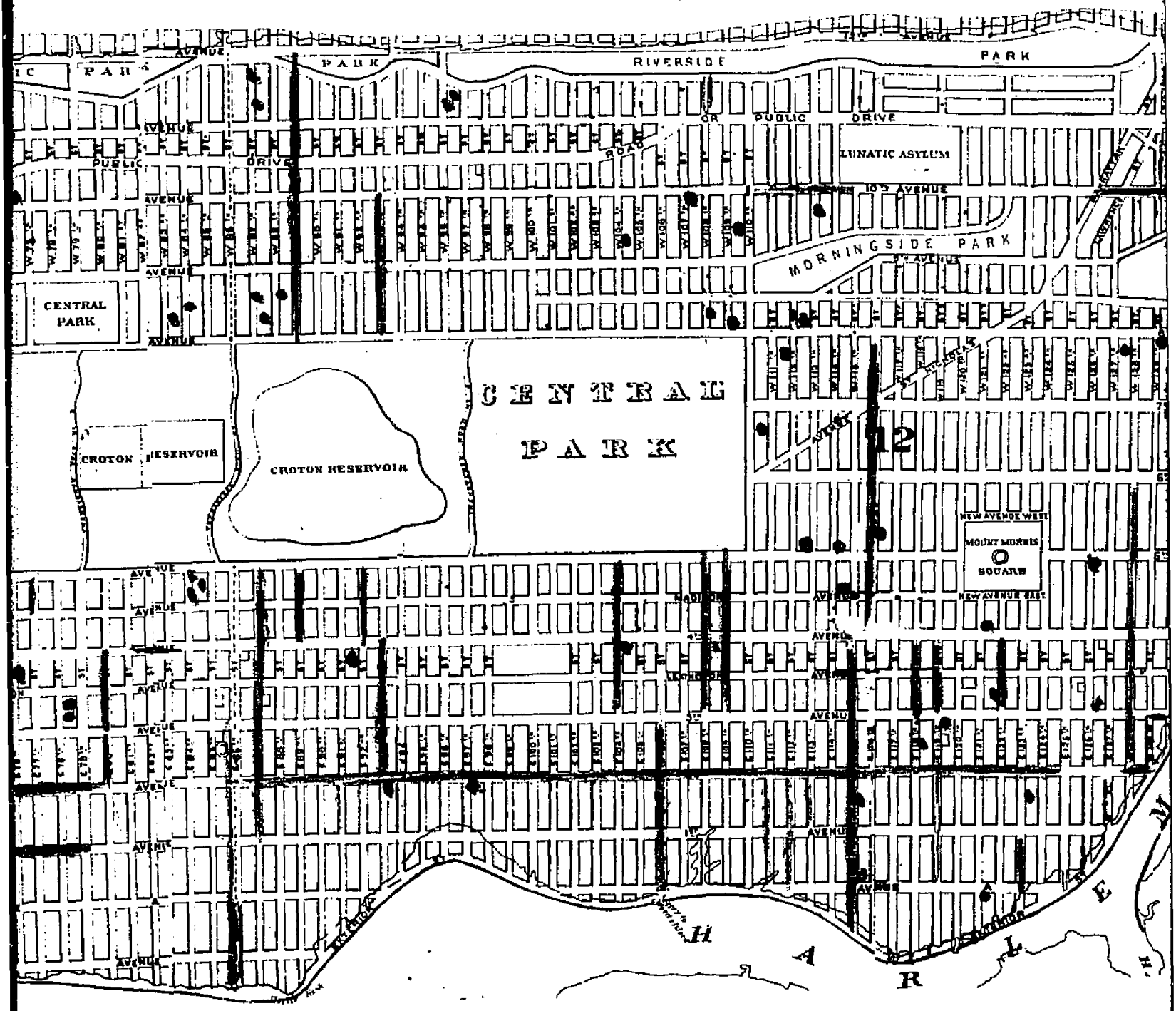
19
BLACKWELLS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PUBLIC DRIVE
LUNATIC ASYLUM
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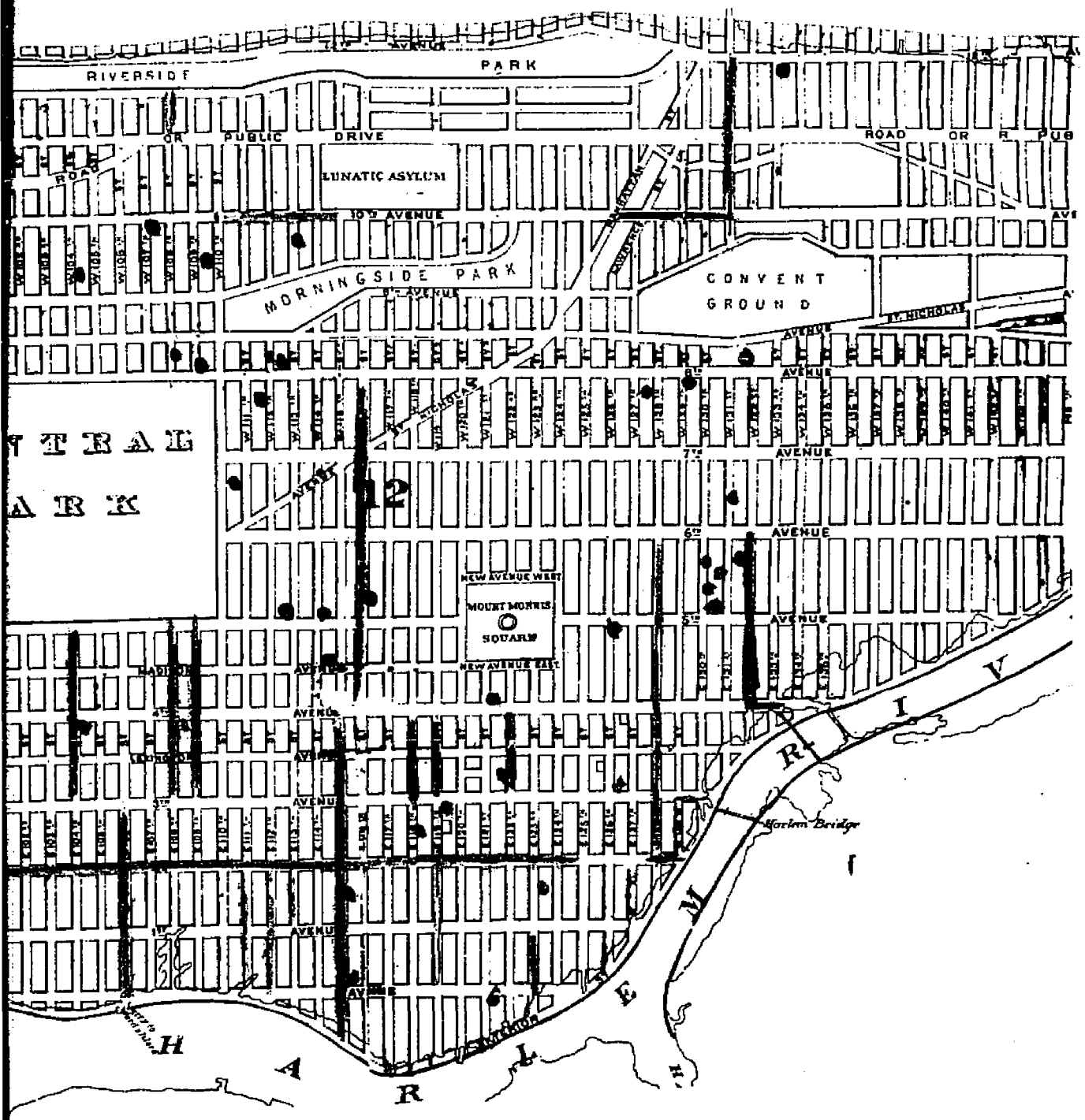
CENTRAL PARK
CROTON RESERVOIR
CENTRAL PARK
MOUNT MORRIS SQUARE
H A R L E M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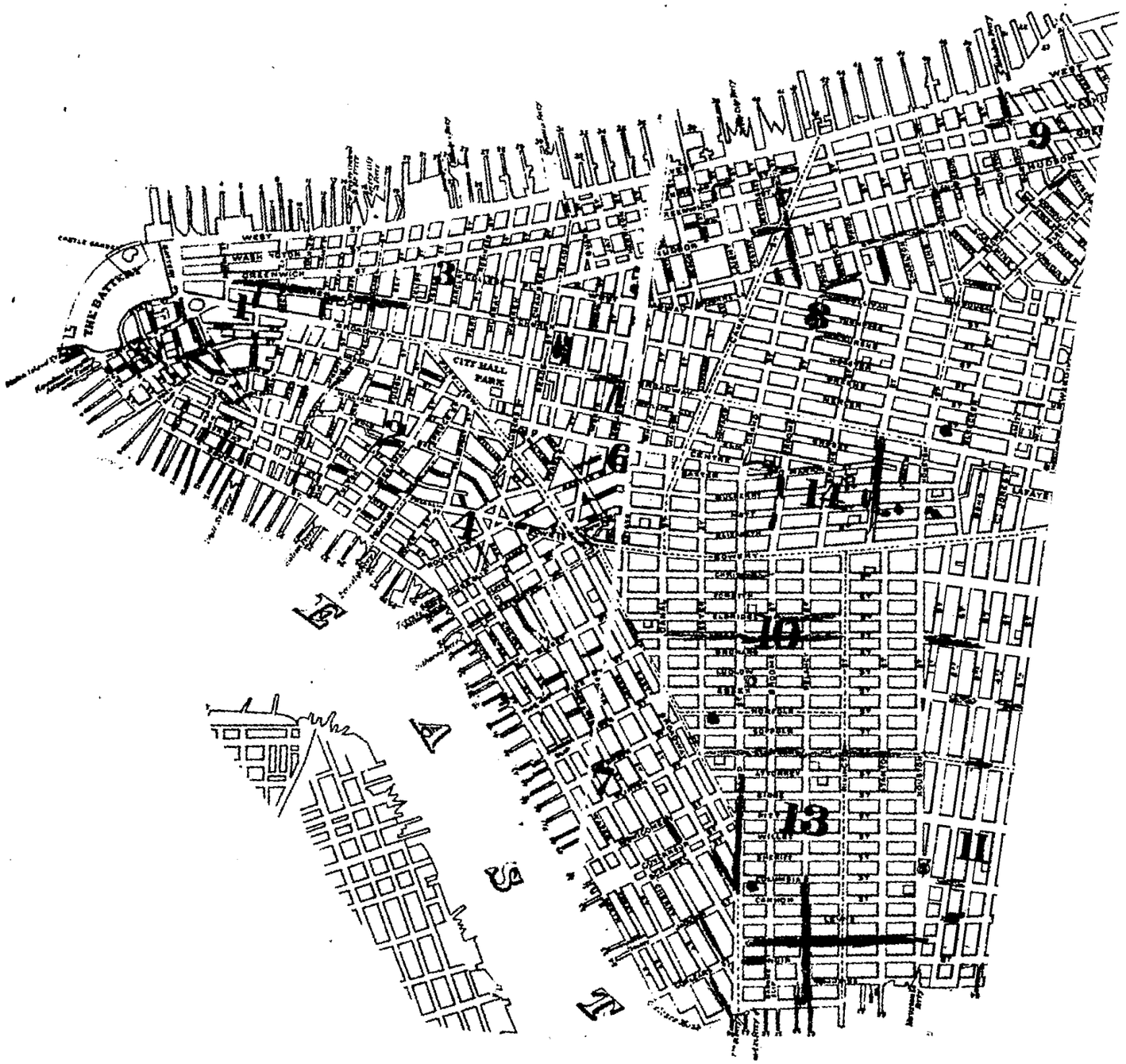
NEW AVENUE EAST
Harlem Bridge
HARLEM
RIVER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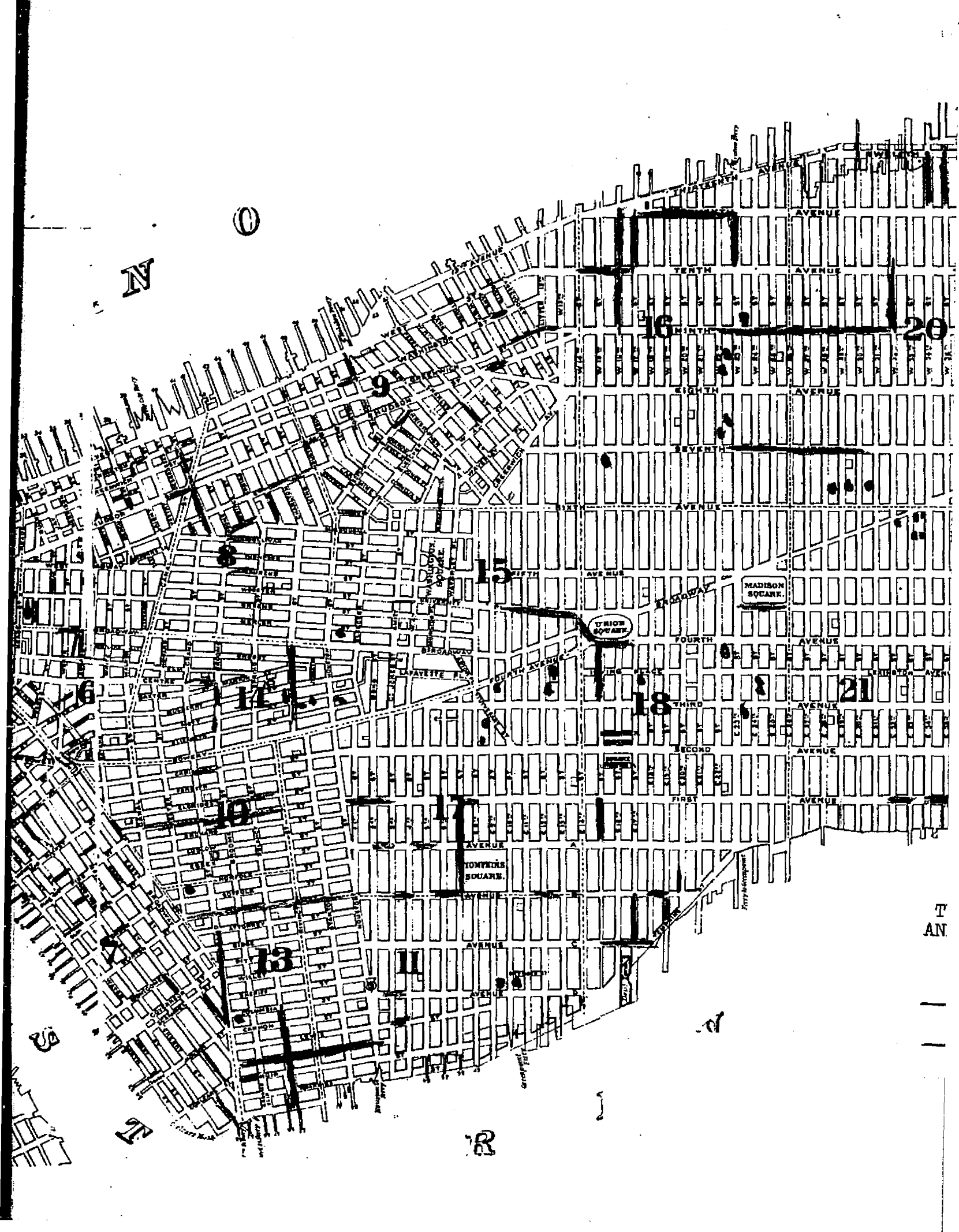
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MADISON SQUARE.
UNION SQUARE.
TOMPKINS SQUARE.
BROADWAY
FOURTH AVENUE
THIRD AVENUE
SECOND AVENUE
FIRST AVENUE
TENTH AVENUE
NINTH AVENUE
EIGHTH AVENUE
SEVENTH AVENUE
SIXTH AVENUE
FIFTH AVE NUE
LAFAYETTE PL.
WASHINGTON SQUARE
WEST WASHINGTON PL.
HUDSON
GREENWICH
CENTRE
WARREN
CHAMBERS
READE
DUANE
THOMAS
LEONARD
FRANKLIN
WORTH
WALKER
GRAND
HOUSTON
PRINCE
SPRING
BLEECKER
BOND
GREAT JONES
WAVERLY PL.
LEXINGTON AVEN
PARK PLACE
AVENUE A
AVENUE B
AVENUE C
AVENUE D
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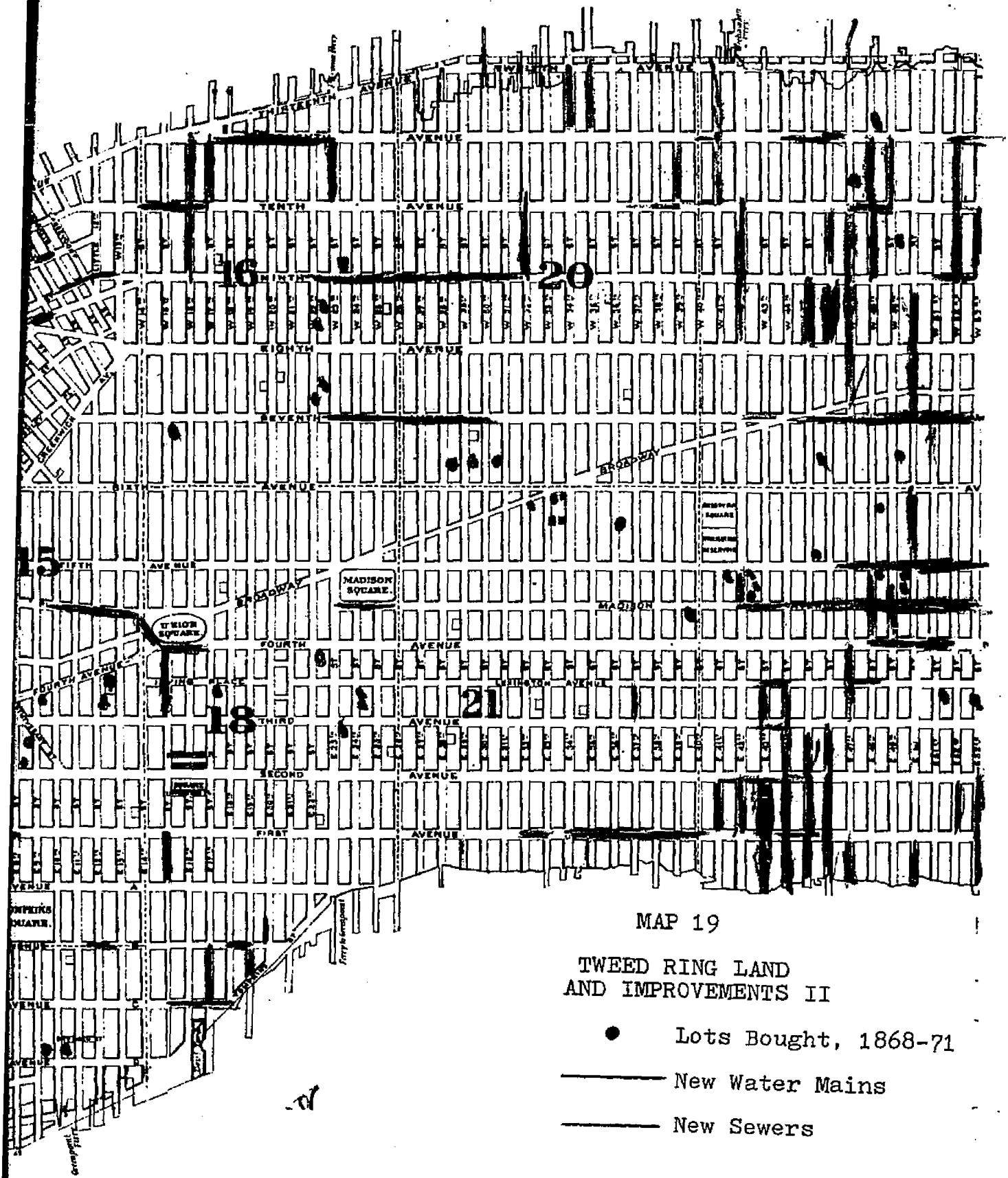
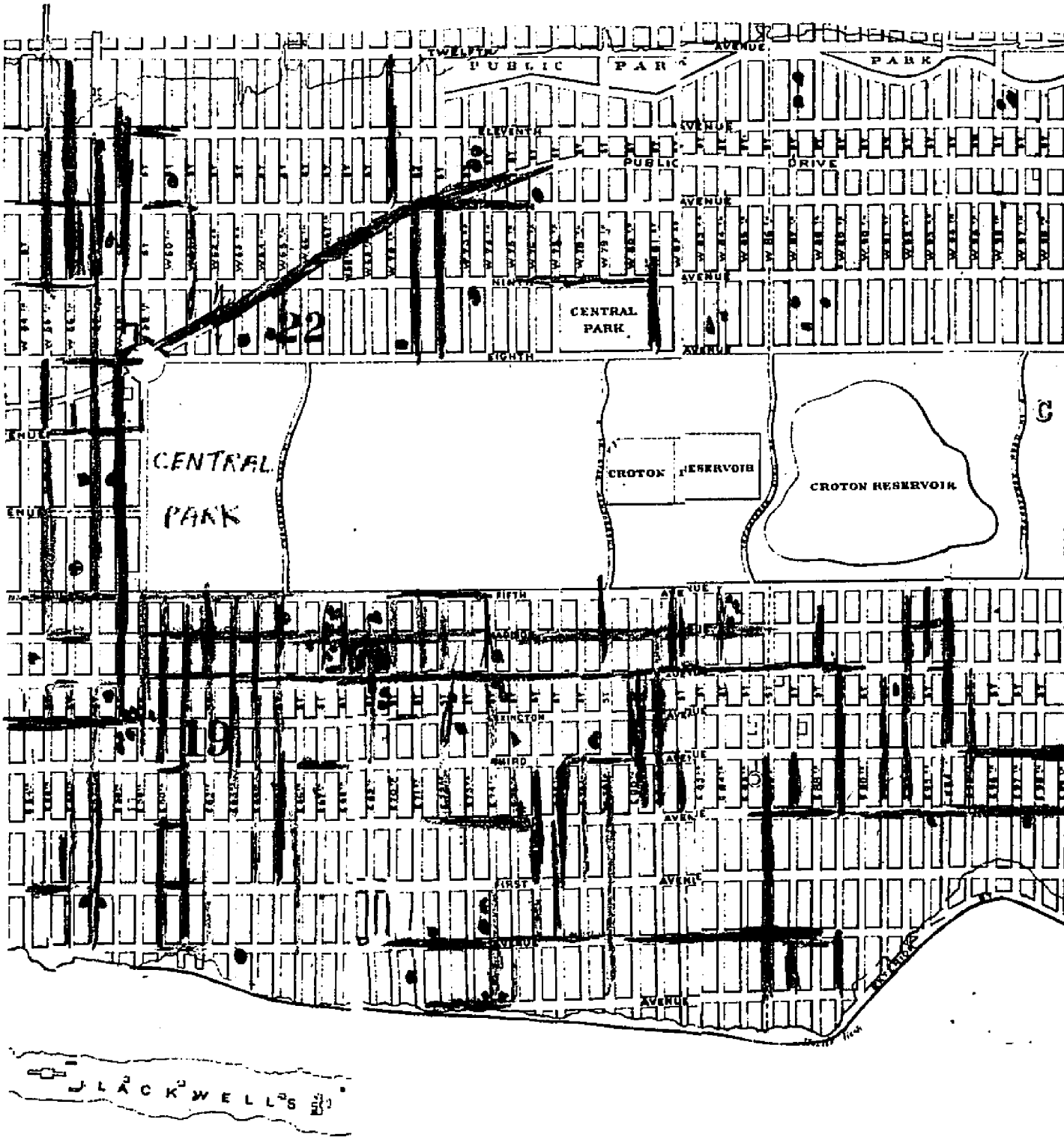


MAP 19

TWEED RING LAND
AND IMPROVEMENTS II

- ● Lots Bought, 1868-71
- ——— New Water Mains
- ——— New Sewers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CROTON
RESERVOIR
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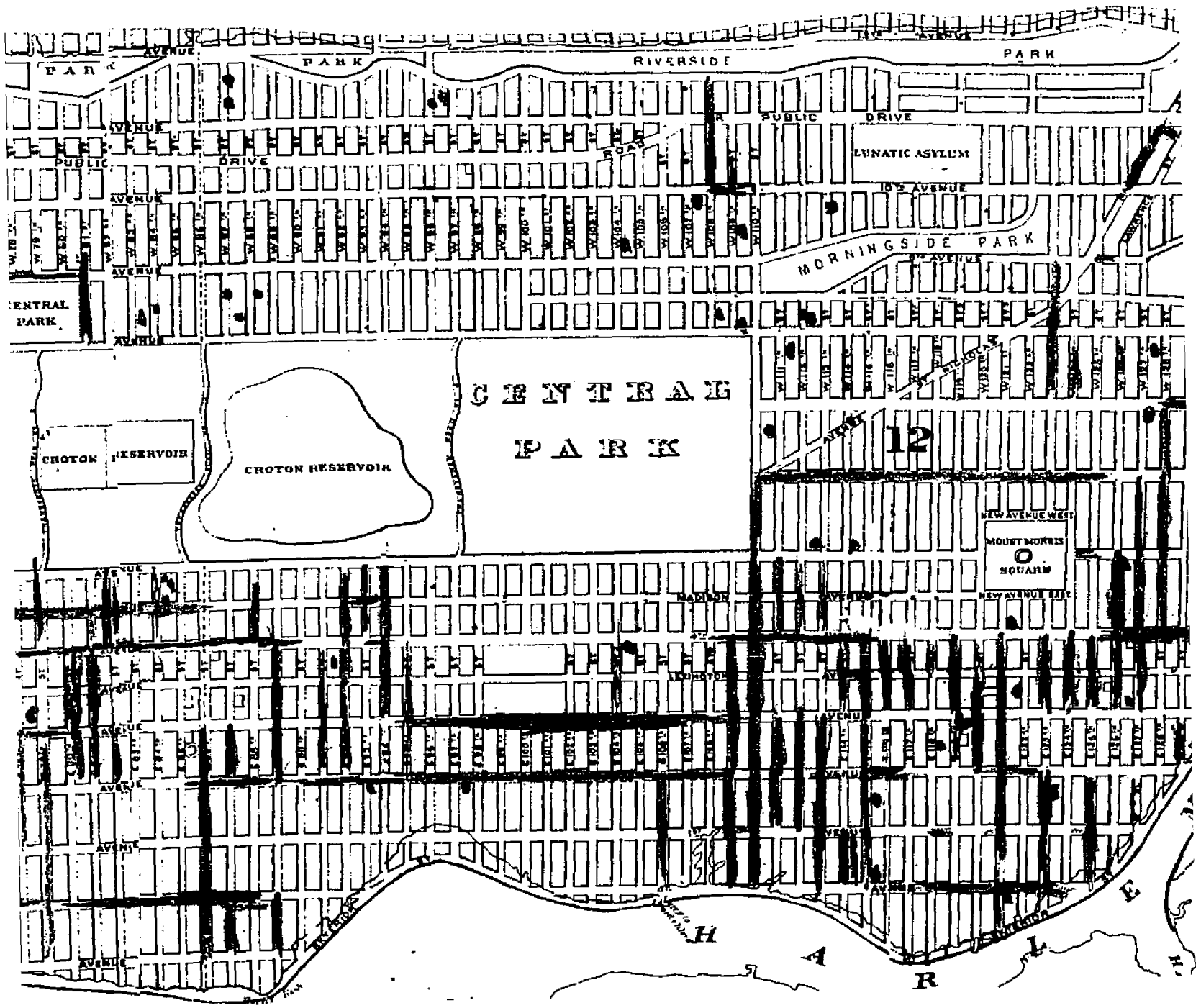
AVENUE
BLACKWELL'S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MORNINGSIDE PARK
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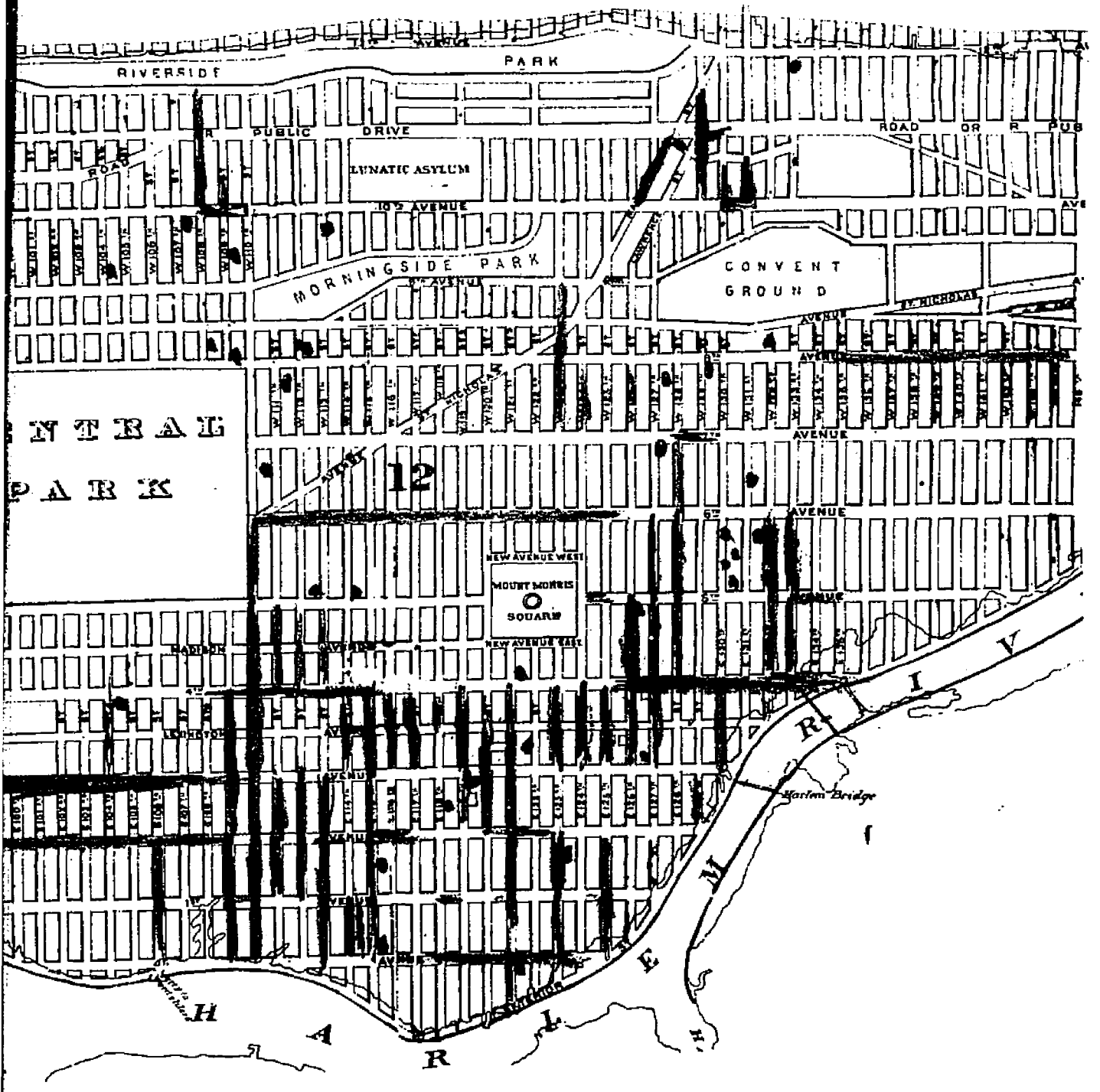
CROTON RESERVOIR
CROTON RESERVOIR
12
MOUNT MORRIS
SQUARE
MADISON
HARLEM


RIVERSIDE
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MORNINGSIDE PARK
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NEW AVENUE WEST
MOUNT MORRIS
SQUARE
NEW AVENUE EAST
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NTRAL
PARK
Harlem Bridge
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Fifth and First Avenues. Both maps indicate large networks of water mains, gas pipes, sewers and smooth pavement criss-crossing routes below the Park and eastward above 59th. The pattern is revealing--witness the relative absence of improvements near the Hudson or past Harlem. With Riverside and Morningside Parks in still-birth and Commissioner Tweed (appointed to Public Works in 1870) unfriendly to new projects, how could west side investors compete with cross-town rivals? Whether or not a conspiracy existed awaits more detailed research, but suspicions at least must be raised.

Of less doubt, however, was the regime's practice of guiding public improvements to streets where members's property might benefit. The maps reveal numerous instances where utilities and sewers appeared within months of a lot purchase. Along Lexington Avenue betweeen 54th and 66th the machine supplied water, gas, sewers and smooth pavement which surely raised property values. On 68th between Fourth and Fifth Avenues water mains and waste tunnels quickly arrived, while similar events occurred on Madison near the Park. 58th and 59th Streets on both sides of town also enjoyed unusual privileges in the years when Tweed's friends purchased land.

Harlem was another point of interest. Clearly, Ring members hoped rapid transit (steam-powered elevated lines were now under discussion) would someday bring the suburb within an hour of Wall Street. These hopes nourished

a speculative fever. No road was too distant; even 151st Street and nearby thoroughfares won all the embellishments. Tweed's men invested both in routes blessed with pipes and those without. Confident members undoubtedly felt the Ring's grip on power was too strong to break. As a result, many bought plots in advance of improvements. In fact, Maps 18 and 19 themselves fail to reflect the true picture, since numerous roads served with utilities between 1868 and 1871 had seen members "buy in" several years earlier.

Of course, the addition of improvements meant large real estate gains for these men (though many held their lots too long and lost out to the 1873 Panic). In 1869, for instance, Tweed, Sweeny and others purchased the block bounded by Fourth and Madison, 68th and 69th Streets for $220,000.[116] The city laid water pipes, and two years later, part of the property west of Madison went for $105,000.[117] In February, 1869, Terence Farley, the contractor and sometime Tweed alderman, purchased Madison's southwest corner at 68th plus three, nearby mid-block lots for $98,900.[118] Within two weeks he sold the former for $78,000.[119] Perhaps the water mains and sewers promised by the government helped boost the price.

A striking example occurred at the southeast edge of First and 57th Street. At the height of the regime's power, gas and water came to the thoroughfare and values rocketed. In 1869, another contractor, Patrick Treacy,

secured the ground for $25,000,[120] next year he settled for $70,000,[121] and, in 1871, Farley bought it for $85,000.[122] No matter the site, arrival of utilities could turn a bleak future promising.

As in the last case, Ring members often transacted sales with each other. And, no doubt, business was lucrative. Of course, improvements alone did not account for the full rise of land prices. Such an assumption would be misleading. Proximity to Central Park and street railways, quality of buildings erected, rumors of future growth and numerous other factors also contributed to spiraling figures. But public works surely played a major role in the post-war boom, especially with the Tweedites diverting so many projects eastward toward their own lots.

New York demanded strong leadership after 1860, as growth everywhere outstripped social control. Problems were legion downtown, with many disease-ridden streets still awaiting sewers and trap blocks. Indeed, throughout the lower east side, cobblestones and raw sewage combined to breed fever nests. As a result of these and other factors, thousands of residents flocked uptown to new communities devoid of congestion and insalubrity. This movement induced a major retail exodus from the lower wards, as shopkeepers chased retreating consumers. And though over a half million people stayed downtown, their fate was neglect.

Public works might have relieved conditions, but no substantial program appeared. Instead, Tweed's machine intensified the northern trend. With improvements concentrated above 34th Street and east of Eighth Avenue, balanced growth suffered. Personal profit was the motive; centralization of power and greater home rule, though later beneficial, were but means to an end. With private gain inspiring city policy, priorities became confused. New York built too far ahead of advancing settlement. An uptown emphasis had long been needed, but construction exceeded demand. It was wasteful to pave and sewer miles of thinly-populated routes close to Harlem while lower Manhattan endured ancient facilities if any at all. Clearly, the 1860's were the wrong time to divert so much effort uptown, but investment designs outweighed the "public good."

Ironically, urban expansion had helped father machines.[122] Very often, their informal welfare programs had eased the strain of dislocation. Yet, these graft-based regimes were ill-designed for properly channeling growth. This was certainly true in Manhattan where the uptown preference combined with embezzlement of funds to make public works suspect. Indeed, Tweed had begun more improvements than anyone, but kickbacks and plunder did more harm than good. With millions lost to bloated comtracts, needed projects went un-built. Moreover, the profligate spending had lasting effects, for the public responded with demands for retrenchment. And reformers complied with

cutbacks and speeches. By 1872, Andrew H. Green led a move for austerity which shackled town growth for the rest of the decade. The "golden age" had ended amidst great suspicion; Tweed's dishonest rule had only hindered New York.

NOTES

[1]*History of New York Real Estate*, p. 51.

[2]*Ibid*.

[3]*Sanitary Condition of the City*, *passim*.

[4]*History of New York Real Estate*, pp. 51-53.

[5]*Ibid*., p. 63.

[6]*Ibid*., pp. 53, 67.

[7]*Ibid*., p. 59; see also the appropriate volumes of *Insurance Company Maps* published in the 1860's by William Perris.

[8]*History of New York Real Estate*, p. 63.

[9]*Ibid*., pp. 53, 64.

[10]*Ibid*., p. 67.

[11]*Sanitary Condition of the City*, p. 3.

[12]*Ibid*., p. 4.

[13]*Ibid*.

[14]*Ibid*., p. 5.

[15]*Ibid*., p. 6.

[16]*Ibid*., p. 7.

[17]*Ibid*., pp. 8-10.

[18]Ibid., p. 5. See also the relevant Insurance Company Maps.

[19]Ibid., pp. 15-16.

[20]Ibid., pp. 43-44.

[21]Ibid., p. 44.

[22]Ibid., pp. 76-77.

[23]Ibid., p. 77.

[24]Ibid., pp. 79-81.

[25]Ibid., pp. 104-105.

[26]Ibid., pp. 98-99.

[27]Ibid., p. 105.

[28]Ibid.

[29]Ibid., p. 143.

[30]Ibid., p. 144. This section shows many cases where streets needed repairs.

[31]Ibid., pp. 145-146.

[32]Ibid., pp. 148, 166; see also, pp. 171-177.

[33]Ibid., p. 27. In 1865, the area was one-third black, a third native white and the rest Irish.

[34]Ibid., p. 35.

[35]Ibid.

[36]Ibid., p. 39.

[37]Ibid., p. 70.

[38]Ibid., pp. 70-71.

[39]Ibid., pp. 71-72.

[40]Ibid., p. 186.

[41]Ibid., pp. 186-187.

[42]Ibid., pp. 188, 185.

[43]Ibid., p. 184.

[44]Ibid., pp. 191-192.

[45]Ibid.

[46]Ibid., p. 197.

[47]Ibid., pp. 126-181 and compare the Twelfth, Thirteenth, Fourteenth and Fifteenth Sanitary Districts.

[48]The list of Ring members was taken mostly from Abram P. Genung, The Frauds of the New York Government Exposed... (New York, 1871), pp. 6-40. I checked the weekly "Conveyances" section of the RRBG from March, 1868-December, 1871. The holdings of the following men have been marked: Orison Blunt, John J. Bradley, Matthew T. Brennan, Owen Brennan, Dennis Burns, Timothy J. Campbell, Richard B. Connally, D. P. Cunningham, Charles Corson, Terence Farley, Thomas C. Fields, Richard Flanagan, Alexander Frear, Andrew Garvey, Henry Genet, A. Oakey Hall, William Hitchman, Joseph Howard, James H. Ingersoll, James Irving, John H. Keyser, Philip Lewis, S. C. Lynes, William J. A. McGrath, Stephen Meany, George S. Miller, Peter Mitchell, Michael Molony, Elijah Purdy, Peter Sweeny, Patrick Treacy, William M. Tweed and John Warren. Of these, the most active investors were: Connally, Farley, Fields, Garvey, Genet, Hitchman, Ingersoll, Keyser, Sweeny, Treacy and Tweed.

[49]RRBG see "Conveyances" in each weekly issue.

[50]RRBG, IV, "Conveyances," OCtober 9, 1869.

[51]Ibid., IV, February 19, 1870.

[52]See Board of Education, Annual Report for 1873, p. 204.

[53]RRBG, II, October 17, 1868.

[54]Ibid., III, March 20, 1869.

[55]Ibid., IV, December 11, 1869.

[56]Ibid., February 12, 1870.

[57]Sanitary Condition of the City, p. 209.

[58]Ibid.

[59]Ibid.

[60]RRBG, III, October 23, 1869, "Conveyances."

[61]Ibid., I, September 5, 1868.

[62]Ibid., VIII, June 10, 1871.

[63]Ibid., September 2, 1871.

[64]Ibid., VI, July 23, 1870.

[65]Ibid., I, Septmber 5, 1868.

[66]Ibid., II, February 13, 1869.

[67]Sanitary Condition of the City, p. 210.

[68]Ibid., pp. 269-270. Third Avenue, however, in some places hosted blighted tenements, especially the "Great Eastern" at Third and 37th.

[69]RRBG, "Conveyances," 1868-1871; compare land prices for these years.

[70]Sanitary Condition of the City, p. 285.

[71]Ibid., p. 283.

[72]Ibid., p. 209.

[73]Ibid., pp. 282-284.

[74]Ibid., p. 327.

[75]Ibid., pp. 328-329.

[76]Ibid., p. 329.

[77]RRBG, I, March 28, 1868, "Conveyances."

[78]Ibid., II, February 27, 1869.

[79]Ibid., October 17, 1868.

[80]Ibid., March 11, 1871, p. 153; History of New York Real Estate, p. 67.

[81]RRBG, V, June 4, 1870.

[82]Ibid., March 19, 1870.

[83]Ibid., VII, May 13, 1871.

[84]The actual building district for fashionable residence stretched from Madison to Sixth Avenues and from 42nd to 59th Streets, and the zone gradually spread northward each year. History of New York Real Estate, p. 65.

[85]RRBG, I, March 21, 1868, 3.

[86]Ibid., III, March 20, 1869, 5.

[87]See Insurance Company Maps for 1852, 1860 and 1870.

[88]History of New York Real Estate, p. 59.

[89]Ibid. A broader discussion of the influence of rapid transit upon real estate can be found in Chapter 11.

[90]Aldermen, Documents, VII, #13, August 5, 1840, 221-225 gives the boundaries of the "Lamp District" as of 1840.

[91]RRBG, I, March 28, 1868, 2.

[92]Ibid., VII, April 15, 1871, 177.

[93]Ibid., I, March 21, 1868, 3.

[94]Ibid., VII, April 15, 1871, 177.

[95]Ibid., I, March 28, 1868, 1.

[96]Ibid.

[97]Ibid., May 2, 1868, 1.

[98]Ibid., II, September 26, 1868, 7.

[99]For a good discussion of "Fashion" as a factor in urban real estate, see Ibid., XVIII, October 21, 1876, 779-780.

[100]Ibid., II, January 23, 1869, 3.

[101]Ibid., III, June 12, 1869, 4.

[102]Ibid., VII, April 15, 1871; see also, IX, January 27, 1872, 49.

[103]Ibid., see "Supplement" between XV and AVI, p. 1.

[104]Ibid., V, June 4, 1870, 3.

[105]Ibid., IV, December 18, 1869.

[106]See, for instance, the relevant sections of Jerome Mushkat, Tammany: The Evolution of a Political Machine (Syracuse: Syracuse University Press, 1971).

[107]Genung, pp. 29-33; Alexander Callow, The Tweed Ring (New York: Oxford University Press, 1968).

[108]Seymour Mandelbaum, Boss Tweed's New York (New York: John Wiley & Sons, Inc., 1965), p. 67.

[109]See Genung, pp. 14-62 for sketches of the principal memebers of the Ring.

[110]Waring, I, 572.

[111]Croton Aqueduct Department, Report...for 1865, p. 100.

[112]Aldermen, Documents, XXXV, Part I, #2, January 6, 1868, 114-120.

[113]RRBG, XXV, February 21, 1880, 171.

[114]Mandelbaum, p. 70.

[115]RRBG, V, May 21, 1870, 4.

[116]Ibid., IV, October 30, 1869, "Conveyances."

[117]Ibid., VII, May 27, 1871.

[118]Ibid., II, February 13, 1869.

[119]Ibid., March 6, 1869.

[120]Ibid., October 23, 1869.

[121]Ibid., VI, December 17, 1870.

[122]Ibid., VII, April 22, 1871.

CHAPTER 11

THE BROOKLYN BRIDGE ERA

New York changed greatly in the years after 1870. With Brooklyn Bridge under construction and the great annexation fast approaching, Gotham's real estate men braced for another speculative mania. What new patterns of growth would emerge? And how long would old forces endure? Transition still marked lower Manhattan, as trade and residence migrated uptown. Almost everywhere below Chambers Street factories and warehouses displaced mansions and tenements. Increasingly, marginal firms captured available lofts. But few modern office buildings appeared, since large corporations now preferred upper Broadway. Already by 1870, Union Square, long surrounded by stately town houses, "was given up bodily to commercial purposes."[1] In fact, Broadway lots "as far as 32nd Street, and even further [now attracted] many classes of business which [had] ...been thought only capable of thriving in the lower parts of the city."[2] The "active demand" for space on lower Fifth and Sixth Avenues presaged the formation of "an entirely new business centre,"[3] which made Herald Square rentals "as high as in any part of the best architectural

localities downtown."[4]

With commerce invading north of 14th Street, land values soared, causing home owners to sell and move uptown. This, in turn, forced retailers to pack quickly and chase them. Soon a new shopping district flourished above Union Square.[5] By 1870, stores lined every major avenue approaching Central Park, leaving lesser outlets to service impoverished areas downtown.[6] Each artery vied for silk stockings. In the 1840's, Second Avenue and later Third outpointed Fifth, Sixth and Madison, but post-war years saw Fifth finally win Fashion's crown.[7] Blessed with favorable grades, excellent drainage and a parkside location for apartments and mansions, the road welcomed Gotham's finest shops to its lots above 14th Street.[8]

Though Fifth led the way, all avenues from Second to Sixth enjoyed prosperity. Boosters for each predicted theirs soon would exceed Fifth in splendor. Realtors everywhere voiced optimism the uptown trend would continue till the commercial district reached Central Park. In fact, as early as 1869, the Real Estate Record reported "that all the well-known proprietors of hotels, and those most experienced in trade downtown, are trying to make arrangements towards carrying their business above Fiftieth Street."[9] In the wake of Retail's desertion, the journal conceded the lower wards to wholesaling, but foresaw a "period...not far distant when those avenues which are now the residing places of the wealth and fashion of New York, will be

transformed...into regular business streets...for trade follows hard on the heels of the wealthy."[10]

Even in the Panic-ridden 1870's, uptown growth still produced optimism. In 1876, the Record prophesied that "the blocks between 59th and 86th Streets, and between Third and Fifth Avenues [would be] built up solidly within the course of five or ten years, and probably, before any great development of building...on the westerly side of the Park."[11] Fine edifices already flanked Park Avenue south of 42nd Street, including those of Jonathan Sturges and Commodore Garrison at 36th, James Brown and William Libby at 37th, A. H. Barney and C. P. Huntington at 38th and Will James at 39th Streets.[12] Realtors, however, bemoaned the "practical limit...for residence areas" at 40th, since "all trace of Fourth Avenue [was] completely lost in the gridiron or network of railroad tracks which converged at Grand Central Depot." Nevertheless, as mansions and first-class dwellings appeared yearly, the section east of Sixth up to 86th seemed Gotham's future silk-stocking district.[13]

To the west, with the Riverside and Morningside projects still unfinished, only Eighth Avenue showed signs of life. Building activity opposite Central Park and particularly at the "Grand Circle" entrance flourished in the mid-1870's.[14] The new structures were "of a marked degree of excellence, and far superior to anything that has for years been attempted on that avenue." And observers

characterized local side streets as "bustling with activity in the erection of private dwellings of genteel and attractive exteriors."[15] But as usual in this section, optimism still outdistanced improvements.

West of Eighth Avenue many thoroughfares still lacked utilities. As late as 1878, no street above 59th was "completely finished and ready for building." No wonder residents grew impatient. At a public meeting that same year, property owners noted sarcastically that "some roads are graded but not sewered; others are sewered but not graded; others still are sewered and graded, but neither watered nor lighted."[16] The legacy of Tweed had cast a shadow over the west side.

The town, hardened by the corruption of previous years, viewed public works with suspicion. Virtually every improvement now faced a veto or delay. Reformers at City Hall even denied the region water towers. This was unfortunate, since Croton service could not reach many of the heights overlooking the Hudson. In anger, west siders justly contended that "we have provided an expensive and ample water system for the city, and there seems to be no reason why we should be deprived of the benefits of it."[17] Yet, there was no response. But chronic desperation had bred a sharp militancy in residents. Indeed, lot owners complained bitterly that east side improvements were "long ago done, permitting heavy settlement up to 100th Street." In contrast, however, little had been done across town, where

"scarcely a score of new buildings could be found in all the west side--...a district which should be, and ought to be, the most beautiful residential portion of New York."[18]

Nevertheless, except for the zone west of Eighth, prosperity was the city-wide trend. For, by 1876, construction boomed in the wake of Panic-deflated costs. And change in land use resulted in much building activity. Not only did residence shift, but trade, too, was in flux. Third, Sixth and Eighth Avenues uptown soon became major shopping routes. As homes gradually encircled Central Park, Retail's once-defined boundaries disappeared. By 1880, the industry had diffused throughout Manhattan. Stores now appeared in almost every street. With population spreading all over Manhattan, one main shopping district downtown was too little; now local centers helped ease the strain.[19]

Yet, while some industries diffused, others merely changed location. Dry goods, for instance, once the monopoly of Pearl Street, moved up Broadway to Warren and Park Place and thence to the blocks bounded by Broadway, West Broadway, Duane and White. By 1877, several wool and silk firms, too, deserted the neighborhood for uptown sites at Green and Broome.[20] These movements confirmed the assertion of one observer that "dry goods has shown a disposition to follow, albeit at a respectful distance, the upward growth of the city."[21]

Other trades also moved in the post-war years. Hardware wandered from upper Pearl to Chambers and parallel

routes. Pharmaceuticals, formerly on Water, gradually centered itself on William above of Cedar. Iron shops, once content with lower Broadway now migrated further north to Washington and West. And clothing, for years dominant on Chatham and Catharine, soon occupied "some of the most sightly stores" on Broadway.[22]

Despite these changes, certain groups stayed at original locations. The financial world never bulged from Wall Street. And nothing uptown threatened the Swamp District's (bounded by East River, Beekman, Gold and Frankfort Streets) control of leather goods, since "the dampness of the soil [was] a guarantee against shrinkage in the weight of the [leather] commodities dealt in."[23] Nonetheless, many industries traveled northward, as warehouses, tenements and third-class office buildings engulfed the lower island. Bitterness arose, however, as many downtowners refused to acquiesce. To some extent, with the 1880's approaching, agitation grew among realtors over the failure of landlords to accept the desertion of big corporations by reducing charges for secondary and marginal concerns. In response, the town's Real Estate Record warned that "the reoccupation of deserted stores by a new set of traders, is only possible by the reduction of the rentals." Building owners on lower Broadway had to realize that with Fashion gone northward they could either compromise or perish. [24]

Post-war growth in New York stimulated further public works. Indeed, despite the Panic, the 1870's witnessed continued improvements in paving and draining. In 1870, for instance, Manhattan still suffered from imperfect sewerage. Of the town's 150,000 building lots, realtors estimated 20,000 unfit for human habitation "by reason of water underlying the soil, filling the cellars and giving birth to sickly miasma."[25] As conditions worsened, the cry for reform became deafening. Something had to be done. One editor reasoned that "if the Hollanders, living in cities below the sea can [drain their land] ,...surely we--perched upon an island which can as naturally drain itself as water runs from the back of a turtle--ought to be able to adopt some better system" than the present one.[26] But the problem had not gone unnoticed.

Progress had begun with the 1865 Sewage Act. As mentioned, the Croton Aqueduct Department, heeding the counsel of Egbert Viele and others, divided the city into several districts. Within these zones, officials planned "sewer systems" which coordinated the grade of every neighborhood street to channel rain and putrefied wastes toward the river. Then, at the waterfront, new "collecting mains," running parallel to the shoreline would catch refuse and transport it to waiting scows. Rebuilding would be minimal, since existing networks needed only connecting pipeage and some re-routing. Only previously unserviced arteries would require action. Hopefully, this scheme would,

in a few decades, reduce the unsightly spectacle of pollutants spewing into the rivers at each block.[27]

In addition to this project, there was much new construction (see MAP 20).[28] In fact, the 1870's saw large segments of Ninth, Tenth and Eleventh Avenues and Riverside Drive receive conduits, as officials finally drained the hills and dales above the Hudson. Thousands of lots now, for the first time, could be built upon. But still, progress would be slowed by the absence of pavement. Undoubtedly, the Tweed regime's crucial favoritism of Harlem and the east side had awarded these areas an invaluable head start. With the island's spine of commerce and growth diverted to Fifth Avenue and vicinity, it would take decades for rival sections to compete favorably.

And yet, with all these advantages, the populous east side won sewers, too. During the 1870's, many arteries gained attention for the first time, including parts of First and Second Avenues. Obviously, there was no crash program to allocate funds for the declining west side. Town leaders apparently reasoned that although the latter had long gone neglected, heavily settled thoroughfares also deserved priority. Thus, for the time being, west siders had to be content with new facilities for the major avenues and Riverside Park; most cross streets would have to wait.

Improvements downtown consisted largely of rebuilding or enlarging old structures and erecting lateral tubes along the waterfront. Surely the new bulkhead line from Spring to

N
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THE BATTERY
CITY HALL PARK
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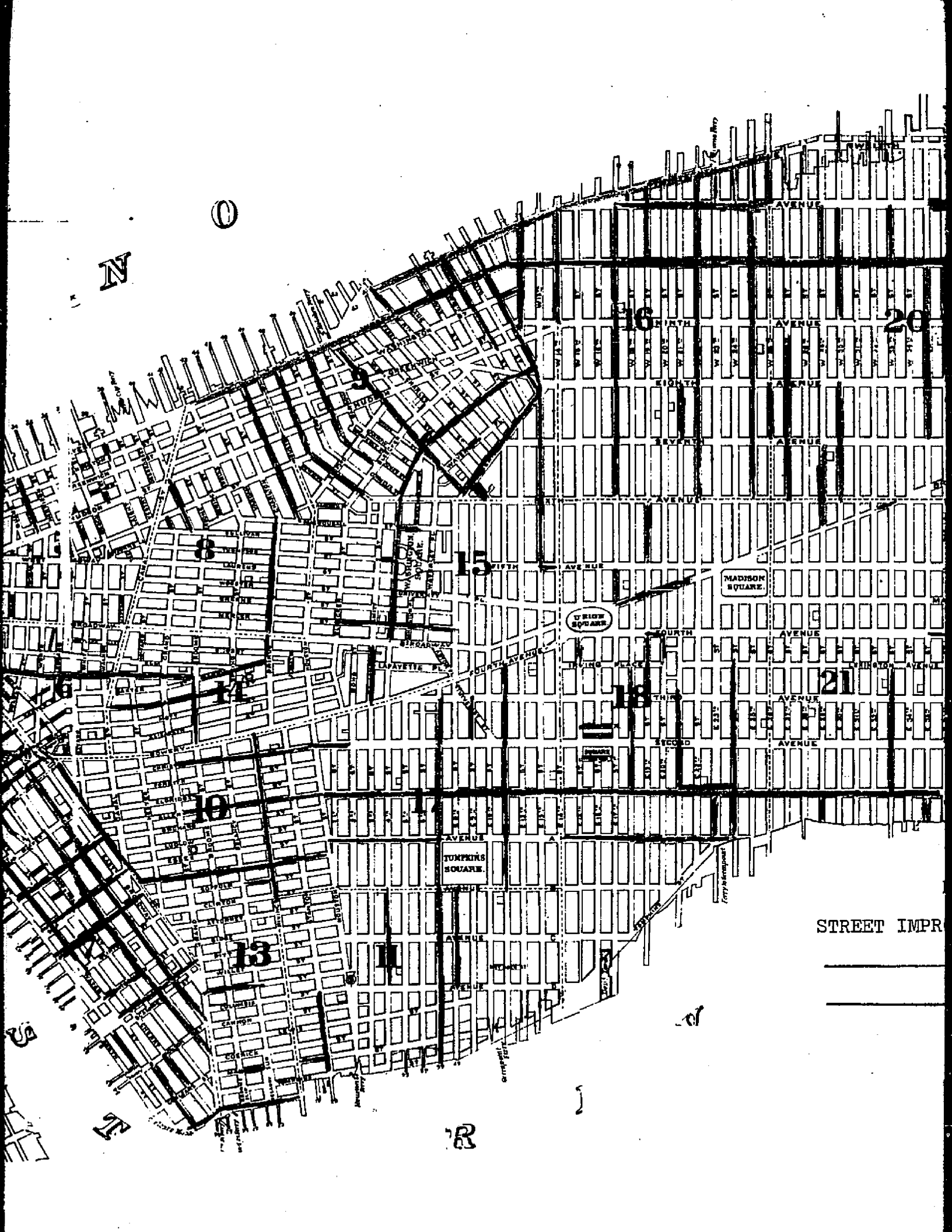
12
13


N
16
20
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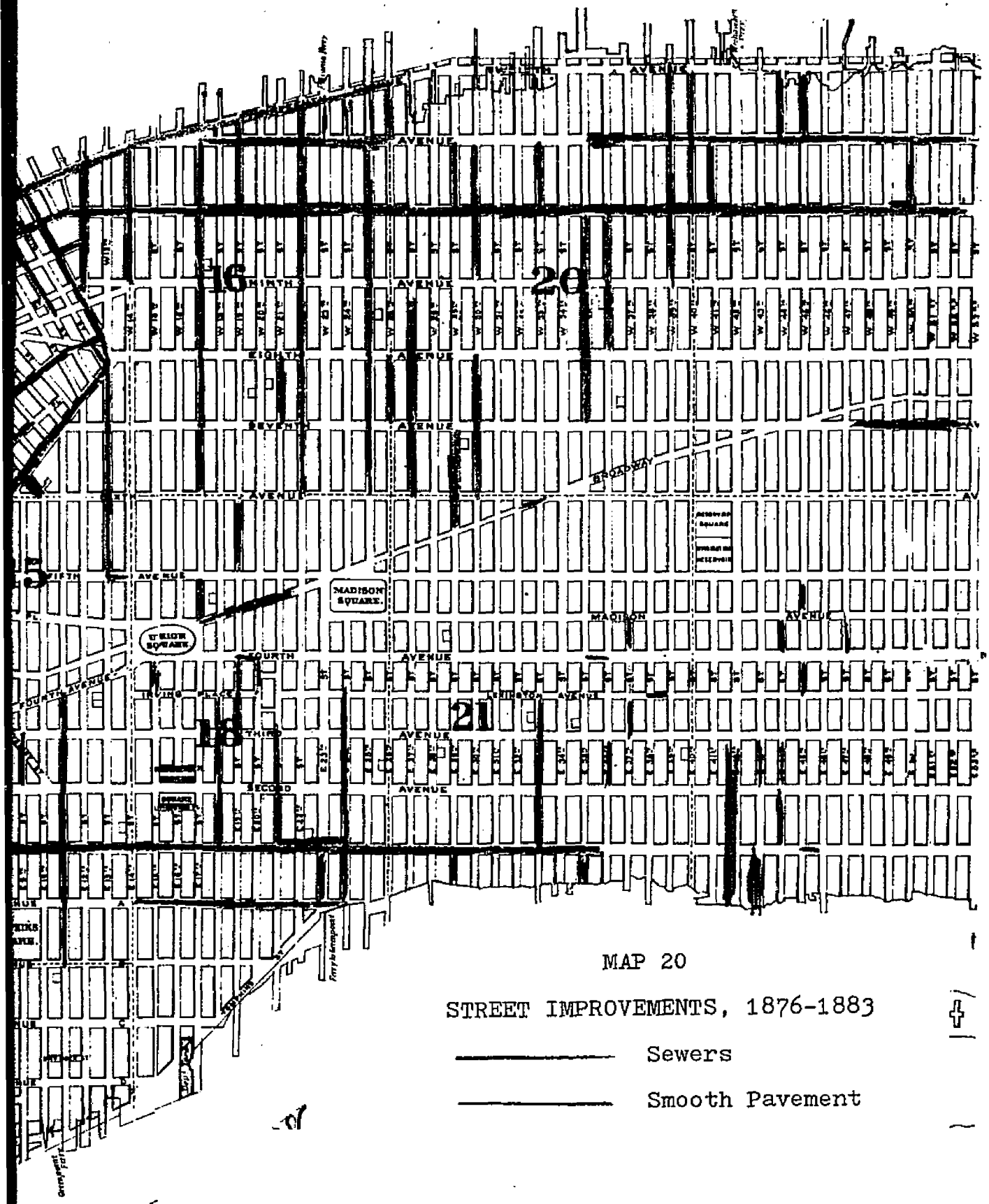
18
21
MADISON SQUARE.
UNION SQUARE.
TOMPKINS SQUARE.
STREET IMPR

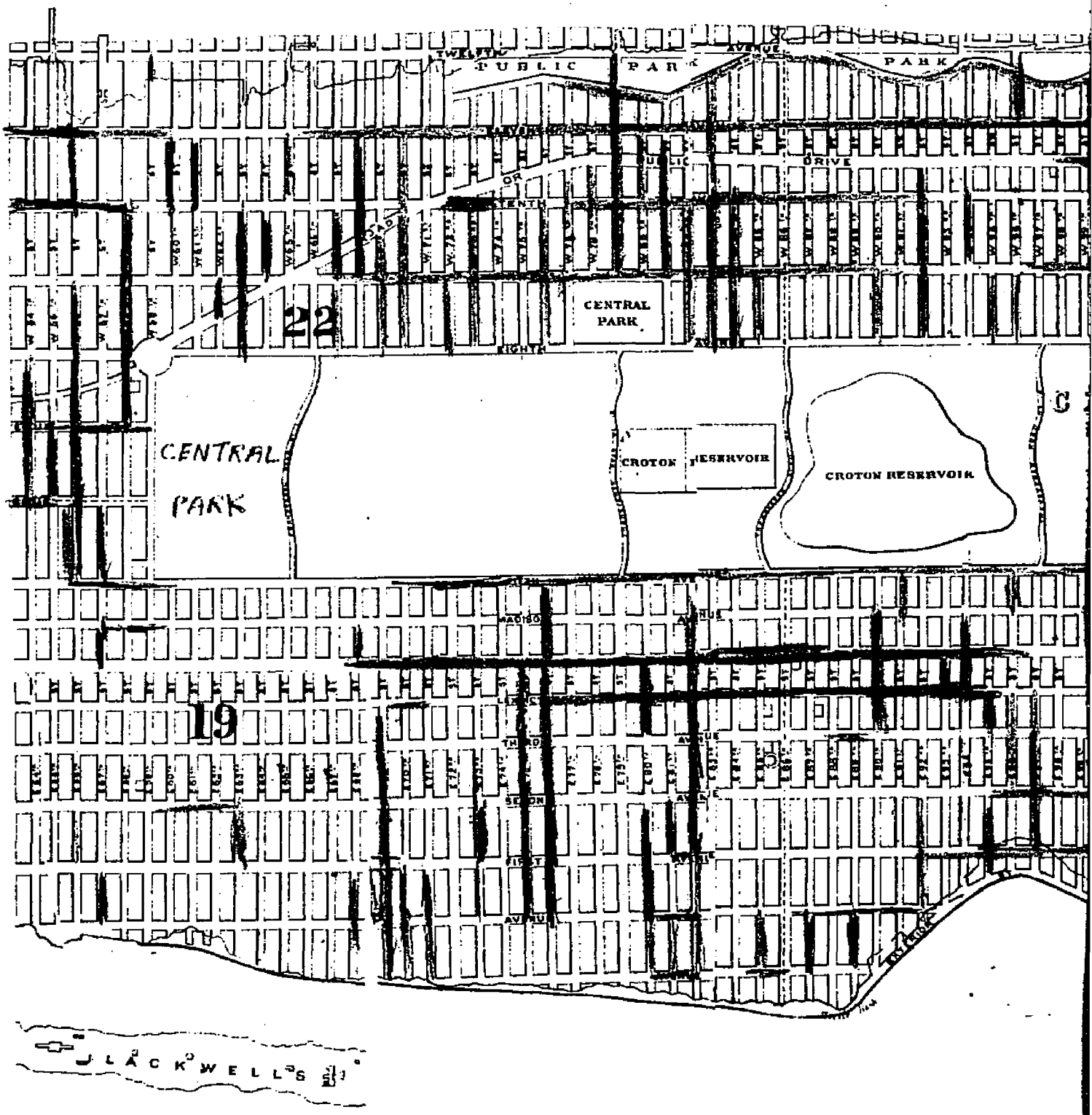


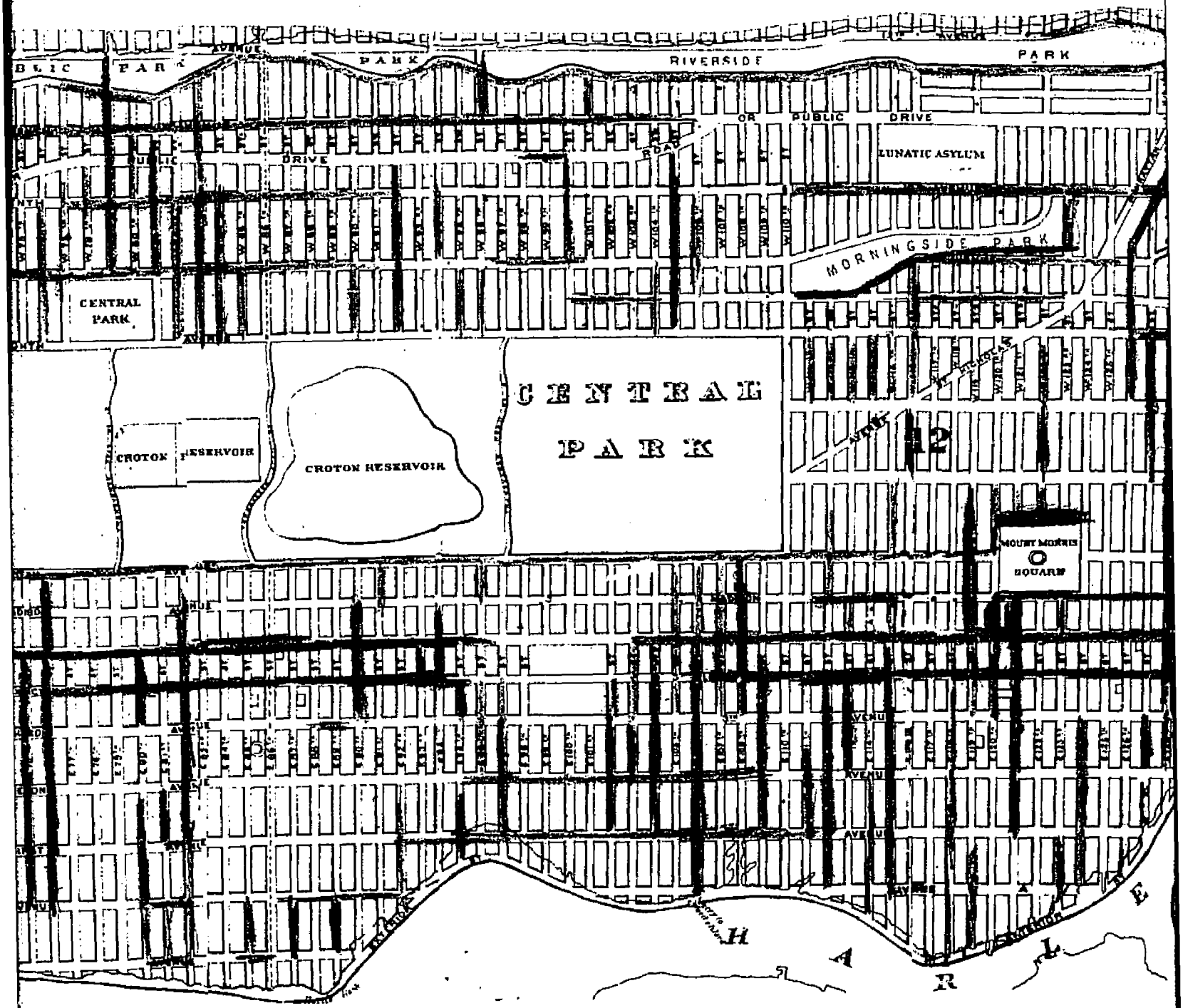
MAP 20

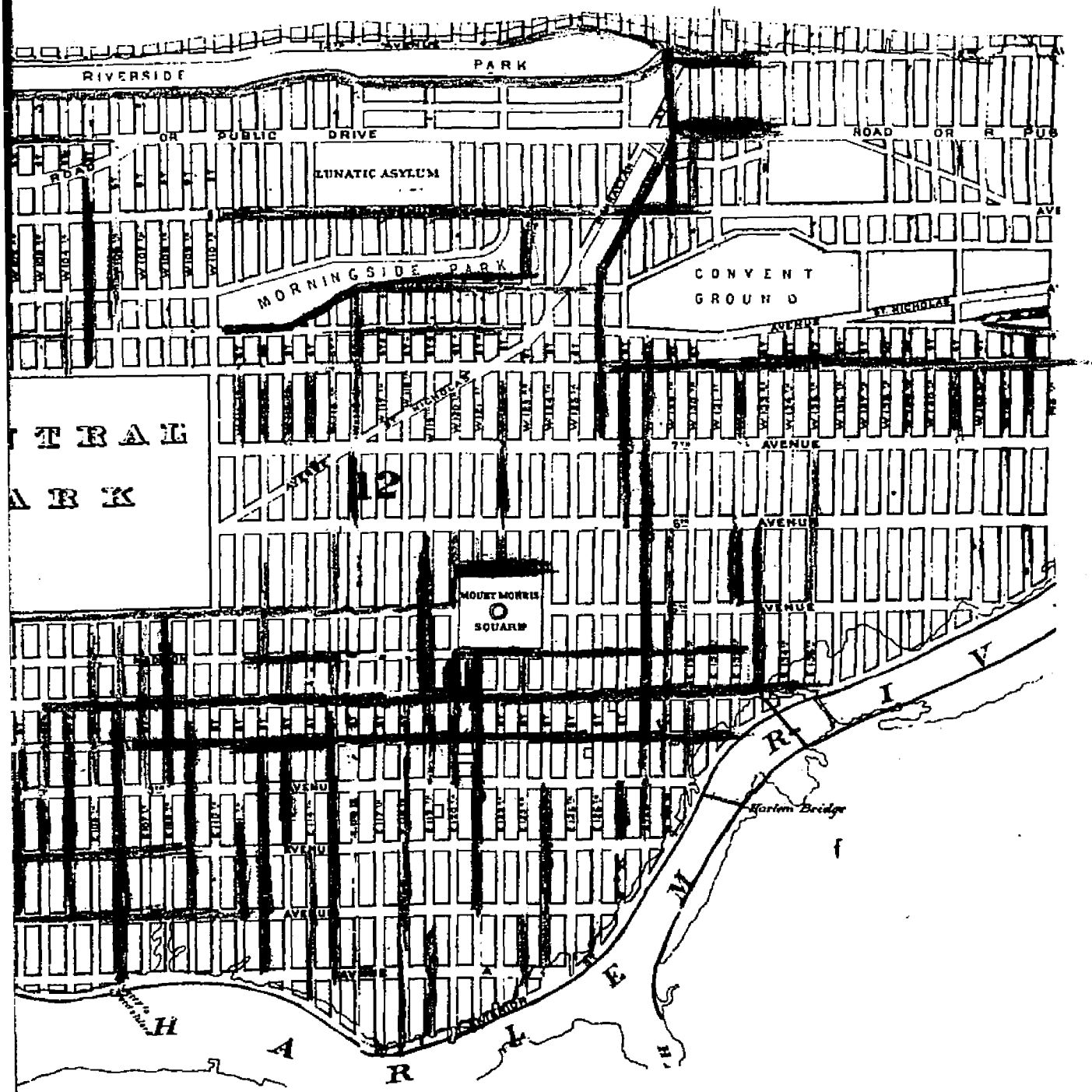
STREET IMPROVEMENTS, 1876-1883

———— Sewers

———— Smooth Pavement


TWELFTH
PUBLIC
PARK
AVENUE
PARK
DRIVE
TENTH
CENTRAL
PARK
EIGHTH
22
CENTRAL
PARK
CROTON
RESERVOIR
CROTON RESERVOIR
C
19
BLACKWELLS


RIVERSIDE
PARK
PUBLIC DRIVE
LUNATIC ASYLUM
MORNINGSIDE PARK
CENTRAL PARK
CENTRAL
PARK
CROTON RESERVOIR
CROTON RESERVOIR
STREET
12
MOUNT MORRIS
SQUARE
HARLEM


RIVERSIDE
PARK
PUBLIC
DRIVE
LUNATIC ASYLUM
MORNINGSIDE PARK
CONVENT
GROUND
ST NICHOLAS
AVENUE
7TH AVENUE
6TH AVENUE
MOUNT MORRIS
SQUARE
Harlem Bridge
H A R L E M R I V

to 26th did much to further sanitation in the Ninth and Sixteenth Wards. Now waste matter from the 100,000 residents flowed from local mains to a collecting basin for efficient disposal by barge. Gradually, the district's odor and disease, so long a menace, came under control. More and more, New York coped successfully with the problems of frantic urbanization.

Paving, too, was an irksome problem. All previous road coverings disappointed expectations; cobblestones were unsanitary, Russ too slippery, granite noisy and macadam expensive. The ideal surface proved elusive. In its absence, several candidates divided the spoils. Between June and December of 1870, the town spent $1.4 million for trap blocks and over $130,000 each for "Nicholson," "Stafford" and "Hamar Preserved" pavements.[29] But authorities were restless. As in earlier times, they still looked to London for a panacea. The chief hope in 1870 was "wood blocks, bedded on concrete and run with lime grouting." But really, there was no time to await the English, as population grew meteorically and buildings rose everywhere to meet the demand. Almost overnight, rows of dwellings appeared on uptown streets, vacant since colonial times. As a result, paving requests besieged City Hall and this, in turn, forced a hasty approval of projects using objectionable materials. The government had no choice.

Despite the frantic pressure, officials planned a fairly even distribution of contracts around Manhattan.

MAP 20 shows downtown areas receiving significant amounts of smooth compositions, although many thoroughfares in German Wards Ten and Thirteen retained cobblestones. Farther uptown, the lower sections of previously impoverished First and Tenth Avenues finally won better treatment. But, east of Central Park, the town's most populous ward (Nineteen) needed little attention, since its roads were new and had trap blocks from the atart. Farther north, however, work continued in Harlem where many projects begun or envisioned by the Tweed Ring moved to completion. In particular, Lexington, Fourth and Fifth Avenues now approached or reached Harlem River with Belgian blocks, as did numerous crossing routes earlier neglected by the regime.

On the west side conditions were different. With recession delaying the opening of Riverside and Morningside Parks, many thoroughfares west of Eighth Avenue went un-graded. In fact, even those few enjoying proper levels lacked surfacing, since they first required sewers. The effects were disastrous: in the absence of universal pipeage, dirt roads abounded while land investment sank.

Along with trade migrations and street improvements another crucial factor affected the city, rapid transit. Many investors felt steam railroads alone held the key both to resuscitating and revolutionizing Manhattan real estate. Throughout the 1870's, the West Side Association badgered politicians to provide elevated service; their

section's growth required it. For, as one member put it:

> we may open new parks and promenades by the mile and plant them with seductive shades [but without trains] only a howling wilderness of vacant lots and rocks and morasses will continue to surround them, out [of] which only death and the tax-gatherer will extract any harvest.[30]

Commuting time was the key issue. In 1870, the Real Estate Record declared it "mostrous that in this age a person residing in Harlem and doing business in the lower part of the city...should be compelled to spend... two hours and forty minutes every day on a street car."[31] Boosters groped for solutions. Many advised hitching more horses to carriages, adding four tracks each to the Third and Eighth Avenue lines and reserving inside rails for express service. Furthermore, some suggested that stops every ten blocks (instead of every two) would "save the time now lost by frequent stoppages."[32] But these were interim plans; a rapid transit system was the long-range answer.

Pressure intensified by 1875, as rising population further expanded the urban periphery. Somehow, Harlem and vicinity had to be brought within an hour of downtown. New York's real estate structure itself lay threatened if no action resulted, because, as one writer observed: "property on this island will always be measured in value by the length of time it takes to get to it from the old thickly settled business portions." And,as investors well knew, "every minute of time lessened will be represented by hundreds of dollars in value."[33]

Progress lagged in the late 1860's and early 70's while conflict raged over who would build and control the proposed lines. Ever since the successful 1867 experiment with the Greenwich Street steam road, entrepreneurs had flocked to Albany seeking charters. But financial snags and powerful adversaries had postponed construction.[34] The town's horse-car railways, for instance, lobbied staunchly against steam. These franchises feared the "Els" would someday make their vehicles obsolete. The Real Estate Record bemoaned the impasse, but reminded the community that "when the city railroads were first chartered it was deemed just and politic to give the old stage and omnibus proprietors shares in the stock of the various horse-car enterprises in order to neutralize their opposition."[35] Thus, the journal wondered, why not repeat the move?

Compromise eventually prevailed at Albany, but none too soon. By 1872, Third Avenue streetcars suffered dangerous overcrowding. During rush hours, carriages normally seating twenty-two bulged with over sixty passengers. Horses strained to pull the loads; delays were frequent, accidents unavoidable.[36] Relief finally came in 1873 with the extension of the Greenwich "El" from its Courtlandt Street terminus up through Ninth Avenue through 31st. Later additions (to 42nd by 1875, 59th in 1876 and to 155th in 1879) followed with a South Ferry connection and double-tracking by 1881.[37]

The success in Ninth Avenue sparked a Sixth Avenue

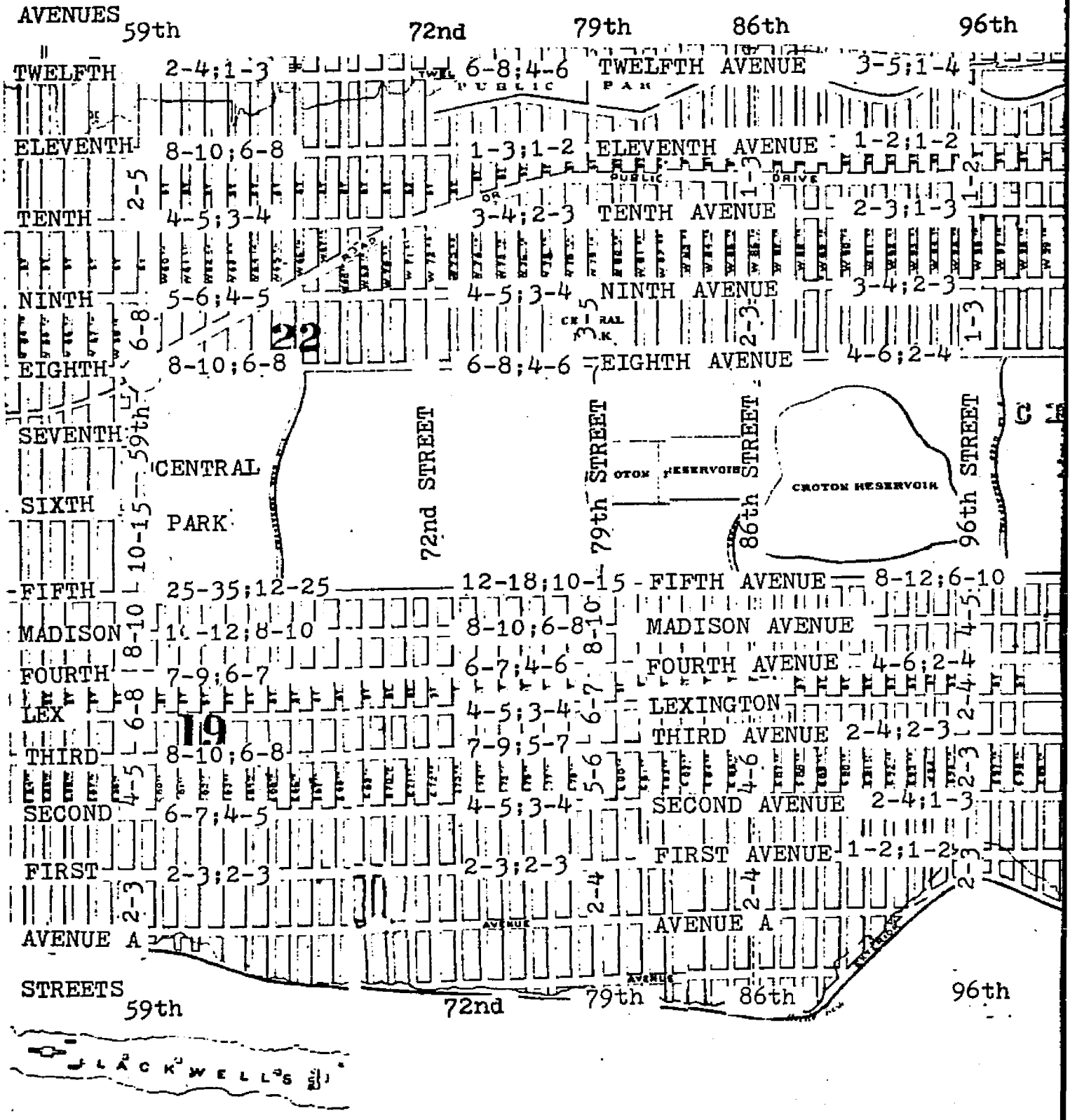
effort. By 1878, that route enjoyed steam travel from Morris Street to 59th. And next year witnessed the laying of tracks through 53rd connecting Sixth and Ninth Avenue trains.[38] The Third Avenue "El" also rose quickly for the populated east side. Feverish construction in 1878 produced a line running from South Ferry up Fourth Avenue through Grand Central to Third and then up to 129th. Second Avenue service came also, reaching 67th Street by 1880. Despite the calamitous national Panic and fall of Tweed, the city in eight frantic years had built an enviable transit network which extended the one-hour travel radius to Harlem.[39] By doing so, New York had checked the need for exodus across the rivers and preserved its northern flank.

These improvements led some real estate men to predict steam roads (rather than comprehensive public works)[40] would equalize and lower land values around Manhattan.[41] Proponents of this idea pointed to "the centripetal force of rapid transit, that force which will operate to distribute and diffuse population throughout corporate limits."[42] The theory credited the "Els" with exerting "centrifugal force" as well. Supporters felt the process would "operate to concentrate and confine population around chosen centres. The population [would] be carried to a distance which is compelled, through force of circumstance, to seek low-priced accommodations." In addition, residents of the city's most fashionable quarters would find themselves confined there "more strictly...than ever, because new distant and unexplored

sections must promptly take on the offensive badge of cheapness."[43] Thus, the view's proponents saw rapid transit as a factor promoting stability and offering "a definite and permanent classification...to urban real estate...distribut[ing] population throughout...in carefully graduated districts, wherein the tastes, means and circumstances of our varied...citizenship can be accommodated and fully satisfied."[44] Although rapid transit probably strengthened the position of the business district downtown, its suburban influence remains unclear.

In fact, by 1880, an immediate result of "El" construction was to raise rents for small houses, "owing to the supposed influx of people consequent upon the completion of a system of rapid transit."[45] Moreover, the Real Estate Record claimed that rents increased to such an extent "that a large number of those who like to dwell in our midst are once more seeking homes in the City of Churches [Brooklyn]."[46]

No one factor, not even rapid transit, could bring Newtonian law to uptown real estate. As MAP 21 indicates,[47] prices varied greatly above 59th Street. On Fourth Avenue, for example, values were greatest near the Park's southern border and dropped as one moved northward. Avenues further east, however, displayed a different trend with amounts high near 59th, low in the 80's and 90's, then high again at 110th Street. Across town, Eleventh Avenue, in particular, suffered large fluctuations. Witness the


AVENUES
59th
72nd
79th
86th
96th
TWELFTH
2-4;1-3
6-8;4-6
TWELFTH AVENUE
3-5;1-4
PUBLIC PARK
ELEVENTH
8-10;6-8
1-3;1-2
ELEVENTH AVENUE
1-2;1-2
PUBLIC DRIVE
TENTH
4-5;3-4
3-4;2-3
TENTH AVENUE
2-3;1-3
NINTH
5-6;4-5
4-5;3-4
NINTH AVENUE
3-4;2-3
CENTRAL PARK
22
EIGHTH
8-10;6-8
6-8;4-6
EIGHTH AVENUE
4-6;2-4
SEVENTH
SIXTH
59th STREET
72nd STREET
79th STREET
86th STREET
96th STREET
CROTON RESERVOIR
FIFTH
25-35;12-25
12-18;10-15
FIFTH AVENUE
8-12;6-10
MADISON
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MADISON AVENUE
FOURTH
7-9;6-7
6-7;4-6
FOURTH AVENUE
4-6;2-4
LEX
4-5;3-4
LEXINGTON
19
THIRD
8-10;6-8
7-9;5-7
THIRD AVENUE
2-4;2-3
SECOND
6-7;4-5
4-5;3-4
SECOND AVENUE
2-4;1-3
FIRST
2-3;2-3
FIRST AVENUE
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AVENUE A
STREETS
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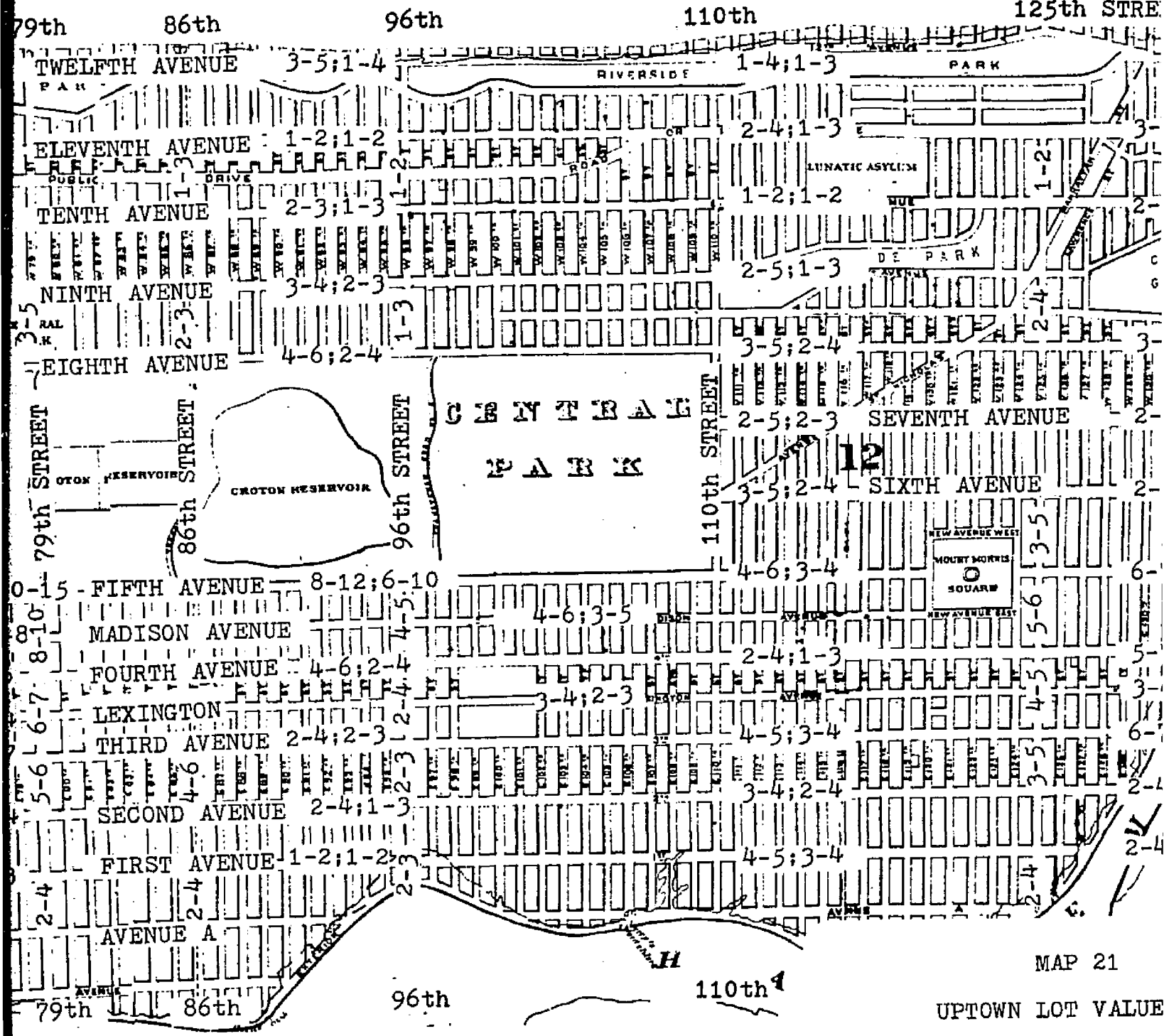
86th
96th
BLACKWELLS

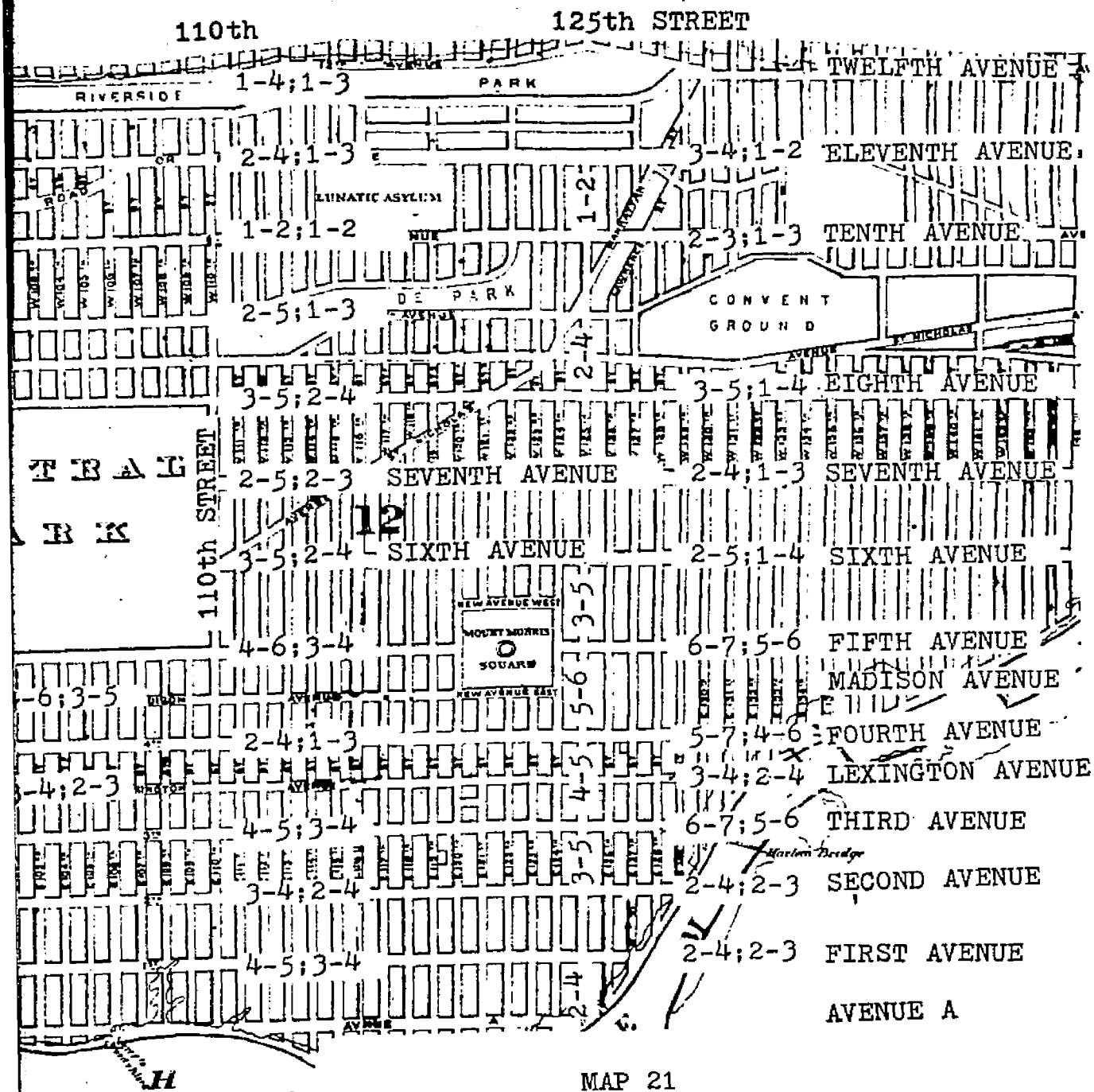


MAP 21

UPTOWN LOT VALUE

"0-0;" Avenue corner pr
";0-0" Avenue mid-block
"0-0" Street mid-block

Numerals repre
thousands of do



MAP 21

UPTOWN LOT VALUES, 1877

"0-0;" Avenue corner price ranges
";0-0" Avenue mid-block ranges
"0-0" Street mid-block ranges

Numerals represent
thousands of dollars

fall-off in property between 59th and the 70's. Even figures along the Ninth Avenue line seem low. In fact, Sixth and Seventh Avenues above 110th Street did better, although remote from train service. Thus, "El" networks alone cannot explain these patterns. The absence of sewers and graded roads damaged the west side, while poor drainage and other factors retarded prosperity near First and Second Avenues. These lots became suitable for investment only when government approved public works.

Indeed, as Richard Hurd and Homer Hoyt have shown, many factors affected land values. Harlem, for example, was a prosperous residential area in 1880 when introduced to steam service, but the section fell into decline shortly after. Panics, foreclosures, ethnic migrations, private business decisions and a dozen other factors all contributed. At least for uptown, the mono-causational approach seems a bit forced.

Though steam roads brought uptown within an hour of Wall Street, Brooklyn's capture proved more difficult. Water posed the great problem. Since the early 1800's far-sighted men had sought an East River span, but chronic opposition plus monstrous costs had traditionally dampened the fervor.[48] By 1860, however, Kings County's accelerated growth brought renewed cries for a bridge. Throughout the 1860's and 70's Gotham's real estate owners complained that

soaring rents had forced the town's middle class across the water. "Anyone standing at the ferries in the morning," one observer noted, "can see these merchants come over from Brooklyn, from Jersey City and all sections within a radius of thirty miles. They would have gladly remained in New York City,...but they have all been driven out by the speculators of 1868, 1869, 1870 and 1871." Others, too, mourned the diaspora. One writer spoke in 1876 of "the average citizen" having left Gotham "by [the] thousands and tens of thousands, and built up under our very eyes thriving villages, embryo cities and withdrawn from our civic life its strongest and healthiest blood."[49]

Of all surrounding areas, Brooklyn grew the fastest. Its population soared from 12,000 in 1830 to nearly 400,000 some forty years later. By Civil War's end, the "City of Churches" was New York's chief rival for trade and residence. Manhattanites eyed the young town's real estate with avarice and schemed to draw it closer to their orbit. Investors reasoned that if Brooklyn could only be brought within an hour of Broadway, then New York could regain lost shoppers and discourage corporate decentralization. No doubt annexationists saw other possibilities as well. If an East River bridge could make Brooklyn more dependent upon Gotham, future consolidation might prove inevitable.[50]

The project would also enhance Brooklyn's attraction to home owners. Despite high rents, many families had stayed in Manhattan because of "the discomforts of ferry travel

[and]...an innate feeling possessed by most people to have any natural barriers between their homes and their business places."[51] The Real Estate Record insisted that wives often pressured their husbands not to move, because of the female's "inconquerable horror of water."[52] But a wide East River span would remedy this. Comfortable trains could speed passengers high above the churning waters to Chambers Street. Gone forever would be the sweaty, trampling crowds at the terminals. No longer would commuters awake each winter morning to ice formations and entrapped ferries. Regardless of season, getting to work would become a sure thing. These and other factors gradually led realtors in both cities to conclude that a bridge would be beneficial.[53]

Yet, despite its popularity, the enterprise suffered constant postponement. Conflicting group interests delayed it until 1867, when the state legislature finally chartered the New York Bridge Company. No doubt the Tweedites helped loosen the log jam. In fact, Peter Sweeny, Richard Connally and Tweed himself each bought $42,000 worth of stock.[54] Once Albany's approval came, supporters turned attention to Washington, D. C. After months of lobbying, Congress approved the plan on March 3, 1869. Under the able direction of John Roebling construction began. Although Roebling died within months, work progressed under his son and associates. Builders laid the first stone in October, 1871, extended cable wire in April, 1877 and began suspended sections in 1881.[55]

The great saga has been told too often to warrant further repetition.[56] There was, however, some corruption at the

start. In return for approving the span, Boss Tweed was to receive a percentage of the Bridge Company's expenditures for both materials and labor. General Superintendent William Kingsley was to be the funnel. But Tweed's fall from power short-circuited the scheme.[57] Though Tweed and other questionables sat on the early Executive Committees of the Company, an overhaul came in December, 1872, when the legislature authorized three Commissioners, nominated by the Governor and confirmed by the Senate, to supervise future stock transactions.[58] Officials required several stock issues before financing was complete. The final cost was $15,138,403.78, with New York paying over one-third and Brooklyn the rest.[59]

Surely the effort had been worth it. Despite the expense and delays, people gleamed with pride on opening day. Though some work still remained, President Chester A. Arthur formally dedicated this "man-made wonder" on May 24, 1883. Its huge dimensions demanded respect. The 1,595-foot span, 5,989-foot total length and 85-foot width were a tribute to human engineering[60] and truly worth the reaction so ably chronicled by Allan Trachtenburg.[61]

Even as construction began, investors debated the project's effect upon real estate. No one quite knew, though each nursed his pet theory and spent the '70's jockeying for position. Some braced for a commercial building boom. These men doubtless championed the popular notion that someday trade would monopolize Manhattan. "Before fifty more years shall have been added to the calendar," one writer promised, "every foot of ground on the island...will be

required for business purposes exclusively."[62] Already the wave rolled inexorably northward, with 14th Street now solidly boarding flats. One-family homes and town houses disappeared on every block. One witness noted that even Union Square, "so lately the abode of gilded exclusiveness, is now almost entirely occupied by trades and business people of nearly every kind."[63]

More realistic observers, however, saw the bridge and steam roads stabilizing the business district's boundaries. This group felt the "Els" alone "put an end to all danger of [this section] being transferred to any other quarter." Many felt lower Manhattan would soon be "more valuable than any spot of similar area on the globe."[64] With transportation breakthroughs extending the urban periphery north and east, larger working populations could be accommodated. And with downtown but a few stations away, large retail outfits could forego their consumer chase uptown.

But other views also prevailed. Some commentators predicted a land revolution. They saw the already vast crowds at Chambers Street "swollen enormously" by Roebling's creation, bringing "effects that have not as yet been thought out by the majority of real estate investors."[65] New commuters from Brooklyn would arrive demanding office space for their concerns. As a result, "much of the business now done on Fulton Street, Brooklyn will be transferred to this city, for men will purchase in the

attractive stores near their places of business."[66] Imagine how many more restaurants, saloons and other retail centers these masses would need? [67] Moreover, speculators felt the addition of crosstown service to Sixth Avenue's large emporiums would attract suburban housewives. As one analyst reasoned, "if the time should come, when a lady can take a seat on a car at the depot near her residence in Brooklyn and be conveyed, without any change of car, direct to any part of Sixth Avenue, the Brooklyn stores will lose their best custom."[68] Its effect on the west side's many dry-goods, lingerie and silk outlets would be a promoter's dream.

These and other claims seemed possible because of new conditions. By 1880, rapid transit had preserved the heavy concentration of commerce downtown. Even retailers began moving back.[69] A well-known, uptown hosiery dealer, who before "El" construction had prospered on Broadway off Union Square, prepared to return in 1882. The proprietor complained "his best customers passed him by on the elevated roads," since it did not "pay them to walk a couple of blocks from the...station for the sake of buying a few shirts, drawers or neckties." They merely purchased their wares near downtown train stops and sent parcels home.[70]

Rapid transit and the Brooklyn Bridge probably teamed so closely to change lower Manhattan that their influences cannot be separated. But what of the speculator's predictions? Certainly there was no immediate land revolution.

A comparison of insurance maps drawn in the 1870's and 80's reveals alterations in some neighborhoods. South of Beaver Street, for instance, storage centers continued to abound, while three to five-story brick dwellings still dotted lower Whitehall.[71] In other east side locales, buildings rose higher. Wall Street was a prime example, as six to eight-floor structures quickly replaced predecessors not half that size.[72] In other regions, however, entire blocks remained the same; a typical case were those north of Maiden Lane to Frankfort which kept most of their four to six-story warehouses and factories.[73]

Yet, north of Frankfort a different story unfolded. Here an old-time residential section, once opulent but now in decline, changed in response to the bridge. Although Cherry Street continued with three to five-story brick structures, lower Vandewater bore a new appearance. Landlords had demolished rows of large tenements and erected four to eight-story warehouses and plants along the thoroughfare. But the transformation had limits. For, upper Vandewater, more removed from the span's terminus, still remained suburban, though other routes changed moderately.[74] This was true, for instance, of Water Street from Dover to James, where a handful of mills and storage depots replaced multi-occupancy dwellings. Yet, alterations were fewer as one left the bridge area.[75]

Certainly, however, Roebling's creation helped alter land use in nearby sections. Indeed, neighborhoods east

of Division and north of Market saw the razing of many homes for industry. The new trend was most obvious on Monroe from Pike to Rutgers where the lone factory in 1875 had five new brothers within nine years, and Cherry, too, from Market to Rutgers exchanged its houses for mills. Once only Water and South Streets bore the waterfront badge, but, by 1885, commercial influences veered closer to Division.[76] And though the latter itself remained a route of brick flats, incursions continued along its flanks. Moreover, by 1885, Chrystie, the Bowery and other inland arteries near Canal observed an increase in storage centers and plants, as industry tightened its grip on the zone.[77]

The trend prospered on the west side, too, although the bridge's influence was minimal. On West Broadway from Franklin to Canal, for example, companies displaced homes. Farther west, Hudson Street between Leonard and Worth saw its brick and frame habitations yield to six and seven-story warehouses. But the metamorphosis was gradual. From 1875-1885, only certain roads changed; many others stayed residential.[78] Above Duane there were few alterations; brick and frame houses continued with an occasional storage center marring the landscape.[79] Yet, disruption loomed near Broadway sections, as Mercer and Broadway north of Prince became more commercial. Worse still, dwellings fell by the score in nearby thoroughfares. Along Greene from Spring to Houston huge factories and markets rose in place of brick and frame mansions of ante-bellum vintage.[80] And in Spring

Street, too, from Broadway to Wooster tradition faded, as numerous domiciles surrendered to stores.[81]

Most likely, however, Brooklyn Bridge exerted little influence over central and western Manhattan; rapid transit, commerce and population growth were more significant. This was probably true also of eastern locales well beyond the span. Here industry made inroads as families fled north or across the river. Even further uptown, new mills appeared on First and Second Avenues north of Houston Street and in the Union Square area well past 14th.[82] But homes still predominated in many neighborhoods. Though multi-story factories abounded on Canal east of Broadway, cottages and tenements persevered on Baxter, Mulberry, Mott, Elm and other routes north of Canal.[83] The trend toward mixed land use also persisted above Montgomery along the East River, where waterfront businessmen lacked capital for expansion into residential lots.[84] Hence these riverfront sections, while adding some factories, also replaced their frame with brick and stone dwellings. And this occurred, too, on blocks bordered by Houston, Willet, Rivington and Essex Streets along with many others around town.[85]

Therefore, although key thoroughfares near the bridge changed their face in a decade, the switch in land use was more gradual elsewhere. No doubt the steam roads and uptown boom helped parts of lower Manhattan to industrialize, but many communities stayed solidly residential. Yet, whatever their real influence, Roebling's span and rapid transit surely

affected the thinking of investors throughout the 1870's and 80's. A joint effect seemed to be a strengthening of business and industry downtown. But a more precise analysis of developments in lower Manhattan awaits further research.

If this "world wonder" influenced New York's real estate, imagine its effect upon Brooklyn's. Here again, Gotham's speculators entered the picture since many bought Long Island property in hopes of future annexation. In addition, all knew the bridge's success meant a land boom across the river. No doubt the heavy traffic in 1883 substantiated the dreams of promoters. Vast crowds thronged the structure daily. The first year alone saw 8½ million passengers cross,[86] the number tripled during the next four years,[87] and by 1904 it exceeded 130 million.[88] Twenty years after its opening, the cable road handled 54,000 people each rush hour; 190,000 commuted to Manhattan each day and 166,000 to Brooklyn. It had become the most traveled arch in all the world.[89]

After 1883, Brooklyn's future seemed bright, since the town now lay within an hour of lower Manhattan. During the years of construction, the former's population had soared from 350,000 in 1868 to near 600,000 by 1880. Fortunately, civic leaders had recognized early the need for trains on the span. Thus, within months of "opening day" cars

sped above the waters and lot owners braced for a housing boom. And they were not disappointed. Indeed, by 1892, the city boasted over 1,000,000 inhabitants.[90]

During the 1880's, investors everywhere speculated heavily across the East River.[91] To some extent, however, Brooklyn's steadily climbing real estate tax restrained the mania. In fact, within a decade, this levy would sound the deathknell to the community's independence. Nevertheless, the exact economic effects of the span remain unresearched. But one thing is certain: it planted seeds of unrest in the hearts of many Brooklynites. They realized their town's rising fortunes derived from its new connection with Manhattan, and local boosters wanted more.

Throughout the 1880's and 90's, there were repeated attempts by Brooklyn-based groups to initiate more bridges. On October 22, 1891, for example, despite a fierce rain and gale, a mass meeting of the "Citizen's Bridge Association" drew "all the political candidates of both parties who were not sick in bed."[92] Chairman George H. Fisher "and many distinguished residents of the Eastern District" appeared on the platform.[93] Candidates and citizens alike protested the state legislature's delay of bills authorizing the construction of two links to New York's Grand Street. The first would save twenty minutes travel to Gotham and the other thirty. In addition, there would be no funding problem, since Elbert Snedeker and Frederick Uhlman of the Union "El" stood ready to finance the spans and provide

rapid transit.[94]

On that rainy night, a bi-partisan consensus emerged, which deemed the proposals necessay for the "eastern district's" welfare. Republican State Senatorial candidate Joseph Aspinall spoke not of a bridge but "of bridges" across the East River, "right straight along for the next ten years." According to Aspinall, "the more bridges the better it will be for our interests."[95] The party's mayoral candidate, Henry A. Meyer, predicated the development of the Eighteenth Ward and other sectors upon the approval of these projects,[96] while the Corporation Counsel characterized any new span as "a second rainbow of commerce across the river."[97] Hence many leaders felt Brooklyn's economic future lay in tieing as many umbilical cords to New York as possible.

Annexationists across the river doubtless cheered these events. Roebling's arch had forced the "City of Churches" into stronger dependence upon its rival. The latter could now effect the desired union through blackmail. At the October meeting State Senator Patrick McCarren had recognized this when he referred to the obstacle blocking additional work: "New York would never contribute a cent for another bridge, and Brooklyn was too poor to pay the whole cost."[98] Here lay the great problem. With the latter brought into Manhattan's orbit, the big town could tie future spans to consolidation.

King's County's weakness lay in its finances, which

had deteriorated badly in the 1880's and 90's. With residence booming but commerce Manhattan-bound, Brooklyn had to fund new sewers and streets from a meager tax base. As a result, rates soared prompting cries for reform. But no changes came and the problem worsened throughout the 1880's. In 1889, for instance, all twenty-five wards had different real estate rates--the lowest being $2.79/$100 of assessed valuation and the highest $3.02.[99] At the same time, New Yorkers enjoyed a uniform $1.95/$100 figure. In effect, the latter paid 331/3 per cent less in property levies than the average Brooklynite.[100] Table 4[101] below demonstrates a deteriorating situation across the river after 1880.

TABLE 4

REAL ESTATE TAX
PER $100 OF ASSESSED VALUATION

YEAR	NEW YORK	BROOKLYN (average)
1880	$2.53	$2.67
1885	$2.40	$2.89½
1889	$1.95	$2.95

Annexationists in King's County jumped upon the issue. Edward C. Graves, a prominent lawyer and leading supporter of consolidation, predicted a bleak future, since all "great tax-paying properties" below 23rd Street belonged to New York. His was a "residence city" with "few great stores, one exchange, few banks, no clearing houses...scarcely a hotel and very little wholesale business."[102] A survey of directories in 1891 awarded Gotham

129 large office buildings to its rival's 14. But of these, Graves argued, the former's held greater quantitative value; the Equitable Life Assurance Society building alone totaled $15 million. The metropolis also counted more hotels (263 to 20), many of which were million-dollar structures.[103] Graves wondered how one Brooklyn lot with a small home could match the yield of a multi-story office tower. The rent of each cubicle on every floor brought profits. Put together, Manhattan's skyscrapers alone paid amounts exceeding Brooklyn's total revenue. Just the Mutual Life Company's contribution, Graves asserted, equalled that derived from 500 houses across the river.[104]

Worse still, Brooklynites paid a double toll. The bridge drew Gotham's business district so close that many local traders rented space there. And, of course, the office and store rents they paid went to meeting New York's real estate levies. Then, Graves contended, Brooklynites returned home to face their own.[105] Moreover, since the 1686 Dongan Charter gave the metropolis control of its rival's waterfront, the former collected 12 3/4 per cent of the gross receipts of all ferry companies (in 1889 amounting to $107,866.73) operating between the cities. Again Brooklynites, as the chief commuters, paid a second duty hidden in their fares.[106]

Still another factor entered in the equation. New York assessed its properties at amounts far below those of King's. In 1890, Manhattan officials rarely set real estate

above 50 per cent of its true value, but across the river the rate often approached 75 per cent.[107] Hence New York lot owners owed $1.95/$100 on land estimated at less than half its selling price, while Brooklynites paid over $3.00/$100 on 3/4ths of a lot's worth.[108] No wonder building stagnated in the City of Churches.

As a result, the latter could not enjoy the full benefits of the bridge. Thousands of residential plots, now within commuting time of Wall Street, remained undeveloped because high taxes repelled investors. For Edward Graves, William Gaynor, S. T. Stranahan and other leaders, annexation was "Brooklyn's only salvation from impending bankruptcy and financial ruin."[109] This belief led them to form the Consolidation League in 1893.[110] Thereafter, its spokesmen promised that union would immediately reduce charges by one-half "on every foot of real estate in Brooklyn."[111] Such magical words triggered instant support; within months the organization's membership exceeded 30,000.[112]

Its popularity spread as levies spiraled. A state audit upheld Graves's contentions. In 1890, investigators found the average assessment of New York's property at 44 per cent of true worth, while Brooklyn's stood at 70 per cent.[113] By 1893, schedules changed again; the former's increased by 3 per cent and the latter's fell by the same figure. Brooklyn's politicians rejoiced at the drop, but, on the other hand, a few wards saw rates jump to 70 and 100

per cent of actual value.[114]

Throughout the late 1880's and early 90's, events boosted the annexation cause. By 1893, King's County builders embraced consolidation. One predicted it would bring "the biggest kind of boom over here." At present, he complained, "land investment lay moribund, since capitalists will not put money into real estate...when it costs 5 per cent interest and 3 per cent in taxes, 8 per cent in all, not to mention insurance and repairs, both big items." But with union, levies would fall by 2 per cent, permitting investors to net a 6 per cent profit. If this occurred, he reasoned, "vacant lots would disappear, and the increase in the number of houses would prevent any increase in rents."[115]

As the 1894 referendum approached, crisis loomed. With rising taxes casting doubt on Brooklyn's solvency, interest on its bonds surpassed New York's. By 1893, King's County's economy suffered from both real estate duties and depression. Thus, with construction stagnating, hundreds of bricklayers, painters and plasterers became unemployed.[116] The scene was incongruous, for the town craved sewers, paved streets and other improvements. But none could be built, because the municipality had reached its legal indebtedness; it could borrow no more capital. The stage was now set, and a rising chorus of voices in both cities joined Stranahan, Graves and others in pushing the great panacea.

Impending bankruptcy further strengthened the

Consolidation League's hand. Graves, in particular, harped on the crisis. Only through union, he insisted, could Brooklyn finance needed public works. Already services had deteriorated. For one thing, he pointed to the city's dwindling water supply.[117] Long Island's ponds, streams and wells were drying up even while present demand required an aqueduct. Thus, with disaster imminent, Brooklyn's only hope lay with Croton.

Aside from water mains, public works provided another impetus for merger. Graves spoke for many when he berated Brooklyn's "rough cobblestone streets [and] its wretched sewers." But, once again, he offered the solution. Support union, he urged, and more roads "will be repaved and properly sewered in one year than will otherwise be done in ten years. And in five years time, the arches of at least three new bridges will be seen spanning the East River."[118] But, he warned repeatedly, "New York City does not want the bridges unless the cities are consolidated."[119]

Sentimentalists might dwell on civic pride, urban imperialism or the cancer of Tammany, but the League of Loyal Citizens and other anti-annexationists could not deliver paved and sewered arteries by wishful thinking. Brooklyn's plight doubtless made Gotham's leadership more confident of victory. From experience they knew that building an urban infrastructure was a long, costly process. Traditionalists might delay a while longer, but, in the end, marriage was inevitable. With its financial situation out of

control, Brooklyn's only solution lay in capturing Manhattan's tax base.

New York also stood to gain from the action. Promoters advanced the idea of permanently outdistancing Chicago before it surpassed their home in population. Many, including Edward Graves, felt Gotham wanted combination to protect its "commercial prestige."[120] Some argued that if Chicago won the battle, various trades might join the new champion.[121] Perhaps the nation's financial community would defect also. Hence, to prevent such a loss, Brooklyn's population was vital.

Though prestige was important, other motives favored annexation. As the new bridge brought thousands of lots within an hour of Wall Street, Manhattanites increasingly speculated across the river.[122] Surely, these men realized that if only property taxes could be lowered and control of public works centralized (perhaps in Tammany), New York's real estate community would enjoy great leverage in shaping Brooklyn's development. Once captured, the latter city would undoubtedly become a flourishing suburb. For, as Graves himself reasoned, why should a New Yorker pay $200 for a "stuffy flat an hour's ride uptown from City Hall, when he can get a brown stone front on a nice street in Brooklyn, but a half hour's ride from...City Hall, for $75 per month, or buy it" for $100 a month.[123] A smaller brick

or stone-front house could be had even cheaper at $25 a month rent, or bought for $5,000. And a frame home, on the outskirts of Queens but still within range of Broadway, would run no more than $3,500.[124]

Comparative sales reinforce this view. In May, 1891, for instance, a 50X125 foot lot on the southeast corner of Fifth Avenue and 55th Street brought $540,000, while, the same week, identical land in fashionable Brooklyn Heights went for $18,400.[125] The conclusion was obvious: with Brooklyn's taxes reduced, Gotham would own a valuable satellite. Not surprisingly, the Real Estate Record echoed these sentiments. Editors believed that, in one stroke, consolidation would recapture for New York all former residents lost in the thirty-year exodus across the East River. And furthermore, once developed, King's County surely would offer speculators a new and larger residential investment frontier than ever before. Like Graves, the Record pointed to land prices. In 1894, the journal compared a $12,000 lot near West 93rd Street's "El" station, forty-five minutes from City Hall with a similar Brooklyn site costing only $600-$1,200.[126] The logic backing annexation was inescapable.

Already the "City of Churches" possessed a good rapid transit system. Trains snaked through key sections leading to the bridge, and tracks could easily be extended to outlying areas if needed. Moreover, these vehicles were comfortable and less crowded than Gotham's. Observers wrote of how they "afford[ed] seats to all passengers at

nearly all times, and even at the busiest hours one can secure a seat by waiting for the next train."[127] All factors seemed to favor a "yes" vote by Manhattanites.

Some, however, opposed the union. One writer contended that half of Brooklyn's streets "are paved with cobblestones and boulders, many of them the size of a flour barrel; that her water supply is entirely inadequate to her population...that in almost every respect she is lacking everything which goes to make a large city attractive."[128] As a result, he predicted, "what a scramble there would be on the part of her population immediately after her annexation to New York, to have all these things supplied to her at the expense of the New York City of today."[129] No doubt such warnings inspired resistance.

Nevertheless, despite opposition, consolidation still triumphed. A non-binding referendum in 1894 saw Gothamites approve 96,938 to 59,959.[130] In King's County the measure carried by only 277 votes, 64,744 to 64,467.[131] The breakdown shows all distant Brooklyn sections in favor. The reason was simple: locales surrounding Prospect Park to the south and east would greatly benefit from increased population. At present, lots worth only $1,000-$3,000 suffered from lack of building. But, as Graves prophesied, annexation would equalize values with Manhattan, provided "the owner of Brooklyn vacant property,...either buil[t] upon it or [sold] out to someone who [would]."[132] To a large extent, then, union could only promote the growth of

peripheral communities.[133]

Surely these eastern areas along the Queens rim, Bedwood Park and Greenwood Cemetery needed the merger. But what about those nearer the bridge? To the surprise of many, the vote in old-time neighborhoods was close. Indeed, one scholar has noted that a favorable result "had been expected in the outlying districts, some of which contained large pieces of undeveloped real estate; but it had generally been supposed that the inhabitants of the more populous sections looked with some reluctance on the passing of Brooklyn."[134] But why? Property close to New York stood to gain the most from annexation. Once freed of heavy assessments, values would surpass those of peripheral sections because of proximity to Manhattan. Within years, these lands would be prime sites for multi-occupancy dwellings. Of course, as home of Brooklyn's traditionalists, these wards resisted union. But the city's elite resided here, too, and many no doubt were businessmen eager to promote local housing and industry while also profiting from real estate growth. These leaders had campaigned hard, and though consolidation lost in many wards, the vote was close. In fact, three out of seven bordering Manhattan approved the measure.[135]

The plebiscite, though non-binding, had doomed the separatists. The 1898 merger reduced Brooklyn's liens to resonable levels and opened the door to real estate growth.[136] With increased tax bases, each city prospered. While Brooklyn immediately won the capital to build its streets years

ahead of schedule, New York, on the other hand, became America's undisputed urban leader and gained a new investment frontier in the east. The marriage was a mutually beneficial one.

NOTES

[1]RRBG, IV, November 27, 1869.

[2]Ibid.

[3]Ibid.

[4]Ibid.

[5]See Insurance Company Maps for the 1850's, 60's and 70's for the changes in land use patterns.

[6]Ibid.

[7]RRBG, XXXI, January 18, 1883, 14.

[8]Ibid.

[9]Ibid., III, July 24, 1869, 4.

[10]Ibid.

[11]Ibid., XVIII, September 23, 1876, 703.

[12]Ibid., XX, December 15, 1877, 965.

[13]Ibid., but also see Insurance Company Maps for for the appropriate years.

[14]RRBG, XVIII, September 23, 1876, 703; see also Insurance Company Maps for the 1870's.

[15]RRBG, September 23, 1876, 703.

[16]Proceedings of a Meeting of Property Holders of the West Side District of New York Held at the Museum of Natural History, October 3, 1878, p. 5.

[17]Ibid., p. 7.

[18]Ibid., p. 5.

[19]RRBG, XX, December 1, 1877, 925.

[20]Ibid.

[21]Ibid.

[22]Ibid.

[23]Ibid., pp. 925-926.

[24]Ibid., p. 926.

[25]Ibid., I, September 12, 1868, 8.

[26]Ibid., August 8, 1868, p. 3.

[27]Ibid., September 12, 1868, p. 8. See also Waring, I, pp. 568-575 for a short history of sewer reform in New York.

[28]See the Annual Reports of the Public Works Department for the years 1876-1883. Consult the "sewers" and "pavings" sections.

[29]First Annual Report of the Department of Public Works, pp. 184-186.

30 RRBG, VI,"Supplement, (1875), p. 5.

[31]Ibid., IV, January 1, 1870, 1.

[32]Ibid.

[33]Ibid., February 12, 1870, p. 3.

[34]For an excellent discussion of these events, see James Blaine Walker, Fifty Years of Rapid Transit (New York: Arno Press, 1970), pp. 1-105.

[35]RRBG, IX, January 20, 1872, 25.

[36]Ibid.

[37]History of Real Estate...in New York City, pp. 78-79.

[38]Ibid.

[39]Ibid.

[40]RRBG, XVIII, October 14, 1876, 761.

[41]Ibid., XXIII, March 29, 1879, 245.

[42]Ibid.

[43]Ibid.

[44]Ibid.

[45]Ibid., XXV, March 27, 1880, 287.

[46]Ibid.

[47]Ibid., XX, July 14, 1877, 556-557. Estimates for additional areas uptown are also given.

[48]The early movement for an East River bridge is treated in the first chapter of Allan Trachtenburg's Brooklyn Bridge: Fact and Symbol (New York: Oxford University Press,1965).

[49]RRBG, XVI, November 27, 1875, 761; Ibid., XVII, January 1, 1876, 2.

[50]Upon the bridge's completion, various stories appeared about its possible effects upon annexation. See, for instance, RRBG, XXXI, April 28, 1883, 168-169; May 19, 1883, 199; XXXIII, March 1, 1884, 201.

[51]Ibid., I, July 25, 1868, 1.

[52]Ibid.

[53]David McCullough, The Great Bridge (New York: Simon and Schuster, 1972), p. 25.

[54]Report of the Committee Appointed...in the Matter of an Examination of the Financial Affairs of the New York and Brooklyn Bridge,December 31, 1883 (Brooklyn, 1884), p. 93.

[55]Ibid., pp. 15-16.

[56]For more on the Brooklyn Bridge, see Edward Farrington, History of the Building of the Great Bridge (New York: Mooney, 1881); S. W. Green, A Complete History of the New York and Brooklyn Bridge... (New York, 1883) and David B. Steinman, The Builders of the Bridge: the Story of John Roebling and His Son (New York: Arno Press, 1972).

[57]Report of the Committee, pp. 85-86; see also pp. 75-76. For more on Tweed's influence, see McCullough, pp.122-138.

[58]Report of the Committee, p. 89.

[59]Ibid., p. 12; see pp. 1-14 for other cost figures.

[60]McCullough, p. 563.

[61]See above n. 47.

[62]RRBG, I, April 18, 1868, 2.

[63]Ibid., June 6, 1868, p. 11; see also XXIV, October 4, 1879, 779.

[64]Ibid., XXIX, January 14, 1882, 25.

[65]Ibid., March 11, 1882, p. 213.

[66]Ibid.

[67]Ibid.

[68]Ibid.

[69]This is another significant theme in need of more research.

[70]RRBG, March 11, 1882, p. 213.

[71]This section involves a comparison of Insurance Company Maps; Vol. 1 (1877) with Vol. 1 (1884) and also Vol. 2 of both series; Vol. 1, p. 1; p. 1.

[72]Ibid., 3; 2.

[73]Ibid., pp. 5-6 (of both).

[74]Ibid., p. 10.

[75]Ibid.

[76]Ibid., p. 12.

[77]Ibid., p. 13.

[78]Ibid., p. 16.

[79]Ibid., pp. 17-20.

[80]Ibid., p. 21.

[81]Ibid., p. 22.

[82]Ibid., II, pp. 35; 45.

[83]Ibid., I, p. 23.

[84]Ibid., p. 28.

[85]Ibid., II, pp. 31-32.

[86]New York City, Department of Bridges, Argument on the Brooklyn Bridge Problem, n. d., p. 3.

[87]New York and Brooklyn Bridge, Reports on Plans for the Enlargement of Traffic Facilities of the New York and Brooklyn Bridge (New York, 1888), p. 23.

[88]Argument on the Brooklyn Bridge Problem, p. 3.

[89]Ibid.

[90]Jesse Johnson, Should Brooklyn Be Annexed to New York? (Brooklyn, n. d.).

[91]RRBG, "Conveyances" for 1885 will serve as the source for the large amount of quantitative research required before one can make final conclusions about the effect of the span on real estate.

[92]New York Times, October 23, 1891.

[93]Ibid.

[94]Ibid., February 15, 1891.

[95]Ibid., October 23, 1891.

[96]Ibid.

[97]Ibid.

[98]Ibid.

[99]Edward C. Graves, How Taxes in Brooklyn Can Be Reduced One Half by Consolidation of the Cities of New York and Brooklyn. An Appeal to Reason. (New York, 1890?), p. 3.

[100]Ibid.

[101]Ibid., p. 4.

[102]Ibid., pp. 5, 6.

[103]Ibid., p. 8. See also the City Directories of both New York and Brooklyn for 1890 and 1891 for comparisons.

[104]Ibid., p. 6.

[105]Ibid., pp. 6-7.

[106]Ibid., p. 7.

[107]Ibid., p. 6.

[108]Ibid.

[109]Edward C. Graves, The Greater New York. The Reasons Why (New York, 1894), p. 8.

[110]Ibid., p. 7.

[111]Ibid., p. 8.

[112]Harold C. Syrett, The City of Brooklyn, 1865-1898: a Political History (New York: Columbia University Press, 1944), p. 254.

[113]Graves, Greater New York, p. 9.

[114]Ibid.

[115]New York Times, February 20, 1893.

[116]Greater New York, p. 11.

[117]Ibid., pp. 24-25.

[118]Ibid., p. 25.

[119]Ibid., p. 24.

[120]Ibid., pp. 15-16.

[121]RRBG, LVIII, October 27, 1894, 587.

[122]Ibid., see issues from 1870-1884, "Conveyances," passim.

[123]Greater New York, p. 26.

[124]Ibid.

[125]Ibid., p. 27.

[126]RRBG, LVII, January 6, 1894, 30-32.

[127]Ibid., p. 30.

[128]Ibid., LVIII, October 27, 1894, 587.

[129]*Ibid*.

[130]*The Brooklyn Daily Eagle Almanac* (1895), p. 298.

[131]Syrett, p. 258.

[132]*Greater New York*, p. 28.

[133]Much quantitative research needs to be done on the question of who speculated in Brooklyn lots, where and how much.

[134]Syrett, p. 257.

[135]*Brooklyn Daily Eagle Almanac* (1895), p. 298.

[136]After consolidation, however, Brooklyn and New York continued to have separate tax rates.

CHAPTER 12

THE URBAN CHALLENGE

Urbanization, industrialization and immigration combined to wreak chaos upon the nineteenth-century, American city. In every town the arrival of factories and foreigners pushed settlement well beyond colonial boundaries. This unprecedented expansion exerted stress everywhere, as each year saw wholesale, retail, banking and other trades demanding more space while a surging population cried out for new housing. In most places the forced extension of municipal services to retreating peripheries created a challenge which overwhelmed government. Events moved too quickly for men to react.

This was especially true of Manhattan, which, after 1800, grew faster than any part of America. Expansion dominated every corner of life. By 1880, population had soared from 60,000 (in 1800) to 1.2 million.[1] New York's appearance reflected the on-going change. Below Union Square a jungle of brick had displaced "uptown" villages, while farther north, sprawling suburbs had deforested woodlands. Town could still be traversed in two hours but only by streetcar and "El." Gone were the dirt roads, dim oil lamps, open sewers and

corner wells. Brooklyn Bridge, Central Park, the beastly tenements and cavernous streets symbolized a transformation which must have impressed the octogenarian. In earlier days change had been slower and men could prepare, but time was no cushion for those of this age.

Throughout New York growth outdistanced improvements. Even by the 1870's, two crucial needs, paved streets and reliable sewers, were still not abundant. But the crisis was present elsewhere as well, for expansion had strained urban resources everywhere. Boston, for instance, reported only one-fifth of its road miles paved in 1880.[2] And its sewers were not only too few, but frequently meandered in all directions. Moreover, dozens were cracked, submerged or lost, making seepage a perennial health problem.[3]

To the south, similar troubles afflicted Baltimore. Though a town of 330,000 in 1880,[4] its lack of surfaced roads left it "still in the condition of a small country town."[5] In fact, the widespread absence of trap blocks prompted one Mayor to quip that "the antiquated and elsewhere almost obsolete cobblestones are here a characteristic of our reverence for the past."[6] Like other metropolises, Baltimore's troubles stemmed from its growth. Since 1840 population had tripled, splashing communities outward in disarray. Such events only disrupted municipal operations. Witness the case of waste removal. By 1880, there was still no "system of sewers." Instead, laundry and kitchen wastes ran over or under sidewalks to gutters which hopefully

found their way to natural outlets. Even worse, the few existing conduits did little to retard insalubrity, for in many sections pipe ventilation was "through the inlets and interiors of houses connected therewith."[7] Once again public health had taken a back seat to expediency.

Midwestern cities, however, groped with similar difficulties. As late as 1880, Cincinnati's infrastructure was still largely incomplete. Only half its roads were paved; while underground, putrescent matter stagnated in cesspools everywhere.[8] Scattered mains drained some areas but a third of town lacked any service. A sanitary crisis must have loomed near, for as one leading authority observed, "all the lower part of the city west of McClean Avenue is without sewerage, and much of it is densely populated."[9]

In Pittsburgh, too, major districts lacked waste networks. By 1880, only twenty-two miles criss-crossed the metropolis and most of these were downtown.[10] Few pipes greeted the suburbs. As a result, investigators found that much of the made ground on the city's south side across the Monongahela "is wet and many cellars contain water much of the year." Pavements were an additional problem. Both distribution and quality were inadequate. Indeed, throughout much of the century Pittsburgh's residential zones lacked surfaced roads, while those downtown were poorly built and "quickly worn out by the immense amount of [horse and wagon] teaming carried on."[11]

Matters hardly improved further west. In Chicago, unplanned grading (prior to 1855) combined with four decades

of frenetic building fever to hinder that city's improvement. In many respects, though, the destructive fire of 1871 allowed the business district a much-needed face-lifting. By intensifying the residential movement outward from the central core, it cleared a four-square-mile site for modern, brick office buildings and better-planned streets.[12] In outlying areas, however, pavement was slow to arrive. But sewers were even less available; few extended beyond the "loop."[13] Universal service awaited the 1900's.

Chicago's chief rival hardly fared better, for public works lagged in St. Louis, too. Here, penurious councilmen had covered three-fourths of their streets with "broken stone"--a useless expedient. Indeed, this mud-strewn surface proved impossible to keep clean.[14] An absence of sewers brought further discredit. Construction began only in 1850, following the adoption of a "general plan." Prior to this, the city's only outlets were "short box drains" privately built along the Mississippi waterfront,[15] and these, like the early public conduits, primarily disposed of ground water. A modern network equipped for both this function and waste removal came only in the decades after 1860.

Down river, similar lethargy plagued New Orleans. In less than seven decades population had soared from 17,000 to 215,000, but politicians had done little to cushion the blow.[16] As late as 1880, over three-fourths of all roads were still un-paved.[17] Drainage was even more inadequate. Even the gutters abutting most thoroughfares

were too shallow. Thus, during violent storms mini-lakes abounded once these shoulders overflowed, flooding "the whole width of the street at a distance of about half a mile back from the levee."[18] Moreover, New Orleans lacked any sewerage at all.

On the west coast, too, frantic growth had overwhelmed government. San Francisco was a prime example. Spurred by the gold strike and burgeoning commerce, the city had exploded in just thirty years. By 1880, over 233,000 thronged the great port.[19] Residential patterns formed early. Settlers first blanketed the lowlands and waterfront before scaling the heights to more bucolic terrain.[20] Yet, as dirt roads mushroomed with each passing year, councilmen struggled in vain to equip them. As late as 1880, only two-fifths of the streets were paved.[21] And sewers were also in short supply. In fact, when the town finally adopted a "general plan" in 1876, less than a fourth of all routes had pipeage.[22] Fortunately, however, drainage was less a problem here than elsewhere, since neighboring hills assisted the run-off.

No matter the city, streets typified the delayed response to urban growth. And no doubt the sluggishness pervading road improvements extended to other projects as well. Indeed, one might safely assume that in most towns the spread of fire houses, police stations, schools, hospitals, markets and docks failed to keep pace with expansion. Even when public works finally came, priorities

invariably guided distribution. Since prosperity required a flourishing business district, downtown usually won early attention. In most places, therefore, paving, sewerage, gas and water first graced those arteries feeding the nucleus, while peripheral streets waited till later.

Confusion, too, hampered policy-making. In many towns the shock of sudden and continued urbanization overwhelmed inexperienced councils. Furthermore, the economic revolution sweeping America bred ambivalent feelings; for many people, progress evoked both fear and applause. Though all rejoiced at the fruits of expansion, men disagreed over how to sustain it. In some places, overcautious politicians, unsure of the direction, longevity and dimension of growth, delayed taking action until they could digest events. There was, however, no time for comprehension, just response. Inevitably, the pressure of time brought about errors. Indeed, as expansion accelerated the velocity of change beyond social control, it forced municipalities into throwing up hastily-conceived infrastructures.

Faced with the task of managing growth, politicians in many nineteenth-century towns looked to the private sector for guidance. In fact, the close relationship between business and policy-making has led directly to the concept of the"private city"--that cold, segmented, capitalistic society where personal profit outweighed Public Good and

market-place needs swayed local government.[23] This privatistic approach, however, though successful as a description of the city-building process, fails as an indictment.

To a large extent, its proponents have disregarded the context in which these towns met their problems. Fortified by a tradition of business restraint and advanced city-planning, critics too often have judged the nineteenth century in terms of the twentieth. And this has resulted in a distorted view of past urban behavior. Thus, instead of providing even-handed interpretations, writers have engaged in "second-guessing" municipal leaders, reviewing "missed opportunities" and bemoaning pro-business policies.

According to this perspective, the primeval error of every metropolis lay in its adoption of a street grid. In New York this occurred in 1811 when legislators approved the scheme for the zone above Houston Street. Under this strategy, blocks would be rectangular and all routes straight, with avenues wide and streets narrow. The plan ignored the contours of natural terrain and instead framed real estate in geometric designs. Though controversial, the grid had already succeeded in Philadelphia, prompting St. Louis, New Orleans and other cities to adopt it.[24] Its prevalence grew throughout the early 1800's, until it became the standard basis of town development in the United States.

Despite its popularity, however, modern critics have traditionally viewed it as an appeasement to the market place. For Lewis Mumford and others, no action better symbolized the expediency governing town development. Indeed, Mumford bemoaned the enthronement of building lot over neighborhood as the "fundamental unit or urban extension." For one thing, environment suffered because the the resultant lots of narrow street frontage and sizable depth allowed but "a minimum amount of light and air to [surrounding] buildings."[25] The effect bathed whole neighborhoods in unwanted darkness.

In addition, Mumford felt the grid created "a new kind of urban order in which business took precedence over every other kind of activity.[26] It was a "mechanical pattern," permitting easy computation of square feet. In short, standardized streets and lots "fitted nothing but a quick parcelling of the land, a quick conversion of farmsteads into real estate and a quick sale." The town thus became little more than a "physical agglomeration of rentable buildings...[which] could sprawl in any direction."[27]

With all routes the same, "every street might become a traffic street; every section might become a business section." More often than not, the failure "to discriminate sufficiently" between commercial arteries and residential lanes resulted in "the former being too narrow and the latter too wide." And, according to Mumford, this refusal to gear public works to neighborhood function "threw the costs of extra paving and over lengthy utility lines

and mains upon residential streets that could ill-afford them."[28]

The problem was not only typical of New York but other cities as well. Indeed, "on steep hilly sites like that in San Francisco, the rectangular plan, by failing to respect the contours, placed a constant tax upon the time and energy of the inhabitants."[29] Some contemporaries, too, criticized the "absurd mathematical notions" which required the "filling up [of] building lots along the artificial street line, and of raising or lowering substantial buildings already erected, to suit the new level."[30]

The same was true of suburban Boston where "natural contours were thrown away for the short-run advantages of easy marketing and cheap utility and street construction." Instead of plazas and squares, the effect produced 'long rows' of stores and other buildings. And this, in turn, promoted a "centerless tendency" which, by restricting contact amongst residents, led to "even greater fragmentation of community life."[31]

Philadelphia, too, suffered these defects. By the 1840's, "thoughtless and uncoordinated building on the top of the grid lots [had] damaged the city as severely as its inappropriate land division."[32] Leaders had failed to use public edifices or shopping plazas as the "unified subcenters" needed for "focusing the daily activities of neighborhoods." Instead the building process over time had created "acres and acres of amorphous tracts."[33]

Manhattan, of course, faced these same problems. Above Union Square dwellings stared across at each other for miles on end, thereby prompting the view that Gotham's streets had no "focal points," since "they led to the river or to the horizon rather than to places of interest or communication."[34] From this the deduction invariably followed that neighborhoods lacked enough social interaction. And this, in turn, prompted some critics to assume the presence of "Communication gaps," which paralyzed decision-making and left the city directionless and disunited. For some writers a "crisis of community" further aggravated the situation. Indeed, it has been argued that as the world grew increasingly complex and interrelated, the "small town" approach to problem-solving proved unworkable. Together, these factors produced a decline of the "informal community," fulfilling a crucial prerequisite for the rise of the "private city."[35] The former's demise had created a vacuum filled by the market place.

As the transformation progressed, business needs increasingly governed public decisions. Utilities were a case in point. In many cities, for example, networks supplying pure and abundant water appeared only when further growth compelled their installation. The distribution of gas mains, too, depended upon a working relationship between city and company. In Boston, for instance, when the government negotiated for public lamps in the suburbs "it often bargained in behalf of residential users as well."[36]

Privatism influenced every move. Even when selecting future park sites, Boston authorities "carefully avoided land which was thought to be suited to private construction, taking instead the marshes and uplands at the edge of areas then building."[37] The same, of course, was true of Manhattan, where officials chose the peripheral Central Park grounds over the more valuable acreage hosting Jones Woods. But no matter the town, the combined effect of these policies was "to greatly assist the individual builder to develop the vacant land outside the old city."[38] Yet, one must ask: was this such an unfortunate policy?

To be sure, privatism greatly influenced urban development, but further judgments require a more accurate perspective. Too often in the past, present-minded critics of the city-building effort have underrated the problems of these formative years. Indeed, the "rise of the cities" was no smooth process; towns did not equip themselves overnight. Though housing invariably mushroomed, the surrounding infrastructure often took a century to complete. And the way was never easy. Depressions, fires, migrations--a thousand events--clouded the picture.

More than any place, Manhattan dramatized the frantic urban scene. Here as elsewhere the chaos of growth did much to color municipal action. In many respects, America's "search for order" antedated the 1870's; in New York it began

after 1830 and coincided with the rising "urban crisis." As settlement exploded outward beyond expected boundaries, society lost its bearings. Within a generation, colonial approaches to police, fire, education, docks and streets had become obsolete. As conditions changed, leaders struggled to adjust. Their first concern was to re-establish a sense of physical order. To some extent, New York's urbanization would have to be controlled and understood. For many officials, continued prosperity demanded that growth be both channeled and nurtured. Action on environment, social welfare and less pressing concerns would come later. Sharp insecurity dictated this choice, for no struggling city could feel at ease. Myriad forces threatened its position. Even local optimists viewed the century with uncertainty, since Gotham's success was not yet assured. "If our city is to survive" was a common preface to improvement petitions. Many citizens surely wondered if the town could handle the demands thrust upon it by the Industrial Revolution and population boom.

Lack of room worried many. As late as the 1860's, key suburbs like the Bronx, Brooklyn-Queens and Staten Island still were not annexed, while to the west a state line lurked off the Hudson. In a time before the widespread appearance of elevators, steel girders, skyscrapers, electric lines, telephones and rapid transit there were well-grounded fears of losing out to Chicago, Kansas City and other spacious rivals. Precedent was not lacking. In addition to many still-born towns,

major cities like Charleston, Newport and Lexington, failing to compete, had already declined. Then too, in a city jealous of its position, the slipping preeminence of Philadelphia and Boston hardly went unnoticed.

Hence, with expansion and flux the rule of the era and Manhattan's future not yet secure, leaders moved first to ensure survival. To accomplish this, the demands of growth had to be met. And, for the de facto center of a capitalist state in a laissez-faire age, this naturally meant a pragmatic reliance on the market place. In a world so confusing, men clung to the familiar.

Within this context, therefore, sound reasoning early dictated the adoption of a street grid. A chief benefit lay in the easy computation of front footage. This, in turn, simplified property values so that land could be sold, developed and re-sold efficiently, thereby facilitating the growth of the city. To men of enterprise, unfettered investment was a crucial concern. In the grid's case, however, past experience also exerted an influence. For decades the nighmare of crooked, narrow streets in the colonial district had contrasted unfavorably with Philadelphia's wide network. Lower Manhattan paid a heavy price for its lack of forethought. For years commerce sputtered amidst the bottled-up traffic. And relief was slow to come; many routes awaited the mid-1800's for improvement. Lot owners, then, understandably recoiled at suggestions that new uptown roads be anything but straight,

wide and well paved.

One must appreciate the hopes and the fears of those attempting to cope with urbanization. No doubt widespread planning would have been helpful. And, of course, lots and roads contoured to terrain would have promoted a better environment, but criticism must be tempered by reality. In Manhattan especially, changing land function confused public policy. Indeed, the rapid change of land use made planning difficult, for the New York of any decade was a provisional city, recently born and ready to die. During the 1800's, commerce and industry claimed hundreds of blocks once held by residence, and the latter, in turn, displaced uptown farms. But though, in general, the trend seemed neat, matters grew muddled along boundary lines. Some roads saw commerce advance only to retreat some years later. A parade of factories might march up a street and then halt for a decade, leaving the home owner uncertain of whether to sell.

With the future unknown, the past helped guide policy. Since colonial times, mixed neighborhoods had comprised the American town. In New York, Boston and elsewhere, rich and poor had often dwelled within a fence of each other. Then too, even in the 1800's, cottages, mansions, offices and stores might share the same block. The decentralization of business further complicated land use. Moreover, as trade became increasingly amorphous, it failed to produce many specialized neighborhoods. Instead, most places saw retail and wholesale intermingle with housing. Even in the 1860's, there

were few wholly commercial districts; only the First Ward seemed largely transformed. But above City Hall dwellings still dotted most every block. The spread of business northward had only created more mixed neighborhoods.

If one adds to this the periodic migration of some trades and the diffusion of others, one can appreciate the flux ruling land use. No wonder sophisticated planning never took root. In most places, aldermen could not have geared streets to neighborhood needs. Indeed, why prepare Pearl Street for drygoods if Park Place would be host just twenty years later? In a town where every lane was a potential artery of commerce, a grid of straight, wide, multi-functional roads seemed the safest solution.

Besides change and flux, however, contemporary thought also played a role in the city-building process. To some extent, the capitalist ethic influenced societal introspection. One manifestation of this interaction was the widespread acceptance of a narrow definition of progress as economic progress. Indeed, many actions flowed from this presupposition. To some extent, it explains why public works was so tailored to lot values. Mumford, of course, caught the flavor of this age when he observed that "an expanding economy demanded an expanding population; and an expanding population demanded an expanding city. The sky and horizon were the only limits."[39] Once buoyed by this spirit, is it any wonder New Yorkers built wildly? With Chicago and others challenging Gotham's supremacy, paranoia only reinforced the growth mania.

For the most part, however, Manhattanites were the prisoners of their ideas. Even for community groups like the West Side Association, the main goal of public works was to stimulate local prosperity. Environment, aesthetics and human welfare were necessarily subordinate concerns. Real estate guided the infrastructure's development. All was geared to extending settlement, for as Mumford put it: "on purely commercial terms numerical growth was synonymous with improvement."[40] Undoubtedly, a broad consensus felt that government could best promote neighborhood progress by catering to private needs. For a people taught to seek the "main chance" such a philosophy was unavoidable.

In many ways, however, this struggle for economic progress was the cement of urban community. Far from suffering a communication gap, lot owners in every neighborhood met to exchange ideas, determine goals, plot strategy and organize campaigns. The common need for public works evoked much discussion. Townsmen had little difficulty amassing, transmitting or acting upon news. Nor was the data too complex to be processed. Despite dozens of variables affecting each street decision, few major errors blemished the installation of Gotham's huge infrastructure. In general, project distribution and timing, though never perfect, were tolerable.

The building of Croton Aqueduct, Central Park and a thousand lesser tasks could not have been accomplished by a "fragmented mass;" a united community was the crucial prerequisite. Surely, for too long historians have criticized

cities from the perspective of "rural towns--" those idyllic, orderly and gregarious societies which presumably thrived in some unspecified, golden age. When discussing intra-city communications, such comparisons have proven particularly misleading. True, New York lacked those "village greens" whose pillories, benches, trees and gazebos bred the intimacy so compatible to conversation, but still, residents hardly wanted for information. Deprived of these "focal points," Gothamites created their own, meeting at stoops, sidewalks, street corners, taverns, churches, halls, clubs, rallies--everywhere--to exchange ideas.

The abundance of petitions indicate that nineteenth-century urbanites hardly wanted for interaction. Activism was a trait present in virtually every neighborhood and stretched beyond the interests of street-conscious lot owners. As shown, New Yorkers organized to push hundreds of projects. Throughout the city, tenants joined landlords in remonstrating for schools, markets, docks, police stations and firehouses, etc. Reacting to the absence of public hospitals, citizen's groups in numerous districts worked to erect private dispensaries. In many ways, public works was both the cause and effect of an active, urban community.

This strong, local impulse was mostly responsible for the piecemeal construction of Gotham's infrastructure. Indeed, cities themselves were in large part decentralized entities--mere gridirons where hundreds of sub-economies daily interacted. Neighborhoods, therefore, prospered and perished for reasons of their own. As a result, growth

was amorphous and often unpredictible. No wonder a ward-rooted Board of Aldermen believed city-wide planning to be largely unfeasible. Of course, parks, sewers, rapid transit and other universal concerns warranted exceptions, but overall, macrocosmic policy-making would hardly have fit a half-built, nineteenth-century metropolis whose final dimensions could only be guessed at.

Instead, authorities opted for a more comfortable manner of extending the infrastructure. Local investors monitored needs and real estate values helped decide timing. Under this system, vigilant lot owners petitioned for change and aldermen judged each case on its merits. Those improvements promoting growth and not unduly harming minority interests won approval. Today the process would seem clumsy, but hindsight was no benefit to contemporaries and worse, city-building was no science. People might have theories, but metropolitan planning required a stability and tradition that did not then exist in urban America. Hence for the nineteenth-century man faced with the task of equipping New York, a pragmatic reliance on market-place dictates was neither wrong nor regrettable, just inescapable.

Since New York was in many ways a series of small towns, public works largely succeeded within its localized context. On the surface projects might have seemed randomly scattered about, but the Street Committee oversaw continuity.

Aldermen annually scrutinized innumerable petitions and responded according to standard criteria. Each year found the process increasingly routinized. Projects won approval when need required. Usually officials waited until a change would bring maximum benefit to an area. For this reason, aldermen postponed the huge street opening below 42nd until 1835 when enough investors could act upon it. At times, leaders brooked intra-neighborhood conflicts, but most cases were uncomplicated, allowing both the Public and Private Good to be satisfied.

Whatever its failings, the privatistic approach to public works was largely successful. In general, it furthered the improvement and growth of New York. Roads were a prime example. In older sections like lower Manhattan, lot owners were especially street-conscious. For decades, "dingy old shops and factories" had prevailed because narrow lanes restricted traffic. But a tide of petitions flooded City Hall in the years after 1830, and, one by one, each artery won renovation. By 1870, the process was largely complete, with thoroughfares downtown boasting wider borders, paved surfaces and, most importantly, new stores and offices along neighboring lots.

Petitioners generated progress on other fronts as well. By the 1830's, residents everywhere pressured aldermen to abandon cobblestones. Increased traffic and the threat of epidemic were particularly effective in boosting the smooth-surface cause. As usual, a wave of requests

forced the setting of priorities. Once again the pragmatic view prevailed. Anxious to promote the growth of Manhattan, officials chose uptown as the prime site for trap blocks. Only major or newly-widened arteries downtown were exceptions. Though discriminatory, the choice generally proved beneficial since it hastened the settlement of upper Manhattan's housing zone by encouraging families to forsake the business district.

Gas service, too, furthered New York's development by improving the quality of life. In this effort, municipal cooperation with private companies was vital. In every neighborhood, public street lamps provided utilities with invaluable beachheads. By requiring and supporting these lights, aldermen subsidized the laying of mains which could later service private customers. And these profits, in turn, aided construction in uptown routes where no lamps existed. Surely without government incentive, the nascent industry would have foundered. City Hall, however, had good reason to help.

Even before 1820, leaders realized how the innovation might stimulate growth. And they were not wrong. Third Avenue was a case in point. Gaslight was so popular here that within ten years it had displaced oil at every stanchion up to the Harlem River. And, boosted by the industry's overnight success, aldermen quickly made universal service a major town goal. Already by the 1840's, extension of supply had become almost mechanical. The routine was simple:

pipes were laid in any block where five or more residents agreed to "fit up" their buildings for gas. Under this formula, each utility expanded its network at an orderly rate--a feat which paid dividends both to stockholders and citizens.

Similar pragmatism governed the effort to provide Manhattan with adequate water. Thanks to the pressures of fire, health and industry, New York built the massive Croton Aqueduct in time to supply its metropolitan needs. The magnitude of this achievement can hardly be appreciated. This project, perhaps more than any other, contradicts the popular stereotype of the city as a "fragmented mass." Indeed, the confusion and disorder of urbanization must be seen in perspective. On the whole, New York and other cities were great problem-solving entities which successfully handled a broad range of difficulties.[41]

Witness the case of drainage. At the time of Croton's inauguration in 1842, a primeval sewer grid serviced Manhattan. Ground water removal was its chief function; the cesspool treated wastes. This convenient relationship, however, was not long to remain. The Aqueduct immediately complicated matters by feeding an unprecedented volume into New York pipes. Within months, backyard pits and other natural outlets overflowed. The situation demanded action. And, in 1844, the city responded by admitting household sewage into its networks. But, although helpful, this did little to meet long-term needs. For, as population

and water consumption grew after 1850, main capacities became overwhelmed. Realizing that a substantial construction program would be needed, authorities first moved to consolidate management. In 1849, they transferred control of sewers to the Croton Aqueduct Department. Now one agency coordinated the flow from dam to scow.

Yet, officials soon realized that despite better management, inefficiency would remain as long as autonomous tubes still drained most roads. Differences of opinion delayed reform, but leaders finally acted in 1865, agreeing to divide the city into sewer districts. A self-contained "system" would now service each, carrying wastes into "collecting basins." The introduction of vitrified pipe added further to the network's reliability. Distribution, however, was hardly equitable. Though engineers plotted "systems" for congested downtown, vitrified pipe went largely to the suburbs. As with trap blocks, authorities chose to enhance developing areas. They could easily rationalize this concession to growth: lower Manhattan already had conduits. modernization would follow when age forced their replacement. In the meantime, councilmen diverted their efforts to supplying uptown.

Except for the excesses in Tweed's years, the diversion of public works northward was crucial. Few cities extended their infrastructures outward as fast as New York. From the beginning, Gothamites realized that providing for the needs of a growing population required "augmenting the

accessible value of property within its limits, from which its revenues are to be derived."[42] Growth therefore sustained itself, for the planting of sewers, trap blocks, gas pipes and water mains not only promoted settlement but fattened town coffers. And this constantly widening tax base, in turn, supported new rounds of expansion. Thus, New York boomed as the process repeated itself throughout the century.

Two major events preserved the strategy. Central Park was the first. Aside from its aesthetic and salubrious benefits, the complex greatly enhanced surrounding land values. No improvement did more to ensure uptown's growth. Yet, notwithstanding this, various factors still threatened the city's expansion in the 1860's. Lack of rapid transit and exorbitant lot prices plagued the northern frontier. A diaspora of citizens to other suburbs illustrated the crisis. During the 1840's, 50's and 60's, thousands of Gothamites had fled to Brooklyn and Queens where costs were lower and travel time less. To New York leaders, the situation was grave but not desperate, for the lost sheep could still be regained by drawing their villages into Manhattan's orbit. Although a variety of events eventually produced annexation, Brooklyn Bridge was the prime impulse. By providing King's County with a quick river crossing, the span not only facilitated commuting for New York expatriates, but also lured Brooklyn businessmen away from their town. And by 1894, with the latter's commercial tax base largely eroded, consolidation became virtually inevitable.

Aside from extending suburbs, Gotham's pursuit of prosperity also led to port improvements. Though widespread change was slow in coming, authorities always showed some concern. The early 1800's saw the town drain acres of swampland along both waterfronts. Then as new wharves, piers and slips replaced previous quagmires, lot values spiraled to all-time highs. Other actions further aided progress. In the 1840's, councilmen began informal zoning of the waterfront. A key move shifted ferries, canal boats and repair works farther uptown to clear the deepest berths for ocean-going vessels.

Yet, although these measures helped, more steps were necessary. For years, corruption, crime, poor maintenance, archaic equipment and insufficient warehousing had retarded development. And, as shippers increasingly moved elsewhere, officials realized the need for reform. After years of debate, government finally acted. The City Charter of 1870 created a Department of Docks to oversee the waterfront. Dividends came soon; within months the agency had begun a re-evaluation of the district. In the end, these efforts resulted in a new sea wall and more spacious docks. Though limited to only a few sections downtown, the project went far towards boosting port fortunes.

In many respects, cities were the spearheads of positive government. Faced with pressing needs, New York's leaders financed public works to the treasury's limits. By 1900, nearly every municipal operation had undergone expansion.

Besides streets and docks, other concerns won attention. Despite much opposition, the town improved police and fire protection by replacing colonial approaches with modern techniques. To accomplish this, officials spent thousands to build stations, improve communications, acquire new apparatus and enthrone professionalism.

Other services, however, progressed less quickly. Priorities and funding were often responsible. Education was a case in point. Indeed, as state aid declined, local politicians increasingly balked at making up deficits. This combined with exorbitant construction plans and population boom did much to promote overcrowding in schools. Moreover, budgetary pressures hit other fields, too. Medical care was a perennial victim. For years, fiscal restraint teamed with prevailing mores to reserve city hospitals for paupers exclusively. Epidemics alone suspended tradition. Until the 1870's, even community-sponsored facilities won little support. Too often, town subsidies were paltry at best. And similar penury shackled markets as well. Here, the city steadily reduced its role. With the exception of a few successful stores, most fell into decay. Eventually, the survivors evolved into wholesale distributing points.

Yet, on the whole, urban government demonstrated an increasing commitment to the needs of its citizens. In fact, the insatiable demands of private investors helped break the casements of laissez-faire practice. All knew that good streets, docks, schools, parks, medical care, police and fire protection were crucial to the commercial development of every locale.

Still, the consequences of privatism were not all beneficial. Though market-place dictates seemed the best route to growth, they spawned many evils. Discrimination was perhaps the worst. Indeed, with public works concentrated in developing areas, backwater districts suffered neglect. For years, the trap blocks and sewers serving Broadway and Harlem by-passed ghettoes on the east side and west. But this was the course society chose. For most of the century, New York was too preoccupied with its future to bother with social concerns. Gradually, however, values did change and past events left people uneasy. By 1890, a new era had come when critics like Jacob Riis and Lincoln Steffens could look about at the teeming metropolis and wonder aloud if the price had been worth it.

In summary, then, the seeds of both urban crisis and reform lay in the decades after 1830. During this period, government responded increasingly to the need for establishing physical order in the town. The goal was narrow but the effort succeeded; real estate grew, traffic moved, people survived--in short, the society worked. The story of Manhattan's growth to maturity was exciting. Corruption and blunders pervaded the struggle, but, in spite of these factors, there were great achievements. Far from ignoring the urban challenge, Gotham realized its needs and acted in time. After 1830, its expanding program of public works not only secured the future but justified New York's reputation as America's greatest city.

NOTES

[1]Waring, I, 533.

[2]Ibid., p. 109.

[3]Ibid., p. 132.

[4]Ibid., II, 3.

[5]Ibid., p. 19.

[6]Ibid., p. 16.

[7]Ibid., p. 19.

[8]Ibid., p. 361.

[9]Ibid., p. 367.

[10]Ibid., p. 867.

[11]Ibid., p. 866.

[12]Richard C. Wade, Chicago: Growth of a Metropolis (Chicago: University of Chicago Press, 1969), pp. 117-124.

[13]Waring, II, 494; 501-502.

[14]Ibid., p. 580.

[15]Ibid., p. 583.

[16]Ibid., p. 213.

[17]Ibid., p. 272.

[18]Ibid., pp. 273, 289.

[19]Ibid., p. 800.

[20]Roger Lotchin, "San Francisco, 1846-1856: The Patterns and Chaos of Growth," in Kenneth Jackson and Stanley K. Schultz, eds., Cities in American History (New York: Alfred A, Knopf, 1972), pp. 148-152.

[21]Waring, II, 805.

[22]Ibid., p. 807.

[23]A variety of writers have contributed to this view in one way or another. Lewis Mumford's The City in History (New York: Harcourt, Brace, Jovanovich, Inc., 1963) laid the groundwork. Sam Bass Warner has developed the concept of the "private city" still further in Streetcar Suburbs: The Process of Growth in Boston, 1870-1900 (Boston: Harvard University Press, 1962) and The Private City: Philadelphia in Three Periods of its Growth (Philadelphia: University of Pennsylvania Press, 1968). The view of the post-Civil War city as a "distended society" suffering from a "crisis in community" has been suggested by Robert Wiebe in The Search for Order, 1877-1920 (New York: Hill and Wang, 1967). Although Wiebe alludes to the weakness of urban communication, the theme receives far more emphasis in Seymour Mandelbaum's Boss Tweed's New York.

[24]Richard C. Wade, The Urban Frontier (Chicago: University of Chicago Press, 1959), pp. 27-28.

[25]Mumford, p. 22.

[26]Ibid., p. 423.

[27]Ibid., p. 422.

[28]Ibid., p. 423.

[29]Ibid.

[30]Bayrd Still, Urban America: A History with Documents (Boston: Little, Brown & Co., 1974), pp. 187-188.

[31]Warner, Streetcar Suburbs, p. 158.

[32]Warner, Private City, p. 54.

[33]Ibid., pp. 54-56.

[34]Mandelbaum, p. 17.

[35]See, in particular, Mandelbaum and also Wiebe, pp. xiii-xv; 12-15.

[36]Warner, Streetcar Suburbs, p. 156.

[37]Ibid., p. 155.

[38]Ibid., p. 156.

[39]Mumford, p. 425.

[40]Ibid.

[41]Various writers have pointed out the concept of the city as a problem-solver. See, for instance, Jane Jacobs, The Death and Life of Great American Cities (New York: Vintage Books, 1961), pp. 447-448 and Richard C. Wade, "The Urban Crisis: an Historian's View" in New City (August, 1966), 9-14.

[42]RRBG,"Supplement" following Vol. XV, March 18, 1875, 2.

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These volumes, published annually, contain much information on the city government of any year. There are tables of administrative organization, personnel lists, salary break-downs, facility locations, short histories and a variety of other features.

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The Commercial Advertiser. (New York) 1834-1835.

The Herald. (New York) 1835-1875.

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New-York Municipal Gazette. 1841-1847.

New York Times. 1851-1875.

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This trade journal provides the city conveyances (with prices shown) for each week. In addition, there are many interesting articles dealing with the contemporary real estate scene. Other items, such as the current prices of construction materials and labor, advertisements and public notices make this source worth looking at. A fairly complete run is available at the New York Public Library.

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Maps of the City of New York Surveyed Under Directions of Said City by William Perris. Perris published several

series of these maps between 1852 and the 1890's.

These maps, commissioned by New York's fire insurance companies, show what occupied each Manhattan lot. An elaborate key reveals the composition, height and type of each building present. Vacant lots and industrial yards are also rèpresented.

Many maps were examined in the course of researching this book. The best general guide for maps of New York City is the list compiled by Andrew Haskell which can be found in the New York Public Library Bulletin, Vol. 34, pp. 241-256, 328-345, 541-556, 593-627, 653-675 and 725-742.

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