

**DOCUMENT No. 70.**



**BOARD**

**OF THE**

**Department of Public Parks.**



**JUNE 9TH, 1876.**

**Report of Hon. WM. R. MARTIN, President of the Department, upon the treatment of the up-town parks.**

**Ordered printed as a document of the Board.**

**WM. IRWIN,**  
*Secretary, D. P. P.*

DEPARTMENT OF PUBLIC PARKS, }  
NEW YORK, June 9th, 1876. }

*To the Board of Commissioners:*

The matters presented in the previous report on the 10th May, 1876, include provisions for the following works:

1st. The completion of all the unfinished work on the downtown parks.

2d. The prosecution of the unfinished work in the Central Park, so that, as far as may be practicable, its whole interior, as seen from the walks and drives, may appear to be completed. In certain parts of the park the amount of work to be done is too great to admit of any attempt to bring them to completion this year. They are the area in the vicinity of the building of the Museum of Art, the northwesterly corner of the park at Eighth Avenue and 110th Street, the adaptation of the grades and slopes of the park to the grades of the Eighth Avenue, and a large area opposite Manhattan Square. The two last, however, are somewhat hidden from observation on the park side by the planting and by the conformation of the ground.

The completion of the enclosure of the park and of the approaches to the entrances.

At the gates, the enclosing wall should be continued to the line of the entrance and finished with piers and temporary wooden gates erected. This will make a finish and be sufficient for present purposes, and at the same time will not interfere with the execution of any future plans for the erection of ornamental entrances. The walks, drives, greensward, and slopes within the park can then be completed to the boundary line, and on the outside the sidewalks can be graded and flagged, and if temporary wooden fences are placed on Fifth Avenue above 110th Street, and along the 110th Street boundary, the park will be properly enclosed

and its approaches will cease to have their present unfinished appearance, while at the same time, it will be obvious that the final treatment of the approaches and entrances has not yet been undertaken.

### I.—THE UP-TOWN PARKS.

The proper treatment of the up-town parks was not considered in the previous report and is now presented.

These parks are the following: The Morningside, the Riverside, the East River and the two triangles at the intersection of the Boulevard and the Ninth avenue at 63d and at 66th Streets.

#### *Their Natural Advantages.*

These areas have been acquired by the city for park purposes at great expense, and it is proper that something should be done to bring their great natural advantages into use, and to make them contribute to the public enjoyment. This can be done so as to produce great results at very slight expense. The Central Park possessed no natural advantage beyond its irregularity of surface. Everything in it had to be created, and the expense was very great. The two triangles at 63d and 66th Streets are small level pieces which need to be graded and planted. The Morningside, Riverside and East River Parks have natural advantages which are not to be matched in the suburbs of any city in Christendom. The Riverside has been under a care, for the last 100 years, of a character best adapted to fit it for a park, and it is now in the beauty of its lawns, groves and single trees, and of its points of extended prospect, superior to anything that has ever been realized in the Central Park.

The Morningside Park is a steep, rocky declivity, the principal value of which is the broad view from the avenue that bounds it on the west, with a rough natural surface capable of an effective park treatment.

The East River Park, though but of small area, has a good surface and a fine prospect.

These parks, in their natural condition, now are, so far as landscape conditions are concerned, as available for the public use and enjoyment as the Central Park is, after its twenty years

of cultivation and heavy expenditure. All that they need is to be laid open to the public by a single road, drive or walk, which can be done at slight expense. They can be made, in three months, more serviceable to the public than the Central Park is now, and, as this report will show, at very slight expense.

## II.—RIVERSIDE PARK.

This park lies along the border of the Hudson River, from 72d to 130th Streets, and contains an area of  $89\frac{38}{100}$  acres. It was laid out on a map known as the West Side Map, filed on March 7th, 1868, under the provisions of Chap. 697 of the Laws of 1867. The title of the city was acquired by the confirmation of the report of the Commissioners of Estimate and Assessment on the 2d August, 1872.

### *The Leading Features of the Plan.*

The motive of this part of the general plan, adopted for the whole area from 8th Avenue to the Hudson River, and from 59th to 155th Streets, was not to make a public park. It was a result which was rendered necessary by the grades. The grades established in the original plan of the city, under the law of 1807, sloped from the 8th Avenue down to an imaginary line called 13th Avenue. The bluff along the banks of the river, now known as Riverside Park, was required by those grades to be cut down from 50 to 100 feet, and the material used to fill out to the 13th Avenue. Under successive acts of the Legislature, the exterior line was changed and brought nearer to the shore and finally established a little west, about 200 feet, from the 12th Avenue. This cut the grades of the streets as then established at a height of from 15 to 30 feet on the water's edge, and rendered the grades impracticable.

They were rendered impracticable also by the enormous cost of constructing them. Level grades, over such an uneven country, which required the cutting down of the hills on the river bank, it was estimated would cost very many times the total value of the property, and be worthless at that. The leading feature, therefore, of the new plan, under the Law of

1867, was that the upland, back of the bluff, should be treated as a table land, and the top and sides of the bluff, falling down to the river, be taken as a public park. It was useless for other purposes, and this treatment saved an enormous expense. It presented great advantages as a park, because the river bank had been for a century occupied as the lawns and ornamental grounds in front of the country seats along its banks. Its foliage was fine, and its views magnificent.

Under the Law of 1867, an avenue was laid out of even 100 feet in width, on the top of the bluff, on the easterly border, and the park occupied the slope towards the river.

When the plans for the improvement of the avenue and park were taken into consideration, and an estimate of its construction was made, it was ascertained that a separate treatment of an avenue and park would result in a level terraced avenue which would have to be sustained on its western or park side by a wall of masonry of great height; that the park would be dwarfed and made inaccessible, and that the expense would be very heavy. To obviate these difficulties, under the Law of 1873, Chapter 850, a new plan was adopted. The reasons for the change are set forth in the report of Mr. Olmsted, dated 29th January, 1875 (Document No. 60, Dept. P. P.) The feature of this plan was, to state it briefly, that the park and avenue system should be blended into one. A system of drives and paths was adopted, which satisfied the requirements of the avenue and the park at a cost which will be less for both than would have been required for the avenue alone. To accommodate this treatment the line of division between the avenue and the park was changed to the westward, and more of the park surface was included in the surface of the avenue.

As it now stands, therefore, the Riverside territory, including both park and avenue, comes under one method of park treatment. The avenue is not a level avenue within parallel lines of even width of 100 feet, bordering on the park, and separated from it as the Fifth Avenue is from the Central Park, but the whole territory is treated as park with the Riverside series of drives and paths laid out through it. It serves also the purpose of an avenue, and gives access to the houses on the

property line. The advantage of this to the city and to the public is, that it enhances the beauty and diminishes the cost of the improvement, and to the property owners that their fronts are unique in this respect, that they border directly on the park and overlook it with splended river views.

*Topography and Description of the Territory.*

This Riverside territory extends from 72d to 130th Streets, along the banks of the Hudson River. It is 3 miles long, and from 100 to 500 feet wide. Its western edge is the 12th Avenue at the river level. Its easterly edge is on the upper slopes or crest of the bluff, generally from 70 to 147 feet above the river. This intervening space is covered with sloping lawns, well rounded hills and steep declivities. The elevations command as fine views as are seen anywhere on the banks of the Hudson. It is ornamented with open groves of lofty trees, and with groups and single trees of great size, value and rarity. There is nothing along the whole stretch of the Hudson more picturesque and beautiful.

*The Cost of the Land and the Increased Tax Valuation.*

This land was taken for the public use, and the assessment confirmed on the 2d day of August, 1872, and assessed as follows:

On the city.....	\$3,069,481
On private property. ....	3,104,479
	<hr/>
Total.....	<u>\$6,173,960</u>

This assessment was laid upon the property extending as far easterly as the Boulevard, a distance varying from 375 to 1,025 feet.

In addition to the burden of this assessment, the tax valuations, on the assumption that the property was enhanced in value, have been increased as follows:

Tax Valuation.	11th Ave. to River, 72d to 86th Sts.	11th Ave. to River, 86th to 130th Sts.	Total.
1865	\$335,820	\$754,330	\$1,090,150
1866	341,800	757,780	1,099,580
1867	610,535	874,800	1,485,335
1868	718,920	868,520	1,587,440
1869	938,955	1,798,100	2,737,085
1870	939,680	2,215,530	3,155,210
1871	982,395	2,240,720	3,223,115
1872	982,085	2,406,000	3,388,085
1873	1,152,475	2,644,900	3,797,375
1874	1,168,625	3,308,925	4,477,550
1875	1,098,075	3,185,625	4,283,700

This table includes the property immediately adjacent to the Riverside Avenue. The statistics for the blocks next adjacent show an increase in an equally large proportion.

*The Duty of the Department in respect to it.*

The proper and judicious course for the Department to pursue in this matter is to treat this avenue in such a way as to accomplish these results.

1. To give access to the property bordering on it.
2. To open the region to the public, so that they may appreciate and understand the actual advantages of this drive.
3. To open a new park to the public enjoyment which has features different from and much more attractive than any pleasure ground can ever be made for them, or than any other city in the world possesses.

*The Improvement of the Park and Avenue.*

The plan for the improvement has been adopted, consisting of a park drive extending the entire length of the avenue. At

some places it follows the easterly border of the park, at others it extends over the park surface, with side or branch roads reaching the property on the easterly border.

North of 103d Street, over a fine level grade, the plan provides for a combination of drives, bridle road and foot path, which has so often been thought desirable for the Central Park.

There will be great advantages attending the construction of this drive and finishing it completely, at the present period of low prices. An alternative plan has been proposed in order to avoid and postpone, at the present time, the expense of the complete construction by making a country or dirt road along the avenue, at grades which conform to the natural surface, without attempting to reach the final grade of the avenue, and limiting the cost to as low a sum—say \$100,000—as such a road could be provided for. In connection with the drive, it will be proper to finish the upper section of the Park, above 118th Street, known as Claremont Hill, and open it for park purposes, with paths, seats and shelters, in natural treatment. This section of the Park is about half a mile long, and 400 to 500 feet wide. It is a beautiful, round, prominent hill, reaching 150 feet in height, with a fine natural surface, and covered with splendid groves of trees. Its natural surface has been so long under cultivation that it is already fitted for and can be adapted to park purposes at slight expense.

When the work is completed, the commencement of Riverside drive will be reached from the Central Park, through Seventy-second Street, which is already graded. For the first half mile, the drive passes, at an elevation of 75 feet, above the river, beside a breadth of from 300 to 400 feet of partially wooded lawn; it then descends towards Eighty-second Street, an elevation of about 30 feet. From this point, it rises rapidly around a pyramidal rock on the river's edge, and reaches the bluff, bold, projecting height at Eighty-fifth Street, 75 feet above the water. From this point to Eighty-eighth Street, the drive is along the edge of this projecting shelf, high above the river, and with broad views. At Eighty-eighth Street the drive curves to the eastward around a lawn, which slopes down into



a dale with wood crowned sides, and rounds out again toward the river at the bold point where Dr. Mott formerly resided, just south of Stryker's Bay. It cross the valley at Stryker's Bay, and then rises to the hill in front of the Furness mansion, where the elevation is 96 feet. The main drive here passes for half a mile through the middle of the park, then approaches the easterly border, and at a high elevation runs for a mile, on a level, towards Claremont Hill. This part of the park is a fine, smooth, rolling lawn, skirted along the river's edge with splendid groves and trees, and furnishes admirable ground for ball and croquet playing, archery and pic-nics. It is here that the grand combination of bridle road, drives and walks will be located, which in point of design, prospect and natural beauty will be unmatched by any drive in any city on this continent. Claremont Hill, at the northern end of this park, as a point of natural beauty and broad prospect, is a worthy termination of such a drive.

This hill will be opened to the public enjoyment, with its fine natural surface, with a century's growth of trees, and with its continuous and varied river views. Here privileges can be permitted to the public for ranging unchecked over the grass, and for games and other social enjoyments, for which the more highly cultivated surface of the Central Park does not afford room.

*The Property Owners entitled to have it Improved.*

The property owners generally, have for years since this assessment has been laid upon them, been urgent in their demands that this drive and park should be improved, and their arguments have not been without force. They have said :

1. That they have paid a heavy assessment for the improvement, and since then that they have paid increased taxes on their property which could only be supported by assuming that this was to be a park and so treated as to give real value to their property, whereas, in fact, nothing has been done towards its improvement, and their property has receded to the values of ten years ago ; that all the speculative value for

which they have been so heavily taxed and assessed has disappeared, and that in good faith toward them the city should go on with the work. This view has been accepted by the Senate committee in their report.

2. That the region lying between the Central Park and the Hudson River has been subjected, for parks, avenues, boulevards and main sewers and other minor matters, to assessments since 1860, amounting in the aggregate to over \$20,000,000.

That this is the last of this series of grand improvements; that it ought to be completed, and that it will at proportionately small expense produce results of great permanent benefit to the city.

3. That if the improvement be completed, it will give high character and value to the adjacent property in the same way that the Central Park has given high character and value to the property between Fifth and Madison Avenues. That this would hasten the occupation, and determine the character of the improvements on the adjacent property, and aid in sustaining the present high valuations at which the property is assessed for taxation, from which the city receives the same benefit that it would receive if the improvements were made.

4. That this elevated region between the Central Park and the Riverside Park on the Hudson River, with its high elevation, its salubrity and its superior system of drainage and sewerage, will be eventually the seat of the finest and most expensive residences of the city, and that if this park is completed so as to accelerate such an occupation, the city will reap the advantages of it by the attractions it will furnish for settlement, and the great increase in the value of the property as the basis of taxation.

*The Public Benefit that will result from its Improvement.*

Under the provisions of Chapter 447 of the Laws of 1876, the whole area of what was formerly known as Riverside Park and Avenue is placed under the control and management of this

Department, except that the cost of constructing the avenue is to be assessed on the property benefited as in ordinary cases.

The advantages of working this Avenue will be that, at an expense which will contrast very favorably with the \$10,000,000 expended on the construction of the Central Park, a new park of equal length, of greater natural beauty and advantages will be opened at once to the public enjoyment. The property owners will have access to their land; the tax valuations of the property will be supported.

Along the length of this park there are seven or eight sites that will be unequaled in natural beauty and adaptation for the public enjoyment. Groves, lawns and springs can be thrown open to the people for excursions and picnic parties, for musical celebrations, for ball, cricket and croquet playing, and for games and every other kind of social outdoor enjoyment.

It is accessible already, through its whole length, by the Eighth Avenue cars and the Bloomingdale stages, and all additional facilities can be given by an extension of the service of the park carriages.

### III.—EAST RIVER PARK.

This park was laid out pursuant to the provisions of Chapter 528, Laws of 1873. The title of the city was acquired by the confirmation of the report of the Commissioners of Estimate and Assessment on 1st April, 1876. Its cost was \$215,119 $\frac{84}{100}$ . The day fixed in the report for the opening was 15th April, 1876.

#### *Description.*

This park has a level surface with a high bank above the grade of Eighty-sixth Street and along the river front. An old mansion house stands in the centre, which is in good repair. Extending from it is a covered platform of large area, stretching to near the edge of the river, and large enough to accommodate hundreds of visitors. On either side of this platform the land is free to the water's edge, except the present incumbrances of fences and small buildings. The surface of the park is level and covered with trees. The view from this lawn over the East river and Blackwell's Island is unobstructed; towards the north-

east over Hell Gate it is commanding, and the prospect is enlivened by the vessels and steamboats which are constantly passing. It faces the east, is well shaded in the summer afternoons and is visited by the breezes from the water.

These natural advantages should be made useful to the people. The park is accessible by the Second Avenue Railroad, which comes as near as the corner of Eighty-sixth Street and Avenue D, and more remotely by the Third Avenue cars.

It can be reached from the Central Park by Eighty-fourth and Eighty-sixth Streets, which are already paved, and it will be a central point on the circuit of the Eastern Boulevard. The local boats which ply on the East and Harlem rivers have a landing on the grounds at the foot of Eighty-sixth Street.

#### *Required Improvements.*

This park should be improved by clearing the land of all the buildings on it except the Mansion House and the platform, and they should be put in good repair; it should be enclosed by a plain picket fence and the land cleared and restored to its natural condition of a well-shaded lawn. With a little filling, a good path can be arranged along the eastern edge on the rocks. A good water platform and landing can be made with conveniences for steamboats, for sailing vessels, yachts and towboats, and a restaurant similar to the one at the Casino in the Central Park can be established.

This will open to the public four acres of park with a well-shaded lawn, a fine covered platform for the prospect, good refreshment houses, natural banks and a good walk along the water, with a good boat-house and platform, combining as many advantages for their service as can be found in any place of the same area.

Owing to its natural advantages it can thus be brought into the public service at an expense estimated at \$10,000.

#### IV.—MORNINGSIDE PARK.

This park was also laid out on the West Side map, filed 7th March, 1868, under the provisions of Chap. 697 of the Laws of 1867. The title of the city was acquired upon confirmation

of the report of the commissioners on the 28th June, 1870, and its cost was assessed as follows :

On the city .....	\$823,499 40
On private property .....	896,693 00.
	\$1,720,192 40

*Topography and Natural Advantages.*

This park lies along the eastward slope of the hill extending from the N. W. corner of the Central Park toward Manhattanville. The upland is a level plateau between the Riverside and Morningside parks, extending from 110th Street, to the Manhattanville valley at 130th Street, the park extending from 110th to 122d Streets. Its upper portion was the site of the principal conflict in the battle of Harlem, in the war of the Revolution, and the only battle that took place on this island. It is 3,360 feet long and from 300 to 600 feet wide. On the easterly side it is bounded by an avenue on the level of the Harlem plains, and on the westerly by the Morningside Avenue at the top of the hill, with an elevation from 42 to 100 feet above the avenue on the east. This leaves a long narrow park with a steep declivity along the winding slope of the hill. Its principal feature will be the avenue on the west along the crest of the hill, which rises above the surface of the park, and is supported in a great part of its length by a high retaining wall. From this avenue there will be a commanding view over the Harlem plains, Hellgate and the Harlem and East rivers, which will never be interrupted.

The surface of this park is rocky and uneven, and will admit of fine treatment. Plans indicating some of the features have been adopted. The work that it is proposed to do this year is the completion of the sewer now under contract and some other work for its drainage, which are estimated to cost \$5,000.

V.—PUBLIC PLACES, BOULEVARD AND NINTH AVENUE  
AT 63D AND 66TH STREETS.

These small parks were also laid out under Chap. 697 of the Laws of 1867. The title to the lower one at Sixty-third street

was acquired on 22d December, 1870, and to that at Sixty-sixth street on 8th June, 1872. Their cost was as follows :

Sixty-third Street.—On the city.....	\$76,500 00
On private property.....	76,900 00
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	\$153,400 00
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Sixty-sixth Street.—On the city.....	\$26,111 86
On private property.....	26,111 14
	<hr/>
	\$52,223 00
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*Description.*

These triangles are those formed by the intersection of the Broadway Boulevard with the Ninth Avenue. They are level pieces of land, except that a mass of rock has been left standing in the Sixty-sixth Street park. They need grading and planting with sidewalks. They resemble in location the two triangular parks at the intersection of Broadway and Sixth Avenue at Thirty-second and Thirty-fifth Streets, but are a little larger in size. The expense attending these improvements is estimated at \$3,500.

Respectfully,

WM. R. MARTIN.

**DOCUMENT No. 71.**

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**BOARD**

OF THE

**Department of Public Parks.**

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AUGUST 16TH, 1876.

Report of the Landscape Architect on the treatment of  
Tompkins Square, with special reference to the northwest cor-  
ner of said Square.

Ordered printed as a document of the Board.

**WM. IRWIN,**  
*Secretary D. P. P.*

DEPARTMENT OF PUBLIC PARKS ; }  
OFFICE OF DESIGN AND SUPERINTENDENCE. }  
NEW YORK. 9th August, 1876.

To the Hon. WM. R. MARTIN,  
*President of the Board :*

Sir,—You inform me that some of the present Park Commissioners, not having been members of the Board when the plans for the improvement of Tompkins Square were first discussed, feel imperfectly informed as to the reasons for the works which have been started there ; and you ask that, when I report, under the instructions of the Board of the 31st of May as to the northwest arbor, I will reply also to the question : What is the need of such expensive operations as have been undertaken, and why would not something more of the ordinary kind be better adapted to the locality, more readily appreciated, and more nearly conform to public demands and expectations ?

There is an idea abroad, to which, I presume, the last branch of this inquiry is to be referred, which seems not to be based on any examination of your drawings or other authentic information, but chiefly on surmises as to the possible purposes of what is called a “hole in the ground,” found in the Square. Such an excavation being unusual as a preliminary to a gardening work, it is conjectured that something is to be attempted of an extraordinary, sumptuous and extravagant character, which will be much out of place in this locality. I refer to it only that I may at once say, that in looking at the plans, now on the table of the Board, it will, to avoid prejudice, be well to bear in mind that the ordinary attractions of a Park are so far prohibited by the necessity of occupying the larger part of the Square with the Parade Ground and its accompaniments, that the Department cannot acquit itself of its duty to the people of the locality without getting out of the ordinary rut. There is one small and not very expensive group of details of the design, which cannot be quite clearly described or shown in the drawings, and with re-



gard to which, if they appear fanciful or over-refined, something must be trusted to the common sense, taste and practical knowledge of his business, of the designer.

I shall, however, describe this, as well as all other features of the plans, as fully as I can in the present report, and that their leading motives, at least, may be clearly understood, shall explain the circumstances under which they originated.

Partly with this object and partly to show how far the Department would be from meeting its responsibility as the trustee of the permanent interests of the city, if it allowed itself to look no further than to the active public demand of the day, in matters of this class, I shall give a slight introductory narrative of the experiences which the city has already had in dealing with this piece of its landed property.

The site of Tompkins Square before any improvements were made upon it was low rolling ground, into which extended shallow water from the East River. It was for this reason, first laid out as a public market place, with the intention of making a canal through the lowest ground, of sufficient breadth and depth to furnish material for bringing all other low ground to a satisfactory elevation, and to allow produce to be floated directly to the heart of what was then expected to be the great centre of trade of the city.

In the progress of years this idea was lost sight of, and at length a speculation in the land about the Square occurred, with the belief that it might be brought into successful competition with that about Washington Square as the fashionable residence quarter of the city. Some houses built in furtherance of this scheme are still to be seen in the vicinity.

With the same object in view the low ground was, about 1836, filled in, all the natural inequalities obliterated, and what was then the "regular thing" for a park in all respects done with it. It was enclosed, that is to say, with a high fence, against which, on the inner side, a border of shrubbery was planted; straight walks were made through it, and rows of trees planted.

Rules to preserve the turf and trees from misuse were of course posted about, as a part of the due furniture of such a ground, but the idea then prevailed that the people who were

the true owners of the property could not justly be interfered with in making such a use of it as they thought proper; and if some superserviceable public servant ever construed literally the orders formally and gravely given him, and which he was sworn to enforce, by making an arrest on account of a disregard of those rules, public opinion called him a Jack-in-office, and even magistrates were more ready to reprove his officiousness than to punish the offender.

It naturally followed that the life was soon stamped out of the perennial grasses of the turf, and that annual grasses and weeds took their place; bare streaks and patches followed, and at last the whole surface took on the dreary character of a neglected waste.

The trees and shrubs also were slowly mutilated, starved and murdered by accident, by wanton injuries, and through the desire to find employment upon them for men incompetent to fight the battle of life without the aid from the city treasury which they thus obtained grounds for claiming.

When its condition became intolerable, and it could no longer be regarded from the point of view of a pleasure ground, a third appropriation was made of the property. This time it was seen to be just the place for a parade ground. (Washington Square had in the mean time been a parade ground, and while so, had moved ahead and become a centre of fashion.)

The trees in Washington Square had been found in the way of its use as a parade ground; when, accordingly, Tompkins Square was to be improved for the purpose, so much of its original plantation as remained alive, the trees being then about thirty years old, was mainly cut away, a few trees only being left along the outside. The Parade Ground proper was to be a clean, smooth, green field.

After three years, it was found that turf could not stand the necessary wear, and it was concluded that the best exercise ground for soldiers would be a simple flat table with a hard uniform surface, black as night, and free from all suggestions of ease and lassitude. The high fence was accordingly removed and the remains of the effeminate turf overlaid with pitch and sand. When the latter operation had been extended over about half the surface of the Square, however, the conviction obtained that it manifested too much of a brutal martinet spirit

for citizen soldiers. A border ground of trees and shrubs was therefore planted, an orchestral pavilion and two dainty sentry boxes were built, the half of the interior not yet plastered with pitch was gravelled and a sort of rim introduced to the parade, formed of a composition of which coal tar was the principal ingredient. Finally the whole was again enclosed with a very handsome new Gothic stone and iron fence.\*

Except in the matter of the fence and the little wooden buildings, the work done on Tompkins square was all of that plain, easily understood character, which, by virtue of its simplicity, is commonly assumed to be economical. Before long, however, the black composition upon the parade proved not only to be a plain, straightforward piece of work, but cheap, fraudulent and nasty, creating a nuisance more intolerable than the dust and mud it had been expected to abate. The border planting was too thin, too hastily done, in insufficient and unsuitable soil, and no adequate precautions were taken to protect it. The costly fence was for this purpose worthless, because it covered but one side of the border; the other was left to the guardianship of the keepers, for whose comfortable rest the pretty little sentry boxes had been provided. The border was half a mile in length, and when a few hundred boys gathered in the Square, as they did not unfrequently in the evening, the keepers were powerless to prevent them from trooping over it.

Feeling before long as if in some way advantage had been taken of their ignorance, the residents about Tompkins square now adopted the idea, as those in Washington square had previously, that the Parade Ground itself was an unjust imposition upon them, and began to demand that it should be moved, and the Square laid out solely with a view to use as a pleasure ground again.†

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\* It is perhaps worth remembering that while this improvement was making on Tompkins Square, Washington Square was being improved by the opposite process, namely, the removal of its fence.

† Being asked to suggest a locality for the Parade Ground, one of the gentlemen interested indicated the Green of the Central Park, a tract of land, as he said, now entirely useless, there being no buildings, no walks and no shade upon it. To the objection that a mere green place in the city was rather pleasing to many

Between 1872 and 1875, the Department of Public Parks was frequently urged, in the newspapers, by formal addresses, and by much verbal representation of the demands of the people, to set about a sweeping and comprehensive improvement of the Square. It was alleged that the quarter of the city in which it was situated was further removed from parks than any other; that the property holders were taxed for parks by which their property had not at all been benefited, and that the people of this vicinity, on account of the close manner in which it had been built up and the number of its crowded tenements, stood in greater need of a park than any other, and this claim was sustained by reference to the statistics of mortality, especially of nursing infants during the summer.

One of the addresses to the Board, to which I above refer, was in the form of a petition from the mothers of the vicinity, pleading for their little children.

It was admitted that the Parade Ground served the boys tolerably as a place for athletic sports, but it was asserted that with reference to women, children of tender years, invalids, convalescents, and all those to whom a park should be most attractive, it was simply repulsive and dangerous.

In 1873 the Park Commissioners ordered the replanting of the strip of shrubbery near the fence, which was done with much more care to secure proper conditions of growth than before, but the result was not regarded with satisfaction by the people, and with reference to the usefulness of the Square as a place of recreation, it had in fact no particular value.

The following year the demand for more radical measures accordingly became stronger. The Mayor, the Common Council and the Legislature were appealed to on the subject. In the Legislature a bill was introduced providing for the abolition of the Parade Ground, and the formation of a park upon

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people, and that the crowd attending a parade would not only destroy the turf but even the trees about it, he rejoined that this could be prevented by proper rules, and an efficient police to enforce them. These views would probably be popular for a year or two, and they have in effect been sustained by many. If adopted, they would nevertheless in a few years lead to the waste of property for which the city has paid some millions of dollars.

its site. It was defeated or withdrawn late in the session upon representations that the Department of Public Parks had the question of the improvement of the Square under consideration. As the Department, however, afterwards took no action, a bill with the same object was introduced early in the session of the succeeding year, and the Department was advised that its passage was imminent. The Department adopted the position that a ground in the lower part of the city which could be used for military exercises and various other purposes for which Tompkins Square was suitable, was a necessity; that no other place could be found for it; that it would be imprudent to abandon it; and, admitting that there was reason for the demands which had led the Legislature to consider the question, the Department argued that it would be possible to provide some valuable means of recreation upon the ground without appropriating all of it to the purpose. A copy of a letter to the Mayor is appended in which this position is more fully set forth. The Mayor promptly acted on its suggestions; and upon the strength of his statements, and those of the Commissioners, that such changes were to be made in the Square as would meet the essential needs of the people living near it, the bill was no further pressed.

In accordance with the understanding thus reached, the Legislature was then asked to provide the Department with the sum of \$60,000 for work to be done on the Square during the year 1875, and it did so.

Thus was determined the sixth project for making this piece of property useful to the city, each having a purpose in view of a distinct character.

I recapitulate them as follows :

- I.—A grand central market-place ;
- II.—An enclosed green grove for a promenade and airing ground ;
- III.—A meadow for parades ;
- IV.—An unenclosed, paved place-of-arms ;
- V.—An enclosed pleasure-ground parade ;

VI.—A place-of-arms, with detached arrangements for the refreshing rest of women, little children, convalescents and others specially needing relief from the generally surrounding conditions of foul air, heated pavements, &c.

The Department now had to meet the following problem :

To find room in Tompkins Square, without materially impairing its value for the exercise of arms, for such provisions as would supply a grateful and healthful relief to the class more particularly proposed to be benefited.

The first proposition, devised to this end, was declared by Major-General Shaler to be entirely inadmissible. He stated that, to answer any valuable purpose of the National Guards, a square of ground was required of which each side should be as long as the existing Parade Ground. A second proposition was afterwards contrived of quite a different character, to which at length the General's somewhat reluctant consent was obtained. This proposed a field of square form which, within the area strictly under the Department's control, was of less than the requisite dimensions. It was shown, however, that by taking down the useless fence at its angles, a military line might upon occasion be extended to the length which had been stipulated, and that by making a special provision for spectators elsewhere, the area for military occupation would be practically scarcely less than it had been before. The new square for parades was so placed that outside of it there remained four small triangular spaces. One of these, as a necessity resulting from the requirements of the military, was appropriated to the use of spectators of parades, refreshments, storage and latrines, a second to the orchestral pavilion already built and other requirements of promenade concerts.

There remained, then, but two small places, each somewhat less in area than the oval of the Bowling Green, within which any special provisions for the recreation, in the Square, of women and children of tender years were to be confined.

There are two conditions under which the discomforts and dangers to invalids and weakly people of a visit to a garden are liable to outweigh the pleasure and benefits received. One of these is that of chill, windy weather in the spring and

autumn, the other that of midsummer heat, when it is difficult to escape from the sun. The parade ground being essentially treeless and bleak, and its main object of military exercises requiring that it should remain so, it was thought best to provide separately, within the two triangles, for these very different conditions. In that at the southeast corner accordingly, the surface of the ground was designed to have a dell-like form, the lower parts to be several feet below the adjoining plain of the parade, a broad walk was to be carried through it with a loop, and ordinary park seats were to be placed facing the centre, where the adjoining streets and parade ground would be out of sight. The central part was to be a small lawn, with a few groups of shrubs and spring flowers; the outer parts to be planted more densely, so as to form a screen from the wind and secure an aspect of semi-seclusion. No part of the enclosure was intended to be hooded over by trees to the complete exclusion of sunshine. No construction was designed to be introduced except the seats; and the plan was as simple and as inexpensive to execute as any that could be proposed with an intelligent purpose to accomplish what had been undertaken.

The little triangle in the northwest corner was left to be planned and in it all that was yet unfulfilled of the duty of the Commissioners to the people of the locality, was to be provided for.

Should it be treated in a similar simple way with the southeast corner just described, Tompkins Square would offer not a single additional object of that class, which to many constitutes the only entirely tangible and sure source of attraction in parks, such as fountains, monuments, statues, pavillions, rockworks, cascades &c.,

During the extreme heat of summer, when the bare ground of the parade would be not only forbidding in aspect, but glowing with fervent heat, and when it would be most important that mothers especially should be drawn away from the turmoil, bustle and glare of the streets, as well as from the foulness of crowded houses, there would, in the middle of the day, be no place to which they could resort; there would be nothing to be seen to gratify even the simplest tastes without discomfort, and

even danger, and the Square would be hardly of more use than it had been before the Department was charged with its improvement.

In devising how the deficiencies thus indicated could best be economically met within the narrow limits of the northwest triangle, the difficulty and cost of maintaining any arrangements in tolerable order in this locality was a matter of at least equal interest with that of the immediate expense to be incurred for construction.\*

It was required, then, in the northwest triangle, to provide shaded seats and something pleasant to the eye to be enjoyed from them, and to accomplish this by means as much as possible beyond the reach of wanton or accidental ill-usage.

The arbor, which is to be the principal provision for this purpose, is approached from each side by a walk sixteen feet wide, which descends towards it between rocky and steeply inclined banks. By this means not only is the bare, heated parade ground to be the sooner and more completely lost sight of, and a shady glen-like seclusion, under partially overhanging shrubbery, made possible, but a barrier against straggling where straggling might otherwise do serious injury is to be gained.

These walks are to lead from each side, by two transepts, to an aisle, floored with concrete, one hundred feet long by twenty wide, with over two hundred lineal feet of fixed seat room at its sides. The space is to be walled in on three sides to a height of six feet, and is to be covered by a trellis, which is to be overgrown by the foliage of vines trained upon it from the

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\*An illustration of one class of obstacles to improvements really adapted to permanently accomplish the objects in view, is to be found in the fact that of the trees formerly planted in the Square nearly all had had their limbs broken down and their trunks hacked and sometimes completely girdled by knives or bayonets inserted between the bars of the iron cages vainly placed for their protection; another in the fact that a border of herbaceous plants having been placed close adjoining a walk in the nearest of the small City Parks, all of them to the number of over a thousand were very soon pulled up by their roots: another in the fact that in the same ground the turf edgings have been trodden into dust and mud, the seats hacked and whittled, birds' nests stoned and broken up, and that it is impossible to preserve tolerable neatness because of the ease with which trespasses and depredations may be committed unobserved.



beds on the outside of the wall, and inaccessible to the public. The object of shade by foliage for so large a space can thus be obtained with certainty in two years, while, by planting nursery trees, it could not in ten.

The whole structure, with the exception of the hard wood slats of the seats, is to be iron and concrete, and the vines with which it is to be veiled are to be nowhere within arms' length of a man on the floor.

The danger both of malicious and careless injury of the essential conditions of beauty and comfort within the arbor, if not thus entirely removed, are at least studiously reduced to a minimum.

Every advantage is also secured for cheaply keeping the place clean, and there is nothing to be put out of order.

Except in the foliage overhead there is, however, no beauty, and, as before suggested, something seems desirable to be added which will be gratifying not only to good taste but to the popular liking for objects of spectacular or scenic interest. For this purpose there is to be placed at the end of the arbor furthest from its entrance, a grotto, separated from its floor by a pool of water, guarded by a railing. The grotto is to be formed with walls and three successive recesses, the visible openings of which diminish in size as they recede from the spectator in the arbor. The walls are to be laid with natural rock, covered with mosses and fernlets, and the whole is to be kept damp and rendered slightly misty and mysterious by small fountains of fine spray in the recesses. The banks of the pool in front are to be faced with rocks, and to be overgrown with ferns, ivy and small water-edge plants. The trellis of the arbor is to be extended over the pool and the light from above obscured, in such degree as may be found desirable, by vine foliage.

All these arrangements are to be inaccessible to the public and are studied with a view to cheapness of maintenance as well as protection against pilfering and wanton abuse.

Both the grotto and the arbor are planned, by a graduated reduction in size of all the parts and otherwise, with a view to produce a slight ocular deception, increasing the apparent distance and depth of the misty recess in which the vista is to terminate.

The water of the pool is to be lighted through a hidden opening below the surface, and is to be clear and stocked with gold fish.

The slight fall of water from the grotto to the pool, the dropping of water and spray within the grotto, and the escape of the overflow, are expected to furnish the musical effect of a small tinkling and murmuring mountain rivulet.

The amount of water needed will, nevertheless, be less than is required for the fountains in other small city parks.

Attractive places for free birds, with water, feeding-ground, and nesting-boxes, inaccessible to the public, are provided adjoining the arbor.

The effect of the grotto will depend on the skill and care with which the details of the work are handled ; but the materials proposed to be used being all simple, and their arrangement and association natural, somewhat gross mismanagement will be required to produce either a ridiculous or a wholly commonplace result.

The ground below the floor of the arbor is to be thoroughly drained, and its surface concreted ; the trellis is to be carried on double and asphalted walls, and harmful dampness is not to be apprehended.

The whole triangle within which the grotto is to be situated is enclosed by a strong high fence, and is designed to be closed at night when shade is unnecessary and the beauty of the plants cannot be enjoyed.

The Board sometime since directed the excavation and foundation work for the arbor to be done, and some progress has been made upon it ; the drainage and fencing is almost complete. It is estimated by the Superintending Architect that the completion of the arbor and grotto above the foundation-work, will cost about \$10,000. The facing of the grotto and the planting could not be sufficiently described in specifications to be let to the lowest bidder, but should be done by men of special aptitude for such work, under the immediate direction of the designer.

None of what may be regarded as the more fanciful details of the arrangement described are of an expensive character, and probably nine-tenth of the expenditures required will be

for ordinary materials, in ordinary mercantile forms, to be contracted for in the open market under active competition.

With regard to the expenditures which have been made upon the Square as a whole, and those which will be required, I beg to say that it was never represented to the Board, nor, so far as my knowledge, recollection or belief goes, was it ever represented to the Mayor who favored the appropriation, nor to the Legislature which authorized it, that a sufficient scheme of improvements could be carried out for \$60,000.

I recommended that the sum of \$50,000 should be used for the first year's operations, and stated that, with this expenditure, all parts of the work might be expected to be so far advanced as to give the public use of them, except the tribune for spectators, which could wait a further appropriation.

Of the sum of \$60,000 which was to have been expended last year, \$25,000 remains. This is probably short of what will be needed to accomplish the results expected from ten to fifteen per cent. The reason the work so far done has cost more than was anticipated is not to be given in a word. At least five causes or classes of causes have plainly contributed to it:

1. Parts of the work have been done by the day, which it was presumed would be contracted, at rates based on lower wages for labor.
2. Foremen and men have been employed who were newly recruited and organized, and these have been more or less demoralized by doubts whether they were legally employed; whether they would be paid, and whether their employment would continue.
3. The work has lacked a continuous, responsible engineering supervision, the organization for the purpose having been broken up in order to reduce salary expenses.
4. The force of laborers employed, has been very variable, and has been more than once suspended at an unfavorable moment.
5. The work has been unexpectedly impeded and its man-

agement embarrassed by quicksands and floods, the effect of which has been aggravated by the suspensions and irregularities above noted.

FRED. LAW OLMSTED,  
*Landscape Architect,*  
*D. P. P.*

**DOCUMENT No. 72.**



**BOARD**

OF THE

**Department of Public Parks.**



DECEMBER 20, 1876.

1. Preliminary Report of the Landscape Architect and the Civil and Topographical Engineer, upon the laying out of the Twenty-third and Twenty-fourth Wards.
2. Report of the Landscape Architect and the Civil and Topographical Engineer, accompanying a plan for laying out that part of the Twenty-fourth Ward, lying west of the Riverdale Road.

Ordered printed as a document of the Board.

WM. IRWIN,  
*Secretary D. P. P.*

# I.

PRELIMINARY REPORT OF THE LANDSCAPE ARCHITECT  
AND THE CIVIL AND TOPOGRAPHICAL ENGINEER,  
UPON THE LAYING OUT OF THE TWENTY-THIRD  
AND TWENTY-FOURTH WARDS.

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CITY OF NEW YORK, }  
DEPARTMENT OF PUBLIC PARKS. }

15th November, 1876.

The Hon. WILLIAM R. MARTIN,

*President of the Board:*

SIR:—The undersigned have the honor to present a report introductory to a series of plans for laying out the new wards of the city. The first of these plans can, if desired, be laid before the Board at its next meeting; a second and third are in preparation, and the whole series is in progress of study.

The great advance northward in the building of New York, since 1807, has been strictly according to the street plan which a commission of its citizens then laid down for it. The objections at first hotly urged against this plan (chiefly by property holders whose lands it would divide inconveniently, whose lawns and gardens it would destroy and whose houses it would leave in awkward positions), have long since been generally forgotten, and so far as streets have been opened and houses built upon them, the system has apparently met all popular requirements. Habits and customs accommodated to it have become fixed upon the people of the city. Property divisions have

been generally adjusted to it, and innumerable transfers and pledges of real estate have been made under it with a degree of ease and simplicity probably without parallel. All the enormous changes in the modes of commerce, of means of communication, and of the styles of domestic life which the century has seen, have made but one slight local variation from it necessary.

These facts, taken by themselves, may seem to leave little room for doubt that the system was admirably contrived for its purpose, and that, as far as can be reasonably expected of any product of human skill, it remains perfect.

There are probably but few men in the community who, in the course of a busy life, have given any slight attention, and but slight attention, to the subject, who are not in the habit of taking this view of it, and in whom, consequently, a pre-judgment is not in some degree deeply rooted in favor of the system. That it should be extended, whenever practicable, over that part of the city not yet laid out, and where this is forbidden by extraordinary difficulties of topography, that no greater variation should be made from it than is necessary to bring the cost of preparing streets within reasonable limits of expense, seems, to all such persons, a matter of course.

All the work of the undersigned will, nevertheless, have been done under the influence of a quite different conviction and its results can only be fairly judged, after a candid and patient balancing of the advantages to be gained, and the advantages to be lost by the adoption of a variety of proposed arrangements always differing, and often differing widely from those with which commissioners and the community are familiar under the regular system.

They, therefore, wish to submit, in advance of any plans, a few general considerations adapted, as they think, to give a different impression of the merits of the system from that which appears to be ordinarily accepted, and by which the Commission has hitherto, to some extent, almost necessarily been influenced.

New York, when the system in question was adopted, though vaguely anticipating something of the greatness that has since been thrust upon her, viewed all questions of her own civic equipment, very nearly from the position which a small, poor, remote provincial village would now be expected to take.

The city had no gas, water or sewer system. The privies of the best houses were placed, for good reasons, as far away from them as possible, in a back yard, over a loose-bottomed cesspool. If the house stood in a closely built block, the contents of the cesspool, when necessary to be removed, were taken to the street in buckets carried through the house; the garbage of the house was often thrown, with its sweepings and soiled water into the street before the front door, to be there devoured by swine, droves of which were allowed to run at large for the purpose.

Under these circumstances, it was not to be expected that, if the utmost human wisdom had been used in the preparation of the plan, means would be aptly devised for all such ends as a commission charged with a similar duty at the present day must necessarily have before it.

So far as the plan of New York remains to be formed, it would be inexcusable that it should not be the plan of a Metropolis; adapted to serve, and serve well, every legitimate interest of the wide world; not of ordinary commerce only, but of humanity, religion, art, science and scholarship:

If a house to be used for many different purposes must have many rooms and passages of various dimensions and variously lighted and furnished, not less must such a metropolis be specially adapted at different points to different ends.

This it may chance to be if laid out by the old cow-path method, or more surely if laid out in greater or less part with carefully directed intention to the purpose, such as is now being used for instance in London, Paris, Vienna, Florence, and Rome.

There seems to be good authority for the story that the system of 1807 was hit upon by the chance occurrence of a mason's



sieve near the map of the ground to be laid out. It was taken up and placed upon the map, and the question being asked "what do you want better than that?" no one was able to answer. This may not be the whole story of the plan, but the result is the same as if it were. That is to say, some two thousand blocks were provided, each theoretically 200 feet wide, no more, no less; and ever since, if a building site is wanted, whether with a view to a church or a blast furnace, an opera house or a toy shop, there is, of intention, no better a place in one of these blocks than in another.

If a proposed cathedral, military depot, great manufacturing enterprise, house of religious seclusion or seat of learning needs a space of ground more than sixty-six yards in extent from north to south, the system forbids that it shall be built in New York.

On the other hand it equally forbids a museum, library, theatre, exchange, post office or hotel, unless of great breadth, to be lighted or to open upon streets from opposite sides.

There are numerous structures, both public and private, in London and Paris, and most other large towns of Europe, which could not be built in New York, for want of a site of suitable extent and proportions.

The Trustees of Columbia College sought for years to obtain the privilege of consolidating two of the uniform blocks of the system, into which their own property had been divided, in order to erect sufficient buildings for their purpose, in one unbroken group, but it was denied them.

There is no place under the system in New York where a stately building can be looked up to from base to turret, none where it can even be seen full in the face and all at once taken in by the eye; none where it can be viewed in advantageous perspective. The few tolerable sites for noble buildings north of Grace Church and within the built part of the city remain, because Broadway, laid out curvilinearly, in free adaptation to natural circumstances, had already become too important a thoroughfare to be obliterated for the system.

Such distinctive advantage of position as Rome gives St. Peter's, Paris the Madeleine, London St. Paul's, New York, under her system, gives to nothing.

But, if New York is poor in opportunities of this class, there is another of even greater importance in which she is notoriously still poorer. Decent, wholesome, tidy dwellings for people who are struggling to maintain an honorable independence are more to be desired in a city than great churches, convents or colleges. They are sadly wanting in New York, and why? It is commonly said because the situation of the city, cramped between two rivers, makes land too valuable to be occupied by small houses. This is properly a reason why land, at least in the lower part of the island, should be economized, and buildings arranged compactly. The rigid uniformity of the system of 1807 requires that no building lot shall be more than 100 feet in depth, none less. The clerk or mechanic and his young family, wishing to live modestly in a house by themselves, without servants, is provided for in this respect no otherwise than the wealthy merchant, who, with a large family and numerous servants, wishes to display works of art, to form a large library, and to enjoy the company of many guests.

In New York, lots of 100 feet in depth cannot be afforded for small, cheap houses. The ground-rent would be in too large proportion to that of the betterments. In no prosperous old city are families of moderate means found living, except temporarily in the outskirts, in separate houses on undivided blocks measuring 200 feet from thoroughfare to thoroughfare. It is hardly to be hoped that they ever will be in New York under the plan of 1807.\*

The inflexibility of the New York plan, and the nature of the disadvantages which grow out of it, may be better recognized upon an examination of certain peculiarities with which Commissioners must be familiar as distinguishing the city.

These are to be found, for instance, in the position usually

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\* Various attempts have been made on a small scale to get the better of this difficulty, the most successful being the introduction of an alley by which a tier of 100 feet lots is divided into two of 42 feet each, one tier facing upon the back of the other. A philanthropic scheme is now under discussion for cutting up a whole block into short lots for poor men's houses by 16-foot alleys.

occupied by the kitchen and menial offices of even the better class of houses; in the manner in which supplies are conveyed to them, and dust, ashes, rubbish and garbage removed. This class of peculiarities grows out of the absence from the New York system of the alley, or court, by which in all other great towns large private dwelling houses are usually made accessible in the rear.\*

It is true, that in other cities, as they become dense and land valuable, the alleys and courts come to be much used as streets, that is to say, small houses and shops, as well as stables are built facing upon them, and the dwellings only of people of considerable wealth are carried through to them from the streets proper. But this practice does not do away with the general custom of a yard accessible from the alley by an independent passage, and of placing the kitchen and offices of all large houses in a semi-detached building. Out of this custom come the greater ease and economy with which streets are elsewhere kept in decent order, and the bad reputation which New York has always had in this respect; and again, the fact that New York houses of the better class, much more than those of other cities, are apt to be pervaded with kitchen odors.

Another peculiarity of New York, is to be found in the much less breadth and greater depth of most of the modern dwellings of the better sort. There are many houses not much wider than the hovels of other cities, which yet have sixty or seventy feet of depth, and fifty to sixty feet of height, with sculptured stone fronts and elaborately wrought doors. This incongruity results from the circumstance that a yard at the back of

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\* THE SANITARIAN, for January, 1877, received as this is printing, contains the following professional notes on Boston, by Doctor E. H. Janes: "The streets of Boston present quite a contrast with those of New York in point of cleanliness." "Their system of alleys, by which access is obtained to the rear yards, renders it unnecessary to disfigure the sidewalks, or defile the gutters and pavements with every variety of house refuse and filth. At the appointed time the cartman rings the bell at the rear gate, receives from the housemaid the garbage, deposits it in a water-tight cart. \* \* \* \* The garbage is taken to the country and used for feeding swine. The ashes are collected in a similar way, and, being entirely separate from garbage, or any putrescent matter, can be used for filling low ground." \* \* \* "I wish some such system could be adopted with us, as I am confident it would reduce the rate of mortality among our tenement house population."

the house, when no longer needed for a privy and where there is no alley to communicate with it, has little value; consequently, to economize ground-rent, two house lots of the size originally contemplated are divided into three or four, and houses stretched out upon them so as to occupy as much of the space as the Board of Health, guarding against manifest peril of public pestilence, will allow.

The same cubic space is now obtained in a lot of 1,700 square feet, or even 1,300, as formerly on one of 2,500, and the depth between the front and rear windows of houses of corresponding area has been nearly doubled.

That this change has been forced also by the street system, and is not a matter of fashion, nor the result of a caprice in popular tastes, is evident from the fact that no corresponding method has obtained in other cities, new or old, nor however situated; none, for example, in London, Liverpool, Philadelphia, Baltimore, Buffalo, Chicago, or San Francisco.

The practice is one that defies the architect to produce habitable rooms of pleasing or dignified proportions, but this is the least of its evils, for in the middle parts of all these deep, narrow cubes, there must be a large amount of ill-ventilated space, which can only be imperfectly lighted through distant skylights, or by an unwholesome combustion of gas. This space being consequently the least valuable for other purposes, is generally assigned to water-closets, for which the position is in other respects the worst that could be adopted.

Still other, and perhaps even graver, misfortunes to the city might be named which could have been avoided by a different arrangement of its streets. The main object of this report will, however, have been secured, if the conviction has been shown to be justified that an attempt to make all parts of a great city equally convenient for all uses, is far from being prescribed by any soundly economical policy.

"Equally convenient," in this case, implies equally inconvenient. "As far as practicable," means within reasonable limits of expense. But there are no reasonable limits of expense for such an undertaking. Even on a flat alluvial site, like that of Chi-

cago, it is essentially wasteful and extravagant. In proportion as a site is rugged and rocky it is only more decidedly so; not simply because in this case it involves greater unnecessary cost, but because variety of surface offers variety of opportunity, and such an undertaking often deliberately throws away forever what might otherwise be distinctive properties of great value.

The important question in dealing with a site of greatly varied topography is, whether, and in what manner, advantage can be so taken of the different topographical conditions it offers, that all classes of legitimate enterprises can be favored, each in due proportion to the interest which all citizens have in its economical and successful prosecution.

It would be easy, of course, to attempt too much in this respect, but the range of practicability is more limited than at first thought may be supposed. The value of a particular situation for a certain purpose may be determined as far as the depth which is left available for building is concerned, by the distance apart of two adjoining streets, and as far as aspect, accessibility to the public, and the cost of transportation to and fro, are concerned, by their courses and grades; but as to the breadth of ground that shall be available for any particular purpose, as to the manner in which it shall be graded and otherwise dealt with; whether it shall be cut down or filled up, terraced, or used in a more natural form—these are questions which the street system must necessarily leave to be settled by private judgment under the stimulus of competition.

Hence, while it is held that the capability of the ground should be studied for purposes more or less distinctly to be classed apart, and that, as topographical conditions vary, it should be laid out with reference to one class or another, an extended, exact, and dogmatic classification for this purpose is not to be apprehended.

A judicious laying out of the annexed territory requires a certain effort of forecast as to what the city is to be in the

future. In this respect, there is a great danger in attempting too much as in attempting too little. Before New York can have doubled its present population, new motive powers and means of transit, new methods of building, new professions and trades, and new departures in sanitary science, if not in political science, are likely to have appeared. If half its present territory should then be built up and occupied as closely as its seven more populous wards now are, the other half would need to lodge but one-seventh of its total population. Assuming that in this other half there should be but a moderate degree of urban density along the river side and near the railway stations, there would still remain several square miles of land which could only be occupied by scattered buildings. It is, then, premature, to say the least, to attempt to overcome any topographical difficulty that may be presented to a perfectly compact and urban occupation of every acre of the ground to be laid out.

Respectfully,

FRED. LAW OLMSTED,

*Landscape Architect.*

J. JAMES R. CROES,

*Civil and Topographical Engineer.*

## II.

REPORT OF THE LANDSCAPE ARCHITECT AND THE CIVIL  
AND TOPOGRAPHICAL ENGINEER, ACCOMPANYING A  
PLAN FOR LAYING OUT THAT PART OF THE TWENTY-  
FOURTH WARD LYING WEST OF THE RIVERDALE  
ROAD.

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CITY OF NEW YORK, }  
DEPARTMENT OF PUBLIC PARKS, }  
21st November, 1876.

The Hon. WILLIAM R. MARTIN,  
*President of the Board :*

SIR:—The undersigned have now the honor to submit, as the first of a series, a plan for a primary road system for that part of the new wards lying west of the Riverdale Road.

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The Commission has had the problem of laying out this district under debate since 1872. It has heretofore at various times called four engineers into its counsels upon it, and has considered five separate plans covering the ground wholly or in part. Much difference of opinion and something of partizanship with regard to these plans has appeared, and conflicting private interests concerned in the issues developed have been urged with warmth.

These, with other circumstances, the force of which the Commission will recognize, made it desirable that the purely professional and official character of the duty given the undersigned should be strictly guarded, and that for the time being, they should keep out of view any private ends to be affected.

For this reason, and also because it would be impracticable to give a fair hearing to every one concerned, they have, since they took the matter in hand, declined conversation upon it, have denied all requests for an examination of their study plans, and have neither expressed opinions nor accepted advice upon the subject.

They are now, consequently, under obligations to explain more fully than might otherwise be thought necessary, the grounds upon which the judgments have been formed which are embodied in the plan herewith presented.

In a previous report the objections have been indicated which prevail with them against one of the ruling motives upon which New York, so far as built during the present century, has been laid out and upon which most American cities are now building; the motive, that is to say, of securing in all quarters as nearly as practicable without excessive expense, an equality of advantages for all purposes.

They proceed, on the contrary, with the conviction that the principle of a division of labor may, with advantage, be measurably applied to the plan of a city; one part of it being laid out with a view to the development of one class of utilities, another to a different class, according as natural circumstances favor.

Under the first method, the great variety of topographical conditions found in the site of New York is regarded as a misfortune to be overcome, under the latter, as an advantage to be made available.

Having in view all the territory to be occupied before laying out any part of it, according to the preferred method, the topography of that part is to be questioned as for what class of private undertakings it is comparatively unsuitable, and as for what it is comparatively suitable.

## I.

### THE DISTRICT TO BE LAID OUT.

The district lies within and forms the larger part of the great promontory, the shank of which is crossed by the line dividing



Yonkers from New York, and which terminates three miles to the southward in the abrupt headland of Spuyten Duyvil. Its ridge line seldom drops much below an elevation of 200 feet, and its highest point, which is also the highest in the city, is 282 feet above tide.

Its surface is much broken by ledges, and there are numerous steep declivities on its hillsides which can rarely be directly ascended without encountering a grade of from 15 to 25 in a hundred. Its ruggedness has prevented its being occupied for agricultural purposes, except very sparsely, and it is largely wooded and wild.

The only noticeable improvements have been made in connection with a number of private villas, and with a large convent and seminary, the grounds of which were also first prepared for a private pleasure ground.

That the district is not more generally occupied in this manner, is due first, to the uncertainty which exists as to how it is to be laid out and generally built over; second, to the fact that it is affected by malaria, of a mild type, however, and resulting entirely from superficial conditions easily to be removed; third, to its lack of suitable roads. The local scenery is everywhere pleasing, except as it is marred artificially. Generally, it is highly picturesque, with aspects of grandeur, and from nearly all parts, broad, distant prospects are commanded of an extended, interesting, and even very impressive character.

## II.

### THE UNSUITABILITY OF THE DISTRICT FOR THE MORE COMMON PURPOSES OF THE CITY.

To what needs of the city is such ground as has been described, well adapted?

The authors of the five plans for laying it out, of which transcripts upon a uniform scale are herewith exhibited, all knew well, from much experience, the convenience of the

ordinary city division of real estate, and each plan represents an amount of patient and ingenious study in fitting streets of rectilinear or nearly rectilinear courses, to the highly curvilinear contours of the topography, that can be fully appreciated only by those who have had some experience in similar tasks.

Under neither of these plans could any considerable part of the ground to which it applies be subdivided into building sites of the usual form and dimensions of city real estate, or be built upon advantageously in compact ranges. This may be considered as conclusive testimony that the attempt to lay it out with such a purpose in view, would be impracticable.

The ascent of the slopes will be nowhere easy, and two horses, on an average, will be required within it to accomplish the work, which, in most other parts of the city, could be done by one.

There will be no thoroughfares adapted either to heavy teaming or to rapid driving, and in none of the plans heretofore prepared, is a single short-cut proposed across the district.

On these grounds, it may be concluded that factories, (at least of heavy goods,) shops, warehouses, or stores for general trade, except possibly to a limited extent at the foot of the slopes, can be brought here only by some forced and costly process. The city holds much better ground for them in large quantity elsewhere.

The nearest part of the district is ten miles away from the present centre of population, and within that distance, there is but little other ground in which the call for houses of low rent for families of small means, could not be more economically met. The cost of preparing each site for such a house, and rendering it accessible, would be excessive, and the average space which would be appropriated for each, would be much larger than would be elsewhere required.

## III.

## THE QUESTION OF A PERMANENT SUBURBAN QUARTER.

There remains to be considered the question of its further general and permanent occupation by that class of citizens to whom the confinement, noise, and purely artificial conditions of the compact city are oppressive, and who are able to indulge in the luxury of a villa or suburban cottage residence.

What are the chances of its being occupied in this manner advantageously?

## IV.

## THE POSSIBILITY OF A PERMANENT SUBURBAN QUARTER.

Of course, although manufactories and commercial buildings on a large scale are not to be apprehended, a perfectly uninterrupted succession of private villas and cottages is not to be hoped for. Here and there a shop or a range of shops will be necessary, but being adapted only for local custom, they are not likely to be lofty or excessively obtrusive. Now and again buildings for other purposes would probably occur; a school with its play grounds, a church set in a proper churchyard; a higher institution of learning with its green quadrangle, academic grove or campus; a public hall, library or museum; a convent with its courts and gardens; a suburban inn or boarding-house with its terrace, commanding grand prospects over the Hudson. All who have lived abroad know how buildings of these classes and many others may come into a villa suburb (their sites being chosen so as to gain an advantage from appropriate natural circumstances), in such a manner as not to disturb but to give point and emphasis to its proper aspect.

The nearest approach to urban building likely to be frequent, if once the general character proposed is obtained for the district, would be what the English call a terrace, a range of dwellings set back from the public street and reached by a loop-road, the crescent-shaped intermediate space being either a quiet slope of turf, a parterre of flowers, a play ground for children, or, if the topography favors, a picturesque rocky de-

clivity treated perhaps as a fernery or Alpine garden. There will be, whatever the plan of roads, a great number of situations well adapted to such an arrangement, and which could be made suitable for no other except at much greater cost.

Old neighborhoods, more or less of the character indicated, are to be found near almost every great city of Europe, and there are towns like Bath, Leamington, and Brighton, and scores on the continent, notable parts of which have had something of it for generations past, and hold it still.

But in none of these cases, except perhaps that of one of the suburban quarters of Edinburgh, were the natural conditions nearly as unfavorable for the more common manner of town building, and at the same time as favorable for a permanent, highly picturesque neighborhood, combining the conveniences of the town with the charms and healthfulness of the country.

It is not to be doubted that the promontory may, throughout its whole extent, be so laid out and occupied as to have an interest and attractiveness far excelling in its kind that of any other locality in America; nor that, if this result can be secured, it will hold great numbers of wealthy people within the city who would otherwise go away from it to find homes to suit them, and will draw many to it from without the city. Its effect will, in this respect, be similar to that which has been experienced from the Central Park, but with this difference, that the gain to the city will be in conditions the cost of which will have been mainly defrayed by the voluntary and self-directed contributions of the private owners of the land, not from the public treasury.

It may be questioned whether, even in a locality as yet so remote from dense building and so rugged in its topography, the demand for land for various other purposes will not, in time, crowd out all rural and picturesque elements, and whether, for this reason, it would be prudent to lay it out with exclusive reference to suburban uses? All that can be said in reply, is

that thus far in the history of other great cities there is nothing to sustain such a doubt.

After a certain degree of density has been attained, the proportion of people who are disposed and able to live under suburban conditions, relatively to those who may be content or obliged to live under rigidly urban conditions, becomes larger the larger the town, but there is yet no city in the world so large that it has not luxurious suburban quarters much nearer to its centre than is the promontory, even to the outer part of New York as now densely built. London has fairly grown around and stretched beyond some clusters of fine old suburban residences without seriously disturbing them. There are private gardens in which the town is almost lost sight of at not many minutes walk from Hyde Park. Within a range from the heart of Old London of less than one-third the distance of Riverdale from the City Hall, there are hundreds of acres of gardens and villa and cottage grounds; and, with a city adding much more annually to her population than New York, costly villas are every year built, and villa neighborhoods are steadily enlarged without becoming less distinctly suburban in character.

Districts of villas exist and others are forming also but a little way from dense parts of Paris. Under Haussmann, roads were laid out expressly for villas closely adjoining the grand route between the Champs Elysées and the Bois de Boulogne; every site upon which is now occupied by a semi-rural residence. Other and extensive districts of the same class have been laid out since with confident reference to permanence as an integral element of the attractions of the city.

## V.

### THE ADVANTAGES OFFERED BY THE PROPOSITION TO THE CITY.

It is reasonable to infer that New York will have such quarters. It remains a question whether they shall be formed by a co-operation of public and private work, or by private enterprise in making the best of unsuitable public arrangements.

The importance of the question will be recognized if it is considered what a difference there would now be in the attractiveness, and consequently in the wealth of the city, if twenty-five years ago, when it was quite practicable, Fifth avenue from Madison Square to the Central Park, had been laid out fifty feet wider than it is, with slightly better grades, a pad for riding horses, broad sidewalks and an avenue of trees.

It will cost much less to lay out and prepare the promontory admirably as a permanent suburb than to prepare it tolerably for any other use.

A given sum expended upon it for the purpose will have important results much sooner than if expended for any other.

All other purposes which the city needs to have in view can be provided for at much less cost and much more conveniently in other parts of its present territory.

Treated as a suburb, the district is likely to make larger contributions to the city treasury, and to begin to contribute to it in important amount sooner than if treated in any other way.

What is meant by treating the district as a suburb is, that the development of a distinctly suburban and picturesque character should everywhere be kept frankly in view as a source of wealth, and that the roads should be adapted to a population living less densely, and with which pleasure driving and walking are to be, relatively to heavy teaming, more important than in the streets of the compact city.

If the policy which has been indicated does not, upon reflection, fully commend itself to the Commission, the plan now submitted is not entitled to further examination. It is professionally adapted to no other.

If, however, the soundness of the policy is accepted, the manner in which the district should be laid out, in order to its success, remains to be considered.

## VI.

THE QUESTION OF LAYING OUT A SPECIALLY PICTURESQUE AND  
CONVENIENT SUBURB.

The custom of laying out roads in the outskirts of cities only upon right lines, under any circumstances which leave it possible to do so, is so strongly fixed in our country that the Commission cannot entertain the idea of abandoning it before carefully weighing what is to be gained and lost by doing so. It should remember, however, that the custom is largely due to the disposition of land owners, to act on the imagination, by showing lots which, as represented on paper, differ in no respect from the most valuable in the city, and thus to feed the pernicious propensity which prevails among the ignorant for gambling on small means under the name of speculation in real estate.

Again, it is to be remembered that it is not customary to think of the laying out of any part of a city as a matter in the smallest degree of esthetic design ; but, if the policy of carrying on a series of constructions in a manner sympathetic with picturesque landscape effects has any claims to adoption by the Commission, it necessarily involves a serious application, in however humble a way, of the laws and the spirit of art.

The more tangible and weighty advantage to be urged in favor of keeping as nearly as practicable to straight lines of road, is one commonly expressed under one of the following specifications :

1st. That of the comparative ease and simplicity of the business of laying out the roads.

2d. That of the comparative rapidity and convenience with which surveyors' measurements and calculations are made when dealing with straight lines.

3d. That of the greater convenience of a straight front when land is to be divided or described with a view to sale or mortgage.

It is not questioned that these advantages should be waived in the case of very difficult topography, such as must often occur on the promontory. (It will be observed that each of the six plans before the Commission proposes a considerable extent of curved line). It apparently follows that whether the straight street should yield to the winding road at any point, when it is otherwise desirable, is, at the worst, a question of employing surveyors competent to deal with curved lines. No plan has been proposed to the Commission for laying out the promontory, under which a local surveyor to whom curved lines were a serious matter, could honestly earn his living. The whole amount of the class of expenses in question, under the most difficult circumstances, would be relatively inconsiderable, and if any essential, permanent advantage to the community is at stake, regard for them should not be allowed to obstruct the very best arrangement that can be devised.

The third specification above refers to the facility which straightness in a street gives for laying off properties in lots the dimensions of which may be expressed in two numbers, and to the convenience of the custom, to which this advantage is essential, of dividing property for sale in a series of parallelograms of uniform length of frontage, as in the case of city lots. As to this custom, it is to be remembered that if it should be generally adhered to on the promontory it would not affect the desired result favorably, but otherwise, for this reason.

In broken and rolling ground, and especially in rocky ground, sites for houses can be well chosen only with an intelligent consideration of local circumstances. If a hundred lots are to be laid off, each one hundred feet wide, and with the dividing lines all at right angles with the street line, in many parts of the promontory the dividing lines will so occur, that on not half the lots will an entirely satisfactory site for a building be found, and, on several, building will be impracticable until after much labor has been given to transform the natural surface. Let the same property, on the other hand, be laid out with a judicious adjustment of lines to the local conditions, and an equal



number of lots may be made of it, each offering an admirable and conveniently approached site. Of course, however, they will vary in size.

As to the general attractiveness of the region, and as to the total or average value of all its real estate, there are certain well established principles by which men of taste throughout the civilized world, when living among rural or even rus-urban conditions are almost invariably guided when laying out the private carriage approaches to their houses.\* The motives growing out of well established experience which enforce this practice, apply equally in the case of a common approach to two houses as to one, and if to two, equally to twenty or to two hundred. Though the propriety may be questioned of advancing toward a house indirectly when it is situated on a plain, there is no question that in a hilly country the principles referred to always lead to the use in roads of winding courses in greater or less degree of correspondence with the natural surface.

## VII.

### THE ECONOMICAL ADVANTAGES OF THE PROPOSITION.

The comparative economy of straight and winding roads is partly a question of what is desirable under given circumstances as to grades. The shortest line between two points is not always that which can be passed over at the least cost of time or in wear and tear.

A carriage load that requires two horses and a given strength of harness to be drawn over a road with grades by which one foot in elevation is overcome in ten feet of distance, as in the case of some of the present roads of the promontory, can be as easily and safely drawn by one horse and with a harness one-half lighter on a road in which twenty-four feet is allowed for overcoming the same elevation. If a man in haste at a given point wishes to drive a horse of ordinary quality with a

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\* Exceptions occur when the approach is short, crosses flat ground, and can be seen from end to end in one symmetrical composition with the house; conditions to which there will be none corresponding in the roads of the promontory.

light wagon to another point 180 feet higher on a hillside, he can do so in shorter time upon a curved road 800 yards in length than upon a straight road of 600 yards.

If the hillsides of the promontory are to be occupied chiefly by families in comfortable circumstances it is evident that for the great majority of occasions a road carried between two points, one at a greater elevation than another, upon a curve regulated by the curve of the hillside along which it will be passing, though longer horizontally will be passed over in shorter time, and with less wear and tear, than a straight road between the same points. The straight road might, because it was the shortest, cost less for construction. The probabilities are, that ploughing straight through whatever was in the way, it would cost more. But, whether so or not, in running along an alternately swelling and retreating surface, the more unswerving the course the more it would be necessary in grading the road to cut through the protuberances and to fill across the depressions.

From this consideration it follows, that unless a level can be kept, which in this district it rarely can for any distance, access will be had from a road laid on natural lines to adjoining building sites with much less violence and at less cost, on an average, than it can from a straight road, and, again, that the amount of walling, sloping, turving or other operations necessary to a tidy road-side, or the attractive presentation of the adjoining properties will be less with the winding than the straight road.

## VIII.

### THE IMMEDIATE CONVENIENCE OF THE PROPOSITION.

One advantage to be gained by adopting winding and picturesque roads, as far as conveniently practicable, rather than straight and formal streets remains to be suggested.

Formal streets, especially when far extended on a straight line at an even grade, their every line of curb, sidewalk and lamp-posts, being truly set, and when bounded by continuous walls of stately houses, have an imposing effect, and satisfy

good taste. But in streets which, by alternate cuttings and embankments, are carried, here through woods, there across open fields, here are flanked by the ragged face of blasted ledges or raw banks of earth, there by a varied prospect, even when fine houses are occasionally built fronting upon them, straightness gives no dignity and expresses little but incongruity and imperfection.

To make such a street tolerable to the eye it needs from the beginning as perfect lines and as perfect surfaces in its curbs, gutters and lamp-posts, pavement and flagging, as the densely occupied street of the city. If a cheap temporary wheel-way is made in it, or temporary sidewalks, any deviation from a straight line, or even any short flexions of grade in them are unsatisfactory. If trees are set between the walks and the wheel-way they seem out of place, and add to a general expression of untidiness, incompleteness, disorder and shiftlessness, unless they are evenly spaced in continuous lines parallel with all the other features. The slightest disarrangement of such a road, scattered patches of grass and weeds, a sucker growth of trees and bushes on the bordering banks, even the general heaving outward and inward of the fences that form its outlines, all claim attention as defects and shortcomings from what is attempted.

Nothing of this is true of roads laid out with a natural motive. The wheel-way may have a somewhat variable width, as economy shall require; its grade may dip and rise within a hundred yards; the courses of the walks may vary a little from that of the wheel-way, may rise a little in a cutting or fall a little on an embankment, may rise on one side and fall on the other; wild plants may spring up, here and there, in random tufts, or, again, the roadsides be all filled out (as some in the district now are), with a thick growth of low brambles, ferns, asters, gentians, golden-rods; roadside trees may be irregularly spaced and of various sizes and species, great opposite small, ash over against maple, elm bending to oak; fine old trees may be left standing, and, to save them, the wheel-way carried a little to the right or left, or slightly raised or lowered. It may be desirable, simply for convenience sake, to go to the expense of avoiding such con-

ditions, but, as a matter of taste, they are far from blemishes; they add to other charms of picturesqueness, and they are a concession to nature, tending to an effect not of incongruity and incompleteness, but of consistent and happy landscape composition.

Hence, roads on natural lines, which may be so far worked, at moderate cost as to meet the ordinary requirements of convenience of a considerable community, will much sooner and more uninterruptedly give results of a presentable, comely and attractive character. In this manner, indeed, the most agreeable roads in the world have been made.

## IX.

### GENERAL REQUIREMENTS.

Adopting the general conclusion which has thus been sustained, there is still much room for difference of judgment as to the location of roads, their breadth and grades.

The existing divisions of land, the positions of houses, of fences, of roads, have been determined without regard to such an occupation of the district as is now to be prepared for. Individual interests, based on existing arrangements, must necessarily be, in greater or less degree, at issue with those general and lasting interests of the public of which the Commission is the guardian. There must be limits within which the latter are so far paramount that not the least compromise between the two is admissible. To keep on the safe side of those limits, it has appeared to the undersigned best to perfect a conclusion, in the first place, as to what roads are necessary as routes, or links in routes, of extended, general and unquestionably desirable, in distinction from local and limited, communication. This they have done in the plan now presented, except that they have adopted the judgment of the Board, as heretofore indicated, on three points not materially affecting the general design.

## X.

## BY-ROADS.

If the Commission should substantially adopt the system, and afterwards think proper to consult the judgment and wishes of each land-owner as to cross roads or by-roads, it can do so with confidence, that no conclusions to which it may then be led can be seriously detrimental to the general interests. Any one of the divisions left by the plan might even be subdivided, for example, by rectilinear roads without destroying the consistency and harmony or lessening the convenience, of the main system. If, on the other hand, such minor roads within any division should, in order not to mar a series of natural building sites, be made very indirect and circuitous, the worst result would be a slight inconvenience to a few residents within the division and those calling upon them, which, to these, would be compensated by the greater beauty and local convenience of the buildings. The public in general, keeping to the primary roads, would suffer no inconvenience.

It is believed, too, that the proprietors will be much better able to form a sound judgment as to the requirements of their own interests in the minor roads if they are allowed to become familiar with the proposed general system, and with the theory which it represents of the interest of the district as a whole.

## XI.

## REQUIREMENTS OF DETAIL. PLANTING ARRANGEMENTS.

It should be recognized that to carry out a natural or informal system judiciously, so that a good share of its possible advantages may be surely realized, much study of detail is required. Both for economy and for beauty local circumstances must be diligently consulted, and the treatment of the road adapted to them. Variety in this respect should be sought, not avoided. Every turn should bring something of fresh interest into view within the road as well as beyond it.

In this detail very well-considered provisions should be made for road-side planting. Ordinarily in the suburbs of rapidly growing American towns, trees are planted most injudiciously and wastefully, ill-chosen as to species for the locality, ill-placed, ill-planted, and with no suitable provision for a continuous, healthy growth. Science is yearly placing a higher estimate on the sanitary value of street trees. Paris now maintains a great nursery with a view to the systematic supply of all the city with this means of dissipating malaria and infection. London is just entering upon a similar duty. The matter of supplying New York streets with trees has been much debated by her sanitarians. The difficulty lies in the fact, that the street arrangements of the city being all designed with no reference to the purpose, the introduction of trees, with the conditions necessary to success, would be very costly and inconvenient. In laying out a new system, especially for a quarter designed to offer a beautiful and healthful relief to the more general conditions of city life, this requirement should be thoroughly well attended to.

The tracing submitted represents the outline of a general plan, the adoption of which is recommended subject to such slight adjustments, immaterial to the essential design, as may be found desirable.

A drawing is also exhibited which will serve to indicate more fully the purposes in view.

Respectfully,

FRED. LAW OLMSTED,  
*Landscape Architect.*

J. JAMES R. CROES,  
*Civil and Topographical Engineer.*

**DOCUMENT No. 73.**

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**BOARD**

OF THE

**Department of Public Parks.**

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DECEMBER 20TH, 1876.

Report of Hon. WM. R. MARTIN, President, upon the subject of laying-out the Twenty-third and Twenty-fourth Wards.

Ordered printed as a document of the Board.

WM. IRWIN,  
*Secretary D. P. P.*

DEPARTMENT OF PUBLIC PARKS,  
NEW YORK, 20th December, 1876. }

*To the Board of Commissioners :*

The report, presented by the undersigned, upon the subject of the surveying and laying out of the Twenty-third and Twenty-fourth Wards, on the 30th of March, 1875, and printed as Document No. 65, and the consideration of the principles laid down in that report, had the immediate effect of subverting the plans for laying-out that district, which had, up to that time, been prepared in the Department, and of inaugurating a new system.

Their defects were, that they did not adhere to and carry out the principles on which they were alleged to be based. The expenditure for the work of constructing the roads and avenues laid out, was estimated at \$4,200 per acre not including sewers, and \$6,500 including sewers, which was a greater expense than the property could afford.

The principles of the new system are stated in that report. They met the general approval of this Board, and of all the property-owners who took an interest in the subject. They will be recapitulated, with sufficient definiteness for present purposes, in this report.

The new plans were based upon the complete topographical surveys which had already been made, but new agencies were required in their preparation, more in harmony with the new system and less rigidly wedded to the old system, which was condemned and superseded.

The undersigned desired the professional advice of Mr. Frederick Law Olmsted, the Landscape Architect of the Department, upon the subject, and this was accorded to him by a resolution of the Board, passed on the 30th of April, 1875. He further desired, and obtained from the Board, the definite employment of Mr. Olmsted to prepare the plan for laying-out the district, with the assistance and consultation of the Civil and Topographical Engineer. This was done by a resolution passed 5th Nov., 1875.



Upon the nomination of the undersigned, Mr. J. J. R. Croes, who had been, since 1871, engaged on the surveys and plans of the Twenty-fourth Ward, as Division Engineer, was appointed Civil and Topographical Engineer, on Nov. 12th, 1875, and Mr. Olmsted and Mr. Croes thereupon began work upon these plans. Since that date, under the personal supervision and direction of the undersigned, the work on the new plans has gone on, upon the principles laid down in the report of 30th March, 1875 (Doc. 65).

## I.

### THE FIRST MAP ON THE NEW SYSTEM.

The extent and varied character of the region naturally divides it into several distinct sections, and these have been taken up in their order.

The first section includes the area between Riverdale Avenue and the Hudson River, from Spuyten Duyvil to the northerly boundary of the city. Other sections will follow, including the area eastward to Broadway and thence to Central Avenue, Fordham Heights, and the regions along the Bronx River.

The map of the first section has been prepared and submitted to the Board for its action. It is accompanied by a report, made by Messrs. Olmsted and Croes, and submitted herewith, stating, in detail, the views that have guided them in laying it out upon the new plan, and the justification of the points in which the characteristics of the old plan are condemned.

## II.

### GENERAL FEATURES OF THE NEW SYSTEM.

The subject of laying-out this district is of paramount importance to the city and to the property owners. The city is now built up to about Fifty-ninth Street. From that point, northwardly to One hundred and fifty-fifth Street, for a length of about five miles, the land has been subjected to the rectangular plan of streets and avenues and to level grades. The work of constructing these streets and avenues is about half completed. The plan was so extravagant, the cost of construction has been so enormous, and the length of time needed to do the construc-

tion work has been so great, that the occupation of the region with buildings will be indefinitely delayed, and the property meanwhile overburdened and swamped by the load of taxes and assessments.

Beyond this, extending from One hundred and fifty-fifth Street and the Harlem River to the northerly line of the city, is the region now under consideration, over which the old plan proposed to extend a system with the same destructive effects, and from which the new plan proposes to save it.

The cardinal principles of the new system are:

That the region shall be connected with the business part of the city by lines of rapid transit.

That, by sewerage and drainage, it shall be made healthy.

That it shall receive the advantages of a proper treatment of the Harlem River.

That it shall be laid out in accord with the general topography, with the future and ultimate occupation, and the distinct character of its different sections.

That the title to the land needed for the public use shall be acquired on a speedy and economical method, and

That the mode and order of constructing its improvements shall not be such as, in the meantime, to depopulate the region and destroy the value of the property.

### III.

#### GENERAL ADVANTAGES OF THE NEW SYSTEM.

If these ends can be obtained, the result will be that this region will speedily be occupied, and, with the next recurrence of prosperous times, the incoming tide of population will settle there.

The previous policy of the city, by which its laboring and business classes were facilitated and encouraged to reside in New Jersey and Brooklyn, will be reversed, and the natural increase of population of the city will settle within its own borders. This will largely increase the tax valuations, and the number of taxpayers of the city. This mode of augmenting the resources of the city is the best and most attainable, if not the only, mode of relief from its burden of debt and taxation.

It is obvious, therefore, that this subject presents a very important question in city administration.

## IV.

## IT MUST BE IN ACCORD WITH A SOUND FINANCIAL POLICY.

The measures which this Department adopt must be justified on the ground that they are in accordance with the best financial policy of the city, in its present situation.

This situation is as follows :

1. The city is heavily in debt for money, in part expended extravagantly, and in part expended without any return.
2. It has a vast area in its northern suburb, partially prepared for occupation, in anticipation that its rapid rate of growth would continue.
3. Its real estate, which bears four-fifths of its taxation, is depressed in value.
4. It lacks adequate means of internal transit.
5. Its geographical position is such, that while, as a city, it has extended in every direction, its northern suburbs only are within its legal boundaries and subjected to its taxation.
6. Its growth—its natural accretion of wealth and population—during the last fifteen years, has extended in every other direction except within its own legal boundaries, and has become lost to its taxation.
7. It pays too high a rate of interest on its debt.
8. It pays too large a proportion of the State taxes.
9. Its system of taxation is unequal and unjust in respect to the property on which the tax is levied.
10. Rigid retrenchment has been enforced, for several years, without reducing the taxes, and the progress of public improvements has been substantially stopped.

## V.

## AND THAT MUST BE AN AFFIRMATIVE POLICY.

The city therefore needs an affirmative policy. This must be based upon this fundamental principle ; that the prosperity of a city is secured when all its citizens are engaged in profitable and productive labor. At present a large proportion of the labor power in the city is idle and wasted.

The fields of labor in this city are threefold :

1. Those connected with its commercial business.
2. Those connected with its manufacturing business.
3. Those connected with house-building, and the preparation of its vacant areas, by street improvements, for such building.

The result to be aimed at is, to anticipate that a state of business prosperity will follow the present depressed condition and to take measures, suited both to the present depression, and the future prospects which will enlarge these three fields of labor, and thus help every one in the city to productive employment.

## VI.

### IN RESPECT TO ITS COMMERCE.

The natural advantages of the city for an internal and foreign commerce are not surpassed, and its growth, in this respect, has been commensurate with these advantages, and with the enterprise and wealth of its merchants.

The present situation is this: the competition of other cities, and the cheapness of freights, renders the expenses of local transshipment of goods of controlling importance. In this point of the facility and economy of local transshipment, New York is behind many other great commercial cities, while its opportunities are unequalled. It has driven off, outside its own legal boundaries, to Long Island, Staten Island, and Jersey City, business establishments which employ millions of capital and thousands of laborers. What is needed, in this respect, is to bring the railroad car and the vessel side by side, and to provide for an internal distribution of merchandise through the city by steam. This should have been done years and years ago, and it can be done now. In this respect all the future growth of this city, as a commercial emporium, can by judicious and economical measures be brought within its own boundaries. The river border of the city should have an elevated freight railroad, connecting with every pier, with proper points for internal distribution, and with railroad depots. This would be better than a reconstruction of our old system of wooden piers and bulkheads with stronger or more enduring material.

This accommodation to commercial business should be given immediately, and, if necessary, by temporary means. If the present embarrassments could be thus overcome, and these re-

quirements supplied, the growth of business and its prosperity would demand and justify the expenditure that might be necessary to make these improvements of more costly material.

If, for instance, under the provisions of the rapid transit act, an elevated railroad were built upon the city border, with the connections above stated, of cheap material, and finished within the present year, the immediate success of the enterprise, and its benefits to all commercial business, would be apparent, and the profits arising from it, in 20 years, would be sufficient to pay for its reconstruction of more durable material. This will be a better plan than to commence the more durable construction now, when we have no money to do it with, to spend 20 years in its construction, and to lose the 20 years' profits of the business that could be gained immediately.

## VII.

### IN RESPECT TO ITS MANUFACTURING INTERESTS.

The manufacturing interests require low-priced land for their buildings and the homes of their operatives, low taxation, and facilities for the receipt and delivery of merchandise.

To a great extent, to those who use steam power, this city can afford unusual advantages, particularly in its northern suburbs.

The region of which the Third Avenue Bridge over the Harlem River is the centre, with proper modes of connecting with the factory, the railroad depot, and the steamer, may become the best location on this continent for manufacturing enterprises. The opening of Hell Gate, now in progress, the opening of the Harlem River, and the system of railway communication above spoken of, will contribute to this result, and the city could do no better work to-day than to borrow the few millions of money necessary to complete it, at low rates of interest, and to take advantage of the present low prices to carry such plans into immediate execution.

The benefits of the immediate opening and improvement of the Harlem River would at once increase the resources and tax-valuations of the city to an extent which would largely exceed the interest on the cost of the improvement, and make a sinking fund provision for its payment.

## VIII.

## IN RESPECT TO BUILDINGS, &amp;c.

The unexampled growth of the city in years past, has made house building and street improvements one of the principal modes of employment, and has accumulated here great numbers of laborers of that class, who have become immovable, and whose enforced idleness is a great disaster and obstruction to the prosperity of the city.

Proper measures for carrying on these works, with judicious moderation, are therefore very important.

The business, growth and prosperity of the city, lead to the necessity of great numbers of residences for all classes of its population.

The western border of the city along the Hudson, for nine miles, from Seventy-second Street to Yonkers, with its commanding heights and elevated table lands, presents a site for residences of high cost, either on city lots or in the suburban villa style, that is not matched in any place on the continent, and it is destined to such an occupation.

The central areas of the unoccupied portion of the city, and the low and level land along its eastern border, are admirably adapted for residences of lower cost, and for the homes of the laboring classes.

The commercial and manufacturing prosperity of the city will thus lead to the profitable occupation of the laborers engaged in house building and street improvements.

## IX.

## THE CITY MUST INCREASE ITS RESOURCES.

Apart, therefore, from all external sources of prosperity, such as the general progress of the country, and apart from such questions as the reduction of the interest on the City debt, the re-adjustment of the proportion of the State taxes, and the amendment of its system of taxation, it is evident that the city should have an affirmative policy for increasing its own resources, by aiding the profitable employment of all its citizens.

When these results are accomplished the prosperity of the city will return. Its debt will be supported and the load diminished by a broader basis of property for its taxation. This would be equivalent to a proportionate reduction of the debt.

The workings of the policy of retrenchment for the six years past have proved that, advantageous as it is, it is inadequate to meet the difficulties of the financial situation of the city. The taxes have not decreased.

*Statement of the Annual Tax Levy :*

For 1871.....	\$23,354,617 32
“ 1872.....	30,914,746 44
“ 1873.....	28,232,275 57
“ 1874.....	32,312,816 93
“ 1875.....	32,367,744 75
“ 1876.....	31,109,521 50

The city must do what every individual does in like circumstances. It must increase its resources and have an affirmative policy by which that result can be accomplished.

Retrenchment has been properly and forcibly, and must continue to be directed toward :

1. The reduction of the rate of interest paid on the City debt.
2. The reduction of the disproportionate amount the city pays of the State taxes.
3. The reduction in every Department, except in those whose expenditures lead directly and effectively toward the increase of the city's resources.

The attention to be given toward the increase of the city's resources includes two objects :

1. The increase of the existing revenues of the city, and the creation of new sources of revenue.

New sources should be found in all monopolies within the

city, such as Gas Companies, City Railroads, &c. A belt railroad for commercial purposes such as has been above described, and the enhanced value it would give to all the piers and bulkheads, could be made a very productive source of city revenue.

2. The increase of the tax valuation of the property within it, by building up the business and industries of the city, and by facilitating the settlement of all its material growth within its own limits, so as to be subject to its own taxation.

It is toward this last mode of increasing the resources of the city that the work of this department leads, and this subject is brought within its special consideration.

In the regions of the city within which its work has been carried on, the tax valuation of the real estate has increased five-fold within the last twelve years. We are thus, in promoting our own work, in accord with the best policy of the city.

*Tax Valuation of Real Estate in*

	1865.	1870.	1876.
12th Ward.....	18,184,805	48,868,700	69,239,560
19th Ward....	23,070,890	71,319,420	119,166,555
22d Ward.....	19,824,265	53,146,920	66,459,890
Total.....	61,029,960	173,336,040	252,866,005

X.

IMPORTANCE AND SCOPE OF THE NEW PLANS.

Considerations such as these lead us to measures which must be judged of in the light of these general principles. We have before us the work of the improvement of the Harlem River, and of the laying out and surveying of twenty-three square miles north of it and of One hundred and fifty-fifth Street, and between the Hudson River and the Bronx. We consider the following heads:



1. What the vices and defects of former plans teach us must be avoided.

2. The topography and the future and ultimate occupation of the area to be laid out; the portions adopted for commercial purposes, for manufacturing business, for the residences of its operatives, and for ordinary city business; and the portions adapted for superior residences.

3. The modes of steam transit for business and passengers.

4. Parks and parkways and pleasure grounds.

5. Sewerage and drainage.

6. Economy of plan and construction.

7. The Harlem River improvement.

Reference is made, for a statement of facts and arguments bearing on these questions, and on the general subject, to the report of the undersigned, dated March 30, 1875, and printed as Document No. 65, of this Department, where all of those general and preliminary questions are fully considered.

## XI.

### THE VICES OF THE OLD PLANS.

The old plans on which the city was laid out into the numbered avenues and streets, below One hundred and fifty-fifth Street, exhibit the following vices:

1. A uniform system of right-angled and parallel streets, leaving intervening blocks about 200 feet wide, and from 420 to 920 feet long; without any reference to topography or shore lines, to internal centres, to sites of commanding elevation, or to main thoroughfares commanding central or exterior points; without any reference to the various purposes for which buildings would be erected; without any reference to preserving locations which afforded sites for grand buildings, or for special occupations, but reducing all to the low level of the gridiron plan.

2. Upon these straight and parallel streets, lines and grades were established, which brought the surface to a level,

and involved heavy cuttings and fillings at enormous expense, which necessarily consumed years of time in construction. The process of leveling down the uneven rocky and swampy surface of this island, without provision for natural drainage, has produced the most unhealthy result that could have been designed. There is no ground upon which that system can be defended, either in respect to wisdom of plan, economy of construction, or facility in getting the land ready for occupation. The lack of wisdom in the plan is apparent, in every light in which it can be exhibited; and its last melancholy defense is that the city lot of 25x100 feet, into which its blocks are readily divisible, has become fixed in the popular prejudice as an integer of quantity and value. This prejudice deserves to be met and obliterated, as fatal to the interests of the property owner and the city, and as in conflict with all that the learning and the experience of the Nineteenth Century has taught the world, in the growth of every city on this continent, and in Europe.

## XII.

### THE PLANS MUST BE SUITED TO THE OCCUPATION.

The plans must be adapted to the topography, and the ultimate occupation of the different areas of the region to be laid out, whether for commercial purposes, for manufacturing or general business, or for residences of the various classes. These topics are fully considered in the previous report of the undersigned, and in the reports of Messrs. Croes & Olmsted submitted herewith. Broad areas are appropriate for commercial and manufacturing purposes, small lots for the residences of the industrial classes, and larger lots, broader streets and villa treatment, for superior residences.

## XIII.

### IT MUST BE ACCESSIBLE BY STEAM TRANSIT.

Provision must be made, at the outset, for steam transit, or railroad avenues, so that the region may be traversed through its whole extent, and connected with the city by steam.

The whole success of the region depends upon the mode in which this necessary condition is fulfilled. The days of travel on foot, or by horse-power are passed. The region has too broad an area, and is too remote from the necessary business centres of the city, to admit of any other mode of connection. Its southern extremity is eight miles, and its northern extremity is fifteen miles from the City Hall. Unless by steam travel it can be brought within twenty or thirty minutes of the City Hall, its settlement becomes impracticable, and all attempts to make it the site of a great city will be futile.

On the contrary, if this steam connection were made, the population which is now crowded in the denser portions of the city, at the rate of 100,000 to the square mile, could, without injury to them, be diminished, and the excess be distributed over this district, and occupy it, at the rate of 20,000 to the square mile, to the obvious advantage of the city and the people, in every respect.

Steam transit is a necessity now for that section of the city which lies between Union square and the Central Park. Still more so will it be for the region which extends northward to Yonkers. The discussions of the last twelve years, on rapid transit, have developed this one fundamental point: that the high cost of construction on practicable plans is the great impediment, and that if three or four longitudinal railroad avenues had been included in the original plan of the city, the present impediments to rapid transit would never have existed. In this respect, the plans which have been heretofore adopted by this Department, have been wholly devoid of any consideration of this necessary condition, and of any attempt to meet it. They have been adapted to the ideas of the eighteenth century, and worked out, as if locomotion by steam had never been discovered, and as if sidewalks and trottoirs were the final result of improvement in that direction.

Within the limits of this city is found the only million of population in the civilized world who are not permitted to travel by steam. The waste of this, in the movement of freight and merchandise, and on the time of every citizen, would show a result, if the calculation were made, that would be startling. On the proposition, that the prosperity of the city depends upon the profitable occupation of its citizens, a saving of this waste

would be one of the most important elements of relief from its burdens, and in regaining its prosperity.

These considerations lead inevitably to the conclusions that, of all the streets and avenues, the supreme importance belongs to the railroad routes that thread through the district and connect it, across the Harlem River, with the lines of rapid transit to City Hall. These railroad routes should be laid out upon the principle of permitting the construction of a surface road, or one through an open cut, of slight depression, at such a grade that intersecting streets and avenues may cross it at an under or over grade. They should be so frequent longitudinally, as to bring every point in the whole area within a quarter of a mile of a station, and have suitable cross connections.

These railroad routes can now be laid out to the greatest advantage. Every proper condition of economical railroad construction can be considered and provided for, and it is obvious that if this district be interlaced with such lines of roads, with proper connection through the lines of rapid transit already established with the City Hall, it would, with its other great natural advantages, distance every other portion of the city, or its other suburbs, in the competition for population. A separate plan of the district, with these railroad routes, will be submitted with this report.

The elevated roads now under construction propose a common centre at the South Ferry, the southern point of the island, and another at the upper end, on the south shore of the Harlem River, between the Third and Eighth avenues. In this vicinity will be found the fit place or places for crossing that river, and connecting there with another rapid transit centre on the north side of the river, from which the lines of rapid transit for the Twenty-third and Twenty-fourth Wards can diverge throughout its territory.

#### XIV.

##### PROVISION FOR PARKS AND PARKWAYS.

The necessity of a proper provision for grounds for public

recreation and its advantages, and the necessity of a present provision for it, were fully set forth in the previous report.

A plan has been carefully worked out upon the ground, and will be ready for presentation.

The features of this plan are, that instead of massing the area devoted to park purposes in one or two places, there will be a distribution of the area in a greater number of places, connected by parkways of sufficient width for the adjacent country to be planted out, so as to preserve the appearance of a park to the persons who walk or drive along them.

This plan can be well illustrated, if we suppose that instead of taking the Central Park in one mass, the same number of acres had been taken in several parks along the banks of the East and North rivers, and on the commanding and picturesque portions of the Central Park, and then had been connected by broad parkways. The quantity of land taken, and the cost, would have been no larger; but the drives would have had five times their present length, and the variety of character and prospect would have been much greater. They could have been designed to include all the points of beauty for which this island is matchless. The effect on the value of property would not have been limited to a border avenue, but would have extended over the whole region.

In the plan which will be presented, parcels of land will be suggested, where the natural beauty of the land or its advantages of situation indicates its appropriateness. These parks will vary in extent. They will be connected by parkways from 200 to 400 feet in width, so as to present the advantages of a large park with every variety of surface, and brought into contact with every portion of the whole region.

The economy of such a plan rests upon the following points.

The advantages which they give to the population will be distributed through the whole territory.

The quantity of land taken will not be above the proper percentage that should be preserved in a city and suburban region of so great natural beauty.

The quantity of land taken for streets and parks on the new plan will not be greater than the quantity taken for streets alone on the old plan.

The effect will be to make the region attractive to population, and to encourage settlement. This is the true and solid condition of prosperity, and of real increase of value.

The increase of value attendant on this improvement will be equally distributed over the whole territory. It will be substantial, and will enlarge the taxable resources of the city.

Even although a large part of this region is regarded as destined to a villa occupation, it is none the less necessary to provide for places of public recreation. It takes but little observation to learn that, in any place in the country, it is the charm of fine drives and accessible points of natural beauty, as the objects of an excursion, that makes the place attractive, and fills it with population.

The uses of these parks will not only be for the people residing in their vicinity, but for the whole city. They will differ from the Central Park in this respect, that, instead of being artificially constructed, they will be located upon points of superior natural beauty and prospect, where the trees are already grown, and the lawns already leveled. They will, therefore, without expense of construction, be fitted for park purposes. They can be left in their natural condition, and be finer places for the recreation and enjoyment of the people than the Central Park can be made to be.

The visitor, then, from the lower part of the city, will be able, by a boat on the Hudson, or on the East River, to reach a park on the water side, or by some line of steam transit, to reach the chain of parks at an interior point, to traverse them if he will, through their whole extent, by park carriages. They can be opened without restriction to all forms of social enjoyment. On the river borders appropriate places can be laid out for boat clubs, for bathing, and all kinds of aquatic amusements and sports. Fit places, too, can be found for excursions, for picnic parties, for ball clubs, for cricket clubs, for croquet, for archery, for pistol and rifle practice, for military parades, society celebrations, and musical festivals. By a proper system of refreshment houses, these could all be made self-sustaining, without material expense to the city for maintenance; and each citizen would find accessible, and at low cost, the enjoyment of

all the natural beauties and advantages which belong to this city, as the finest summer location on the whole continent.

## XV.

### SEWERAGE AND DRAINAGE.

In the preparation of the present plans, on the principles set forth in the report of 30th March, 1875, the subject of sewerage and drainage is receiving consideration in two aspects:

1. For a system of sewerage in every street, when the close settlement of the district shall render it necessary.

2. In the meantime, for a system of open drainage, and a few main sewers, by which the country may be well drained, as if it were an agricultural region, and all proper sanitary conditions may be duly regarded.

The sewerage of the settled portion of the city is so dangerous to health, and so incurably defective, and the new portions may be made so perfect, that this single cause, with rapid transit, will fill the new region with population.

## XVI.

### THE ECONOMY OF PLAN AND CONSTRUCTION IN THE NEW SYSTEM.

The vice of the former system was in the excessive cost of constructing the streets and avenues which were laid out. This is illustrated by the fact that \$47,000,000 dollars of assessments have been imposed on the area between Fifty-ninth and One hundred and fifty-fifth, from the year 1856 to 1875; the effect of which has been ruinous.

The new plans are closely adapted to the topography, and look to a closer economy in this respect. In this point there are three essential conditions:

1. That the cost of constructing the streets and improve-

ments laid out on the plan, should be brought within such limits that the property owners can afford to pay it, on the same principle on which they would undertake it, if each owner was laying out his own land, and made a calculation of its present value, and what its value would be when the improvements were completed.

2. That the improvements should be of such a character in respect to their lines and grades, that the country would not be made unsightly and uninhabitable during the process of construction; for instance, a plan which, over an uneven country, constructs level streets with heavy filling and deep excavations, leaves the land, after it is done, in blocks of inaccessible elevation above, or of deep depression below the surface of the street. The land is, therefore, not ready for immediate occupation, until it also undergoes the process of excavation and filling. This process is very expensive, and cannot be undertaken unless and until an occupation comes to it which is so valuable as to justify the expense. During all the long period while this result is waited for, the land is unhealthful, unsightly, unavailable, unproductive, unfinished and undone.

This situation can be seen on the west and north sides of Central Park.

On the contrary, if the lines and grades conform more nearly to the natural surface, not only is the cost of construction diminished, but the work can be carried on free from these destructive disadvantages; and, as each street is graded, it leaves the land on each side of it fitted for its ultimate occupation. The land is not, during the process of construction, rendered unavailable.

3. That the work can be done so speedily, that the property is not ruined in value.

Apart from the cost of construction, the value of a tract of land which is surveyed and laid out, depends on the time within which the work can be completed. If the character of the plan is such that it cannot be completed for twenty years, then the land will not become productive until the end of that period, and its value at any intermediate point of time, being based upon an estimate of what its value will be when it becomes productive, is proportionately depreciated.



A plan of improvement, therefore, which does not destroy the availability of the property during the progress of the work, and which can be completed within a year or two after it has been commenced, enables the owner to realize the productive value of his property. Its productive occupation is not suspended. A plan which it takes twenty years to complete, will put the period when the work will be completed, and the productive occupation attained, so remote, that the present value of the land is inappreciable. This is the condition of property on this island, west and north of the Central Park, at the present time.

The present plan will save this district from these evils.

## XVII.

### HARLEM RIVER IMPROVEMENT.

The opening and improvement of the Harlem River is of vital consequence to this region, in developing its advantages for commercial and manufacturing purposes, and in that way, increasing its population.

The value of this improvement depends on these elements :

1. The existing fact that the mouth of the river is broad, with deep and spacious water, and banks in every sense adapted for commercial purposes, already accessible by railroad from the whole north-east, north, north-west and west.

2. The opening of Hell Gate, which will connect the Harlem River harbor with the ocean, through the Sound, and make it more accessible for coasting and foreign vessels.

3. The opening of the Harlem River channel to the Hudson River, to connect it with the traffic of that river.

The Third Avenue Bridge across the Harlem River is now, and will be in the future, the centre of the greatest suburban activity and growth within the influence of this metropolitan city. Its exceeding natural advantages for every commercial and business purpose, and its broad areas for manufacturing business, and for inexpensive residences for the working classes, fit it and make it the best location for the results which greater enterprise has already realized in Jersey City, and in the towns and cities of New Jersey, within half an hour's reach of New York.

With the next influx of prosperity, business growth and increase of population, it can rival all other suburban competitors, and be foremost in gathering there everything necessary to make it the great centre that its situation warrants.

There are already movements that lead to this result :

1. The lines of rapid transit up the Third and Eighth avenues.
2. The opening of Hell Gate.
3. The opening of the Harlem River channel to the Hudson River.

It is clear that the place has great present capacities and great future possibilities ; but these will require time and money, and masses of money always move slowly upon public improvements of this character.

The plan of improvements best adapted to the present necessities of the case, must include the things that are warranted now, and those that are in aid of future development. It will not do to rest with the adoption of grand and expensive projects for the future alone. We must work at the things now which facilitate and encourage the growth which will make the ultimate and grander improvements necessary, and justify the expenditures required to accomplish them. For illustration, in making a railroad through a new country of great future possibilities, the right thing to do is, by narrow cuts and temporary bridges, and trestle works, instead of heavy filling, to get the two rails laid and a train running upon them ; then, by the aid of that train, to build up the business of the road and get an income, to demonstrate the advantages and profit of the undertaking, to widen the cuts, to fill up the ravines, to replace the temporary bridges with others of iron and stone, and to lay the double track.

It would be the wrong method to adopt the final features of the plan at the outset, and mile by mile build the road along completely finished as it goes.

If this rule is applied to the Harlem River, its present condition justifies and demands, inexorably, greater facilities for crossing the river by the population already living there, and by the population ready to occupy it.

Bridges to supply this present demand should at once be built, and, if need be, on a temporary plan.

The work of widening and embanking this river, under the action of the United States Government, and from the inherent difficulties, will necessarily be slow. It will be greatly helped by the growth of population and the increase of business along the river banks.

If the ultimate, final, costly plan of crossing the river with tunnels be adopted now, the magnitude and expensiveness of these projects will necessarily delay the beginning of their immediate construction, and impede their completion. Such plans defeat themselves. They are not adapted to the present, and they postpone the future to which they are adapted.

There are now but three public bridges across the river—the iron bridge at Third Avenue, the high wooden bridge at the Eighth Avenue, and Kingsbridge. These are insufficient for the present accommodation of the people. Two more are needed. These are, first, a bridge at the head of Madison Avenue, crossing to One hundred and thirty-eighth Street, on the Westchester side, which is needed as a supplement to the Third Avenue bridge, over which the stream of travel is immense, and which is constantly interrupted by the opening of the draw; and, secondly, an elevated bridge north of the High Bridge, from Tenth Avenue, at One hundred and eighty-first Street, to Fordham Heights.

The construction of these two bridges must be regarded as the right thing to do now. The ultimate plan for the embankment and treatment of the river, and the tunnels under it which may be constructed to give unobstructed navigation, have all been studied out, and the plan is as near completion as it can be, until the final revision at the point of execution.

The construction of these bridges will not defeat that ultimate plan, but will demonstrate its necessity and hasten it. This is the practical thing to do, and the thing that can be done now with an expenditure that the present circumstances justify. The work on these two bridges has advanced as far, in plan and preparation, as it can be done until the expenditure for the construction is authorized.

## XVIII.

## CONTRAST BETWEEN THE NEW SYSTEM AND THE OLD.

The vital question in this discussion is in the contrast between the old plans and the new. The old plan has been fully developed and illustrated on this island below One hundred and fifty-fifth Street, and the facts teach a lesson of decisive and crushing weight, both in respect to the interests of the city and of the property owners.

The year 1865 marked the close of a period of depression, and the opening of a period of prosperity and high prices. The immense influx of population and wealth to the city led to projects for bringing its northern suburbs into occupation. They comprise what is now known as the up-town boulevards and parks. The whole island north and west of the Central Park, including in time the annexed district, was given to this department, with full powers. The plans for this island were characterized by reckless extravagance. Lines for avenues and parks and, what is more important, grades were laid down on paper and adopted, which were supported by and went beyond the most sanguine spirit of speculation. The radical and indefensible vice of these plans was that no previous calculation was made of what they would cost. The result has been what we now see, that with boulevards that have cost \$1,000,000 a mile, the property has been ruined by the load of taxes and assessments, and depressed in value, as low as the lowest stage of war prices.

The country over which these plans were laid, on the west and north sides of this island, was not level, but high in elevation, and marked by rocky eminences and steep declivities. The stimulating effect of these projects led to a large increase in the tax valuations, as stated above in Sec. IX. The assessments made upon one district, that known as the West Side, between Fifty-ninth and One hundred and fifty-fifth streets, between 1860 and 1875, exceeded \$20,000,000. These, with the increase of taxes, imposed a burden on that district exceeding \$8,000,000 a square mile. The property will need an expenditure of half as much more on its present plans to make it ready for occupation. It is obvious that the plan was ruinous. It cost

as much to bring the land into readiness for building as it would to have put buildings on it for an average population. It postponed, for long years, the time when it would be ready for occupation, with a loss of interest during that period which, in itself, was ruinous. In competition with other suburbs of the city, where such plans were not laid down, this district was distanced. When that plan was adopted the ruin of the district became fixed and inevitable. If the cost of the plan had been calculated beforehand, forethought of what we now see might have led to a suitable plan which could have been carried out at less expense.

When these projects came in a few years to be constructed, extravagance of execution naturally followed. The profligacy and corruption of the period from 1869 to 1871 extended over them. The heavy increase of taxes and the enormous burden of assessments was the natural effect of a plan that suggested the ideas and provided the way for it.

## XIX.

### INCREASE OF RESOURCES IS AS IMPORTANT AS DECREASE OF EXPENDITURE.

Notwithstanding the fluctuations of the times, this city has grown, and will continue, taken in long periods, to grow as a metropolis, with tens of thousands of population, and tens of millions of taxable property, year after year. The vital point in the prosperity of the city is to secure this increase of population and wealth, within its own boundaries, and to subject them to its own taxation. During the last ten years 400,000 of population and \$500,000,000 of taxable wealth accruing to the city, have settled upon Long Island and in New Jersey, and become subject to their taxation. During the next ten years, the natural increase must be attracted to settle in the city itself. If this is done, vacant lots up-town, which now pay \$20 taxes, will be built upon, and taxed as houses and lots, and thus pay \$200 taxes, and the \$1,000,000,000 of real estate, now the main resource of the city for taxation, will be increased to \$1,500,000,000, which would effectually relieve the burden. If this is not done, Long Island and New Jersey will be enriched by gathering our increase, the ruin of vacant property

up-town will become complete, and a part of the taxation now thrown upon vacant property up-town must be borne by improved property down-town, and its taxes increased.

The real estate on this island was valued for taxation in 1876

Below Fortieth Street . . . . . \$616,767,450.

Above Fortieth Street . . . . . 275,660,715.

If the natural increase of population is gathered in the vacant regions above Fortieth Street, and those regions are built up, the tax valuations will be increased. This will furnish a larger amount of property on which the taxes are to be raised, and it will diminish the proportion of the whole sum to be paid by the property below Fortieth Street. If, on the contrary, the property above Fortieth Street is left unimproved, and becomes further depressed, the proportion of taxation on the property below Fortieth Street will be increased. The progress of improvements up-town are thus beneficial to the down-town property owners, and they have no other resource for diminishing their taxation.

This leads to an affirmative policy in city improvements. To a limited and moderate extent they should be proceeded with. Some of the new parks and drives which give character and establish value in the suburbs of the city, the bridges over the Harlem River, which facilitate the settlement of a region every way attractive and ready for population, and certain main thoroughfares in the northern district, which are essential to make these districts accessible, should be prosecuted.

They would increase the actual value of property and prepare it for settlement and occupation, even while many of the minor improvements remained uncompleted. When main avenues are opened, and main sewers built, population will begin to settle in a district. The work on the up-town wards, enormously expensive as it has been, is now so near completion in its main outlines, that little is needed to stop the present stagnation and gather the population, as soon as the tide begins to flow. These necessary improvements, and such as a judicious and moderate policy calls for, are very limited in extent. The amounts already expended, by property owners, on street im-

provements in the vacant parts of the city, lie now, as an immense dead capital, ready to be brought into productive use with the first movement of returning prosperity. To this end the city can well afford to contribute by competing its share of these improvements.

Here is encountered the staple objection that the prosecution of these works would increase the public debt. It is conceded that it will, but the extent is comparatively small. The results will be large enough and important enough to warrant the expenditure. It will add millions of dollars to the real taxable value of real estate, and increase the resources of the city for the purposes of taxation. The city has already received from taxation, increased on the strength of these projected improvements, as much as the city has expended on them; and its permanent income is now millions larger because of these improvements.

The growth and prosperity of the city depends upon two general causes; 1st, its relations to the general commerce of the world; and 2d, its attractions as a place of residence. London illustrates the effect of the first of these, and Paris of the second. New York can combine both; its natural advantages for gathering population by attractions for residence are as matchless as its commercial advantages.

The situation of the city as to its commercial advantages is recognized as the finest on the continent, if we do not, on the contrary, voluntarily ruin those advantages. As a site for residence it has the unmatched advantage of being on a coast that runs north and south, with a waterway that brings the produce of all climes in a few hours to its market. Its situation is such that, if it were not a city, it would be the most attractive place, and present the greatest natural beauty as a summer resort, on this continent.

This fixes on us the inevitable duty, in future plans of the city, to do what has been hitherto neglected, to turn these natural advantages to account, and to restore New York to the place for which they fit it, as the summer capital of the country.

It is the province of this Department, and it has been the result of its operations, to enhance and develop the attractions of the city as a place of residence. What has been done in the past is but little compared to what it has to do in the immediate

future. The city's outlying suburbs, comprehended in its system of parks and boulevards, starting with the Central Park, even with extravagant plans and expenditures, have illustrated these advantages. Under an economical administration they will evince how millions of results may be accomplished by the expenditure of thousands. When the recurrent period of prosperity comes, these results will come. It is the policy of the city in economic times to prepare for them ; and no extreme reduction can be more unwise and more injurious to the future of the city, than in the moneys expended on these objects.

The policy of the city for several years past has been contrary to these views in this, that it has been limited to retrenchment, and has discontinued expenditures which have the direct and immediate effect of increasing its resources.

One disastrous effect of this policy has been its depressing effect upon the value of its real estate, from which about four-fifths of its taxes are collected. These are interests which it would be an obvious good policy to strengthen and not to sink, so far as judicious and safe measures could produce that effect. Other interests might have been injured without such injurious results to the city, because other business interests do not pay the taxes. It has also, by the stoppage of the prosecution of the public works, kept employment from its principal laboring classes, who in the end pay the taxes.

The City of Paris, has, within a brief period, recovered under a wise administration from the effects of a mismanagement as profligate and extravagant as the one we endured, and from the disasters and destruction of a siege besides. It presents a history that is worthy of our study. Its mode will be found to be the careful administration and increase of its resources, and a better system of taxation.

## XX.

### CONCLUSION.

The series of plans, therefore, the first of which is presented with this report, are supported by three general considerations :

1. They are adapted to the country proposed to be laid out,



to its natural character, to its ultimate occupation, to the needs of the city, and to the interests of the property owners.

2. They will aid in giving facilities to the commercial business of the city, in furnishing an attractive location for manufacturing business, and for the residences of all classes of citizens, and in supplying profitable labor to them. They will cost but little money, and be more economical than the extravagant projects of the past twenty years.

3. Their immediate prosecution is a measure not only vital to the interests of the property owners themselves, but to the city at large. It will gather the natural growth of the city under its own taxation. It is in conformity with the best interests of the city in its present situation of financial difficulty, and will afford, by increasing its resources, a remedy to escape those difficulties, of unquestionable wisdom and certainty of result.

Respectfully,

WM. R. MARTIN,

*President.*

**DOCUMENT No. 74.**

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**BOARD**

**OF THE**

**Department of Public Parks.**

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**FEBRUARY 28TH, 1877.**

1. Report of Commissioner STEBBINS upon the plans for laying out that part of the Twenty-fourth Ward lying west of Riverdale road.

2. Memorandum prepared by General George S. Greene, Engineer, relating to plans for streets and avenues in the Twenty-fourth Ward, between the Hudson river and the Croton Aqueduct.

Ordered printed as a document of the Board.

**WM. IRWIN,**  
*Secretary, D. P. P.*

*To the Commissioners of the Department  
of Public Parks :*

**GENTLEMEN** :—The work of preparing and laying out a plan of streets in the new territory of the city lying north of Spuyten Duyvil Creek and west of Riverdale avenue, has engaged the attention of the Board for four years or more.

This being the first section of the Westchester district entered upon by the Board in discharge of the duties conferred by the Legislature, it necessarily led to a careful examination of the whole subject in all its bearings.

The first step was to cause a reliable topographical survey and map to be made of the ground. Upon completion of this work, plans were sketched out under the direction of the Board, for the proposed streets, commencing at the Spuyten Duyvil end of the district which presented the greatest topographical difficulties, and extending northwardly, from time to time, until the entire plan was projected.

As these plans came before the Board, notices were sent to the property owners affected, to give them an opportunity to examine the work and to present suggestions and objections, if they had any to offer.

It resulted that a diversity of views prevailed among the property owners, some of which the Board could reasonably entertain, and some it could not without greatly marring the plan as a whole, in its adaptation to controlling public interests.

The objections that were presented related mostly to the position of proposed streets in connection with individual properties small in extent, some were less local and private in character, but the most prominent desire manifested by the property owners was to avoid the laying out of streets in such a way as to cut their grounds into irregular shapes that would involve loss and waste in future subdivisions.

The consideration of the questions that arose consumed much time and retarded the progress of the work, but was beneficial in bringing out a full and thorough knowledge of the diverse requirements of the plan to meet present and prospective

necessities, to adapt the plan in the best manner to the exigencies of topography, and effect the best adjustments as regarded local and general interests.

The Board not only entertained and discussed all these matters, but its members visited the grounds from time to time and made themselves personally acquainted with the most difficult topographical questions.

In this manner the work progressed to a final result, which was a plan that conformed to the mature judgment of the Board, and without sacrificing, in any part, the design, the actuating principle of adapting it to broad and enduring public interests, fortunately met the expressed approval of a large majority of the property owners.

The southern or larger portion of the map was specially acted upon in the Board December 23d, 1873, and its adoption agreed upon.

In the preparation of the plan the Board had the professional services of their Civil Engineers, of large experience, during successive stages of the work.

Mr. Wm. H. Grant, who had previously been several years in the service of the Department, was employed to conduct the topographical survey of the new territory, and upon the completion of that work, which was executed with great accuracy and skill, he was intrusted with the preparation of the plan of the system of new streets.

At an early stage of this latter duty, July, 1872, he submitted, at the request of the Board, a communication embodying briefly the general principles which he deemed applicable to the work in hand.

His previous experience, together with the intimate knowledge he had gained of the topography of the ground in conducting the surveys, and the thorough study he had given the subject, qualified him in no ordinary degree, to mark out the rules and methods for the government of the work.

The following is an abstract of the communication (see Annual Report of the Department of Parks to the Legislature, March 19th, 1873).

*"Outlines of Plan for Laying out the Westchester District."*

"The topography of the ground of the Westchester district is very variable; some portions being low and moderately broken by irregularities of surface, but the larger part being high and rolling, with large areas of ground of too great declivity to admit of easy improvement. These features suggest the future occupation of the lowest and most accessible ground for commercial and manufacturing purposes, and the higher for residences.

"The prominent lines of transit and transportation will pass through the least elevated portions of the territory; such lines should evidently be made commodious and should be interlaced with as many easy and commodious communications with the upland as are practicable.

"The regions destined to be occupied for commercial and manufacturing purposes, it is desirable should be developed by streets and blocks of rectangular forms, so as to give the greatest facilities of communication and for utilizing the ground by compact occupation. The districts occupied for domestic purposes, it is believed, may be judiciously treated, must necessarily, to a large extent, be treated in a different manner, being governed, in this respect, by the exigencies of the topography.

"Such districts, after being subdivided by as many prominent through lines of easy grade as are possible, can best be developed, it is believed, by winding roads of a more rural character, avoiding deep cuttings and fillings and large expense, and conforming to the surface of the country. The divisions and plots of this character to be governed in size by circumstances that may be developed as the work progresses.

"The increased facilities of rapid transit are encouraging a tendency of population to spread into suburban and rural districts and to occupy areas of ground somewhat larger than city lots; and a large portion of this district invites such occupancy.

"The drainage of ground of this character needs to be ample and well studied. \* \* \* \* \*

"The first idea suggested would be whether deep drainage or

sewerage would be expedient, *i. e.*, at the depth ordinarily adopted in cities to drain cellars and basements of dwellings situated immediately on the line of the street. \* \* \*

“For surface and road drainage the plan adopted in Central Park, which has operated efficiently for a number of years, seems well adapted. I think it could be applied to drainage in Westchester successfully, and it is probable that for a number of years to come no other provision would be needed for a considerable part of the district. \* \* \* The re-arrangement of roads and streets, as at present laid out, should be governed by the interest to the property affected and the public interests (the language of the act) and conform, as far as practicable, to a general harmony of plan. Property owners have laid out, and are now laying out, irregular and detached plots of streets that will not conform to a general plan adapted to the public interests.

“Local districts have been improved upon such irregular plans, and much interest is manifested by parties affected about the adoption of the Department of such plans.

“The extent and frequency of streets to be laid out, size of blocks, etc., should be governed by the apparent necessity, in any local districts, for small or large subdivisions. If not laid out in small subdivisions, it will be necessary to study the work with reference to the practicability of the smallest future subdivisions.

“Prominent streets and avenues to be 75 to 100 feet in width; the next class of streets below these to be 60 feet in width, and the least width of any streets (on precipitous or rocky ground) to be 50 feet. Short lanes and passages for drainage or footways, on precipitous ground, to be not less than 30 feet.

“Maximum grades of prominent streets and avenues not to exceed an inclination of one foot in twenty feet of distance. Maximum grades of streets in general, not to exceed one foot in twelve, except in special cases.”

These general principles were considered sound and conservative; no addition was made to them by the Board, and the work proceeded under its approval, in the closest conformity with them that was practicable.

In a later report (3d Annual Report of Department of Parks) Mr. Grant remarks: "The basis of the plan for laying out the Westchester territory, which was outlined in a former report, I have found, as far as progress has since been made, to be adapted, about as nearly as it is practicable that a prearranged system of rules could be, to the varying circumstances and necessity of the work."

During the early progress of the plan in question the late John J. Serrell, a well known civil engineer and surveyor, of large experience in work of this character, was associated with Mr. Grant. In consequence of ill health he was compelled to withdraw before the portion of the plan upon which he was consulted was completed.

At a later stage Gen. George S. Greene, in the service of the Board, reviewed the plan which had been completed by Mr. Grant. Gen. Greene had previously been employed as consulting engineer by the commissioners appointed by the Legislature in the laying out of the plan of the town of Morrisania. He submitted to the Board a draft of a plan which expressed his special views as to changes or variations from Mr. Grant's plan.

Although differing somewhat in details, it will be remarked that these three engineers did not differ in the main principles which had commended themselves to the Board for the guidance of the work. They advanced no novel or ill-considered theories, nor recommended any departure from the usual modes of laying out streets for cities and their suburbs.

Mr. Serrell was inclined to an arrangement of plan that was specially favorable to existing local and private interests, rather than to the more distant or remote conditions of improvement population, &c.

Gen. Greene suggested rather the opposite view; he recommended a greater number of streets and smaller subdivisions of ground, greater width of streets and avenues, and such a location of them, for obtaining directness of lines, as necessitated, where the topography was unfavorable, quite expensive construction.

Mr. Grant's plan, as perfected under the instructions of the Board, was found closely adapted to the topography and the

important requirements of drainage, and was regarded; in other respects, by the Board and the property owners, as a satisfactory mean between the plans of the other two engineers. Having in this manner reached a well-considered and deliberate conclusion, it would have been wise if the Board had then completed its action by filing the plan, and given the people of the district the benefit of a long-desired settlement of the question; this, however, was deferred out of courtesy to a new member, Mr. Wm. R. Martin, to enable him to examine the work. The consequence has been that nearly two years' more delay has occurred, a corps of surveyors and draftsmen has been employed to again go over the ground, and the landscape architect of the department, with a newly appointed engineer, has worked out a new plan, which is now presented for the renewed consideration of the Board.

This plan is professedly designed upon a new principle, and has been prepared without the participation of the Board, and without consultation with the property owners. Its basis is an assumed æsthetic condition that is to apply to the district in question for all time without adaptation to change or modification which circumstances might hereafter render desirable.

The prominent lines of communication, instead of being laid with reference to the greatest directness practicable for convenience and utility, are irregularly warped and curved to suit supposed preferable conditions of rural grace and beauty. In short, the theory is that the entire region covered by the plan, is to be nothing more than an ornamental and isolated appendage to the city, to be occupied in the manner of a private park by a sparse and peculiar class of people, outside of practical municipal regulations, and disconnected from the busy world and all its active and varied pursuits.

Such a theory is so wholly at variance with the views heretofore entertained by the Board, and with the intentions of the law under which its duties have been performed, that criticism seems to be scarcely necessary. Nevertheless, as it assumes material errors and imperfections in the plan heretofore prepared, some of its principal features will be briefly considered and compared with those of the plan which it proposes to supersede.



The new plan submitted to the Board is prefaced by its designers with a labored argument against the rectangular system of streets and blocks, with parallel lines and uniform subdivisions, upon which the city of New York has been built, and the misfortunes and bad reputation which it is assumed have befallen the city in consequence, are dwelt upon at considerable length. Whatever may be the justice or propriety of this, it is in no wise pertinent to the plan which the Board has prepared, as neither the Board or its engineers have ever entertained the idea of forcing a rectangular and uniform plan upon the rugged topography of the region in question.

The plan does not partake of such impracticable characteristics; it does, however, apply the principle of obtaining direct and rectangular streets to as great an extent as the topography will permit. Custom, convenience, and utility in their thousand varying aptitudes and relations have too well established this principle, in business and social intercourse to permit it to be departed from.

The topography in this respect has been carefully consulted and conformed to, so as not to violate judicious economy in construction. This has been the chief problem, not only with reference to the main streets running in northerly and southerly directions, but to subordinate and intersecting streets, so as to locate them as to obtain a proper mean between directness of line, easy grades, facility of drainage and permanent convenience in use, on the one hand, and economy of construction with a prudent adaptation to the improvement of the bordering property on the other.

In accomplishing this, constant regard has been had to the shape of the property affected by the dividing streets, so as not to cut it into gores and impracticable forms for future occupancy, to a greater extent than the topography absolutely demanded. The theory of the new plan strengthened, as supposed irrelevant argument against all rectilinear ideas, leads to the reverse of this treatment, rejects straight and direct lines, whether for main routes, or subordinate ones, and disregards all regularity of form in division of property.

A reference to the two plans will show the contrast between them in these respects, and how successfully the new theory

has been carried out. It will be seen that the streets running in northerly and southerly directions have been bent in and out by the new plan, from their original positions into irregular curves, to such an extent as to turn them into oblique lines, changing their character and blending them into diverging cross streets. The cross streets, if such they may be called, in the new plan, are so increased in obliquity and indirectness as nearly to lose their identity, and intersect the main streets by sharp angles, forming pointed and attenuated strips of ground; especially such streets as connect the wharves and railroad stations of the Hudson river with the interior of the county to the east, are made much more indirect and circuitous than as heretofore laid out.

The ideal system of curves, in place of straight lines, is applied to the whole, with a few slight exceptions.

The result of this gardenesque treatment, as regards the "interest of the property affected," is the utmost irregularity in the divisions of the ground. Although the plots do not differ materially in average area, in the two plans, they differ widely in form. They range generally from five to thirty acres in extent.

In the original plan, they are bounded chiefly by direct lines with few sharp or acute angles, giving compact forms and admitting of subdivision by additional streets, which may hereafter be necessary, or by new property lines, without cutting the ground into impracticable sites for occupation. The streets also conform, to a considerable extent, to the existing division lines of property.

These points formed a part of the original study in preparing the plan; they were in accordance with the urgently expressed views of the property owners, and the Board considered a careful regard to them as obligatory. In the new plan they have been disregarded or subordinated to the curvilinear theory. The divisions of ground are mostly long, narrow, unshapely, and sharply pointed.

The immediate result to the property, upon the laying out of such a plan, would be great confusion in re-adjusting boundaries, and transforming and shifting parcels and titles; next, upon attempting to subdivide plots for future purchasers, a

depreciation of the property would ensue in consequence of the impracticability of utilizing it in an economical manner; innumerable, unshapely and wasteful areas of ground would be rejected, or at best, thrown into a purchase at a merely nominal value.

The designers of the plan in their argument to sustain the curvilinear theory, admit that the "custom of laying down direct lines of streets whenever practicable, is strongly fixed and established, and that the Board cannot depart from it without carefully weighing what is to be gained or lost by doing so;" but they claim that "custom is largely due to the disposition of land owners, to act on the imagination by showing lots, which, as represented on paper, differ in no respect from the most valuable in the city, and thus feed the pernicious propensity which prevails among the ignorant for gambling on small means, under the name of speculation in real estate." They add to this three "specifications" of equal gravity, which are laid down as covering "the weightiest advantages" pertaining to rectilinear streets or roads, viz. :

1st. "That of the comparative ease and simplicity of the business of laying out roads."

2d. "That of the comparative rapidity and convenience with which surveyors' measurements and calculations are made when dealing with straight lines."

3d. "That of the great convenience of a straight line when land is to be divided or described, with a view to sale or mortgage."

They also state in another connection, in substance, that the original plan would not in any considerable part, admit of subdivisions into building sites of the usual form of city real estate (meaning rectangular and equal plots), and that "this may be considered as conclusive testimony that the attempt to lay it out with such a purpose in view, would be impracticable."

Which of these "specifications" and conclusions is the most profound it would be difficult to say. If they were correct,

and embraced all that could be said upon the subject, the science of engineering would be simplified and made easy, and no trouble need be taken in studying out a scheme of streets further than to lay down a series of fanciful and pleasing curves.

The objection made to the original plan, that it does not admit of exactly equal rectangular subdivisions of all the ground, is the only one of these points that need be further noticed. It leads simply to the conclusion that, inasmuch as the topography of the ground rendered it impracticable to obtain absolute regularity in streets, lines, and divisions of property, it was therefore unwise to attempt any approximation to such a result, and that if a general principle could not be applied without some variations, some departures and difficulties, it should not be applied at all, but should rather give way to an opposite style of treatment, of easy adaptation, and subject to no exactions and embarrassing rules.

It is stated that the engineers who had been employed by the Board "well knew, from much experience, the convenience of the ordinary city divisions of real estate, and each plan represents an amount of patient and ingenious study in fitting rectilinear or nearly rectilinear courses to the highly curvilinear contours of the topography, that can be fully appreciated only by those who have some experience in similar tasks."

The authors of the curvilinear plan obviously had no relish for such tasks, and they avoided them successfully by adopting their more facile theory.

The widely differing results of the two modes of proceeding have been sufficiently referred to. The curvilinear and picturesque mode is justified on the ground that the territory to which it is applied is exceptional, and is to retain permanently a suburban character, and that such treatment is necessary to develop it into a highly æsthetic condition. The plan is submitted with distinct admission that it is adapted to no other practical purpose. If the supposition were correct as to the permanent suburban character of the territory, it by no means follows that cutting it up into fanciful shapes by tortuous lines, and avoiding direct and commodious means of access, is essential

to tasteful and appropriate treatment. Referring to the original plan, it will be seen that the divisions of ground are mostly large, and well adapted to conversion into villa sites and to rural embellishments, in large or small areas, to the fullest extent that may be desirable. The plan was well considered in this respect; subordinate streets, not at present necessary, were omitted, so that owners of property could hereafter subdivide it by direct streets or lay it out in winding roads, as circumstances might require.

The aim was to meet present and future requirements in the most judicious manner, by adapting the plan to suburban conditions, to the extent that such conditions might prevail, and fitting it in ground arrangement to the circumstances and necessities of more compact occupation; neither of these objects was sacrificed to the other. The new plan of it fails in inducing an exclusive occupancy of the central district, in accordance with an imaginative æsthetic theory, fails altogether, and admits of no other adaptation.

It cannot be viewed in any other light than that of a hazardous experiment, which has no sanction either in practice or in the intentions of the law which has conferred upon the Board the responsibility of this important work.

Should it be carried out it will prove so detrimental to the interests of the property owners that, sooner or later, it will most assuredly be abandoned, after serious losses and delays have been incurred.

Respectfully submitted,

H. G. STEBBINS,

*Com. D. P. P.*

February 28th, 1877.

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The following memorandum was presented by Commissioner Stebbins as part of his report.

## MEMORANDUM,

PREPARED BY

GENERAL GEORGE S. GREENE, ENGINEER,

RELATING TO PLANS FOR STREETS AND AVENUES IN THE TWENTY-  
FOURTH WARD, BETWEEN THE HUDSON RIVER AND  
THE CROTON AQUEDUCT.

*September, 1875.*

The general principle laid down in Commissioner Martin's report, that the plans for streets in any section should be carefully considered with relation to the economical arrangement of the routes as regards divisions of property, grades, and cost of construction, is indisputably correct. The same view has been taken in every report from the C. and T. Engineer's office, and the principle has been kept in view in all the studies which have been made for routes of roads and the arrangement of systems. (See Documents 45, 61, and 62, D. P. P.)

While no detailed estimate has been made of the actual money cost of construction of each particular road, as planned, careful comparisons of costs of different locations and grades have been made. In fact, the main idea kept in view in the arrangement of the alignment and grade of every one of the principal routes laid down on the maps, has been economy of construction. A careful preliminary study of the topography of a section, by inspection of the very complete and accurate maps in the possession of the Department, and examination of the ground is first made. This gives to the Engineer definite opinions as to the relative feasibility of the various routes. The route which is evidently the best, being selected, it is laid down upon the maps and profiles of the center and side lines made, and practicable grade lines laid down. At all points where any excessive cutting or filling (which are injurious as alike affecting the cost of construction and the accessibility of the adjoining property) occur on the routes thus laid down, those localities

are specially examined as to the practicability of a change of alignment which would lessen the cost of construction without at the same time injuriously affecting the division of property. To make a detailed estimate of the cost of every possible modification of grade or route is entirely unnecessary. The time required for such an exhaustive analysis would be very great, and would be spent to no good purpose, as after the analysis is made the decision must be based as much on a consideration of the affect of each modification on the general system as on its actual money cost. A statement of the mere cost of constructing a section of road will seldom afford any criterion of the benefit to be derived from that road, or furnish a basis of comparison with other roads. A single line may be so located as to cost the least, and yet that location may be most injudicious on account of the excessive expenditure required to make connections with necessary cross streets. So that of two plans for a particular road, the one which is apparently by far the more costly is not unlikely to be very much more economical than the other. It is rarely the case that all the considerations which lead to the adoption of a plan comprising the laying out of a large tract, can be reduced to writing or explained fully to a person who has not studied carefully the whole subject. The plans submitted by the Engineer have been prepared after a thorough examination of the ground and its capabilities, consultations with property owners, and study of the various routes. He will always be ready and willing to present the reasons which have influenced any particular location or arrangement of streets, and to make such further examinations as the Commissioners may desire, and is confident that a critical examination of the plans will show that in their preparation the very principles have been kept carefully in view which the "Report" lays down as necessary to be adhered to, but which it asserts have been disregarded.

The method pursued in laying out the streets in the Twenty-fourth Ward has been as follows :

1. To establish through routes of communication from south to north on such lines as the topography of the region and the tendency of the population show to be most convenient and necessary.

2. To establish subordinate streets as nearly parallel to the first as the nature of the ground will admit; and at such distances apart as experience has shown to be the most advantageous for division of property, and most desired by property owners.

3. To locate main routes of communication east and west, between established centers of population and trade, the direction of these streets being governed almost entirely by topographical considerations.

4. To establish subordinate cross-streets for communication between the longitudinal avenues, for access to property and drainage.

The location of the first and third classes of streets is made with comparative ease. The only questions concerning which differences of opinion can arise between the engineers and the owners of property, are as to the slight modifications of alignment in order to save a few feet of one man's land at the expense of his neighbor, or changes of grade affecting the elevation of the street relative to the property fronting on it. It is imperative that the gradients must be as light as practicable, and so arranged as to admit of proper drainage. In these classes of roads the maximum grade permitted is five feet in one hundred, and the location is made on the route which combines this condition with the least amount of work and the least injury to property.

The consideration of the second and fourth classes of roads brings up the question of the extent of subdivision, which is most beneficial to property. Long established custom in New York has fixed the unit of division of property at one "city lot," 25 by 100 feet, and the aim of every owner of real estate who desires to dispose of his property is now, and has for years been, so to arrange the streets through it, as to give the greatest number of rectangular lots of the above dimensions. In the Twenty-third and Twenty-fourth Wards more than fifty separate properties have been subdivided for sale by the owners, and in almost every case, nearly the whole of each tract has been cut up in this manner, and the streets have been made from 40 to 60 feet wide. This is as true of divisions which have been made within two years, as of those made twenty



years ago. The tendency of the property-owners who desire to sell is therefore evidently toward minute subdivisions, as being the most profitable, and such method of subdivision is insisted upon without regard to locality, both by those who have bought property for speculative purposes, and those who, from want of success in business, are compelled to dispose of their suburban homes. And the correctness of the general principle involved in this tendency is shown by the fact that on the tracts which have been thus subdivided, lots have been sold in large numbers, and many buildings erected and improvements made, while on those tracts in which an attempt has been made to carry out a system of large divisions for villa sites, such as Oloff Park, Hudson Park, and the Lorillard Estate, no improvements have been made at all. It seems, therefore, that small subdivisions attract population, and large ones repel it. If it is the object of the laying out of the Twenty-third and Twenty-fourth Wards to foster the increase of the population there, the divisions of property should be made as small as is compatible with the health and comfort of the residents. The objection to minute subdivisions comes from a few owners of medium sized tracts, who are now under the impression that they will spend their lives on them, and bequeath their estates to their posterity. But if in one of the financial crashes which so often occur, any one of these objectors should become embarrassed, he would be among the foremost in complaining of the adoption of a system of streets which prevented him from disposing of his property to the best advantage. The tendency spoken of, needs to be controlled to a certain extent, so that the public good will not suffer from a too close attention to separate private interests.

The public interests demand that the streets should be continuous, of proper width for health and traffic, and with such gradients that drainage may be practicable, and that travel may not be difficult or dangerous.

Private interests demand that the cost of construction should not be excessive, that access should be given to all individual properties, and that none should be cut up in such a manner as seriously to impair their market value.

It is impossible to determine exactly what proportion of the

land ought to be taken for streets, nor is this of very great importance in itself. The best dimensions of the blocks may be fixed, and this will vary with the purposes for which they are to be used. The width of the streets must depend on the sanitary, business, or æsthetic conditions which must be fulfilled. All of these vary so much in different localities that the economical proportion of street area to the whole will be found to vary considerably, even in districts devoted to the same general purposes. The least distance between streets should be 200 feet. Whenever a region is likely, either from its position or its topography, to become thickly built upon, this distance should not be exceeded much. Whenever the topographical features or the position away from direct routes of travel are such as to render close settlement unlikely, the distance between streets should be increased, but not as a general rule to exceed 500 feet. In such close proximity to the city, larger areas than will thus be provided for residences are undesirable, being useless for cultivation and too costly to maintain solely as lawns and pleasure grounds. The number of country places between the Harlem river and Yonkers, in which as much as five acres is maintained in lawn and garden, is very small even now.

The region to be laid out, lying in ridges which run north and south, the greatest area is made accessible at the least cost by having the greater number of streets following the course of the ridges, with cross streets as seldom as convenience will permit.

For the width of the longitudinal streets, 80 feet is generally taken. A few are made 100 feet wide on routes which must eventually, and probably will soon become great thoroughfares. For some subordinate longitudinal streets 60 feet width is adopted, and the same for most of the transverse streets. No street should be of less width than this.

The general width of 80 feet is selected principally for the purpose of making the district attractive by the beauty of the streets. It is not intended that such streets should be graded and worked to their full width, but that with a roadway of convenient width (say 30 feet), with wide side walks planted with trees and with grassy slopes bordering them, the contracted and stifling effect of narrow streets bounded by the high retaining walls which are inseparable from a precipitous region like this,

may be avoided. The cost of land, construction and maintenance of a wide road thus worked, is no greater than that of a narrow one worked to its full width.

As regards benefit to property ; for business purposes, and ordinary dwellings, the length of frontage is principally considered, and the value per foot of front is greater on a street of such width that plenty of light and air can be had, and traffic will be unobstructed, than it is on a narrower one. For villa residences the value of "plots" is not affected by a slight difference of depth, but is very seriously damaged by a narrow, unsightly or inconvenient road in front of the property. A wide road adds to the value of the plat, in consequence of its greater attractiveness, much more than the worth of the few square feet which would be added to its area by making the street narrow. A very good example of the superior attractiveness of wide streets may be seen in the upper portion of Yonkers, by comparing North Broadway, which is 66 feet wide, with Warburton, Palisade and Locust Hill avenues, which are 50 feet wide. Streets originally made narrow in such a region must eventually be widened, and the cost of such widening is enormous, whereas the additional expense of making them of proper width at first is exceedingly slight. It is of the greatest importance to the future of this region that the plans made now should present a comprehensive system of laying out adapted to the economic and sanitary needs of the district in the remote future, as well as at the present time. Most of the streets now projected need not be worked for many years, but the routes and grades which they should follow when they are needed, should be established now, when it can be done on correct principles.

The filing of a map of streets can work no possible injury to any property, but will on the contrary give the owners an assurance that certain parts of their lands will not be disturbed by any rashly projected so-called improvements, and will enable them to build or sell with confidence in the permanence of the system.

As regards the danger that they will be ruined by assessments, it does not seem to be as probable that the Department of Parks will open and work streets against the wishes of the

residents of the district, as that owners of land will design and lay out streets impracticable, inharmonious with any general system, and detrimental to the public good, if no general plan is now adopted.

The following table shows that the proportion of the total area taken for streets in the plans submitted to the Board for the Twenty-fourth Ward, is less than in that part of the city below 155th street, and also that the linear feet of streets per acre is less.

Acres.	LOCALITY.	Percentage of Area taken for Streets.	Lin. ft. of Street per Acre.	Average Width of Streets.
6,265 acres.	From 34th to 125th Street and 1st Avenue to Hudson river, as laid out by Commissioners of 1807.....	32.	188.	74.15
1,484 "	From 34th to 125th Street between 3d and 5th Avenues, as modified by introduction of Lexington and Madison Avenues.....	36.8	212.8	75.33
3,058 "	"West side," 59th to 155th Street and 5th Avenue to river, inclusive of Central Park.....	34.6	186.7	80.95
1,816 "	Fort Washington district, 155th Street to Inwood Street, as laid out by Commissioners of Central Park in 1866-1870.....	24.9	121.2	89.45
651 "	Inwood district, north of Inwood and Dyckman Streets, as laid out by Commissioners of Central Park in 1866-1870.....	27.9	146.2	81.45
2,729 "	Morrisania, laid out by commissioners of property owners in 1868.....	26.1	184.7	61.65
	PROPOSED PLANS 24TH WARD.			
1,057 "	Spuyten Duyvil and Riverdale.....	25.6	142.	78.56
670 "	Between Riverdale Avenue and Broadway.....	28.9	158.8	79.32
973 "	Between Broadway and Croton Aqueduct.....	28.1	154.4	79.26
793 "	Between Harlem river and Croton Aqueduct (Fordham Heights). . . .	27.2	174.1	68.08
3,498 acres,	Total .....Average..	27.6	156.	76.00

The plan of 1807 was an effort to reduce everything to an uniform system of 25x100 lots, with too few longitudinal avenues.

The modification between Third and Fifth avenues, in remedying this defect absorbed an unnecessary proportion of the land for streets.

In the plans adopted by the Central Park Commissioners, north of 155th street, the "villa site" system is carried to an extreme point, and on the elevated plateau east of the Kingsbridge road, below Fort George, and on the plateau north of Inwood street, along the Harlem river, an attempt to retain the existing avenues and to make larger lots by obliterating some of the cross streets led to some inconvenience to persons who had purchased under the former division of lots. The result of the changes made then in the plan is that several applications for finer subdivisions have been made, and there is reason to believe that eventually a larger proportion of the area will be taken for streets than under the rectangular system of 1807.

The plan of Morrisania, based in great measure on the divisions already made by property-owners, which the commissioners of 1868 felt themselves compelled to adopt in order to avoid too great damage to existing property, illustrates the effect of the real estate dealer's idea of making the most of a tract by having streets as narrow as possible. Out of the 95½ miles of streets laid out, 28 miles, or 30 per cent., are less than 60 feet wide, and only 19 miles are more than 60 feet in width. The result of this is that now many applications are made for the widening of streets, the residents finding them to be too narrow.

Most of the opened streets of Morrisania, and those in Tremont and Fordham, need only be looked at in their present state to show the inexpediency of laying out narrow streets.

In the plans for the Twenty-fourth Ward, an effort has been made to avoid both extremes.

In the Spuyten Duyvil and Riverdale District, which commands river views and is elevated, the streets are so planned that access to the district can be had from the city by a wide avenue with easy grades, that every property can be reached,

and is capable of division into plots of a size suitable for suburban residences. No existing houses are interfered with nor are eligible building sites occupied by streets. With the exception of Riverdale avenue, the routes of through travel are 80 feet wide and from 300 to 500 feet apart.

The district next adjoining this on the east, and lying between Riverdale Avenue and Broadway, is, for the most part, very broken and uneven; it contains the highest ground within the city limits, but very little of it affords sites from which the Hudson River can be seen. Some fine inland views are obtainable, however. An admirable route for a central avenue, eighty feet wide, is found through this district; the property is not so desirable for large villa sites as that west of Riverdale Avenue, and for this reason, and in accordance with the wishes of the owners of the greater portion of the property, the size of the plots is rather smaller. To obtain practicable grades economically, the roads are very winding, and the work required on them is light. It is believed that the more closely the plan for this section is examined on the ground, the more will it appear to be thoroughly adapted to the improvement of the property. The next section between Broadway and the Croton Aqueduct embraces a large area of the level country through which run the main roads from New York to Yonkers and the south-western part of Westchester County, and a railroad, now partly constructed, the Hudson River Railroad, and Spuyten Duyvil Creek, bound the section on the south; and on the east lies a range of hills affording fine sites for residences. The system proposed for the flat lands comprises 100 feet and 80 feet avenues for northward travel, with blocks 200 feet deep, and cross streets as often as transverse communication is needed. Tibbetts' Brook which traverses the district in its entire length, is treated in such a manner as to beautify as well as benefit the country along its banks by causing it to flow through a strip 350 feet wide, reserved for park treatment, with avenues on each side; such a strip is of unspeakable value in a locality which, like this, is destined to be thickly built up, by serving as a protection against the spread of fire. By keeping the natural watercourse open, the subsoil drainage of the adjacent region is insured. By this mode of treatment the lower

part of the valley of Tibbetts' Brook can be converted into a tide-water canal, with wharf room on each side whenever the commercial interests of the district may require it. The hill sides on the north and east of this district are laid out with an eye to their occupation by residences of a suburban villa type.

The Fordham Heights District, between the Harlem River and the Croton Aqueduct is laid out in accordance with the expressed wishes of most of the owners of the land, chiefly in blocks of 200 feet width, and varying in length. The proximity of this region to the city, and the ease of access by railroads and steamboats, combined with the beauty of the views obtainable, will, it is thought, make the property here much sought after by persons who desire plots of from one-fourth acre to one acre. For such places this plateau is admirably adapted, and the roads planned furnish access from the river by easy grades, and will not require heavy work. Access will also be had to this district by the Suspension Bridge, at 181st street.

Any estimate of the cost of the improvements proposed must necessarily be only approximate, but it may be well to examine what will be the probable ultimate expense to the property of carrying out the plans which are suggested.

The items of expense will be :

1. The opening of streets.
2. Their regulating and grading.
3. Curb and gutter, and flagging.
4. Paving the roadway.
5. Sewering.

#### 1. STREET OPENINGS.

The expense here consists of the amount awarded for damages, and value of land taken, and of the fees and costs of commissioners, surveyors, &c. Inasmuch as the land to be taken here is valuable chiefly for the purpose of affording access to property, the damages awarded will probably be very light; to provide against contingencies, however, the cost of

the land taken is assumed at 10 cents per square foot, and the costs of surveys and proceedings at \$1.50 per lineal foot of street opened. In any case where a street is opened, which is more than a mile in length, one-half of the cost is assessed on the city, leaving only one-half to be assessed on the property benefited.

On this basis the cost of opening streets will be, for each city lot (25x100), of the land left :

In Morrisania .....	\$82 51
Spuyten Duyvil and Riverdale.....	64 06
From Riverdale Ave. to Broadway.....	71 20
From Broadway to Croton Aqueduct.....	78 42
Fordham Heights Section.....	78 38

## 2. GRADING AND REGULATING.

The cost of grading is estimated at liberal prices, based on a careful comparison of the amount of work required, with detailed estimates of several streets, which have been computed. If all of the streets planned are graded to their full width, the cost to the area left for occupation will be, *per city lot* :

In the Spuyten Duyvil and Riverdale Dist...\$137 63
Between Riverdale Ave. and Broadway..... 162 69
“ Broadway and the Croton Aqueduct. 158 69
Fordham Heights District..... 149 54

If the plan suggested above, of grading certain wide streets for a portion of their width, with side slopes, be adopted, the cost of grading will be, *per city lot* :

Spuyten Duyvil and Riverdale .....	\$90 56
Riverdale avenue to Broadway .....	90 77
Broadway to Croton Aqueduct .....	107 16
Fordham Heights.....	69 40



## 3. CURBING AND FLAGGING SIDEWALKS.

The setting of curb stones, and laying a four-foot flagging on the sidewalks will cost, per city lot :

Spuyten Duyvil and Riverdale .....	\$52 00
Riverdale Ave. to Broadway .....	60 89
Broadway to Croton Aqueduct .....	59 51
Fordham Heights .....	65 20

## 4. PAVING.

For paving the carriage-way of all streets with trap block, or Belgian pavement, the roadway being made one-half the width of the street, the cost will be, per city lot :

Spuyten Duyvil and Riverdale .....	\$113 35
Riverdale Avenue to Broadway .....	127 14
Broadway to Croton Aqueduct .....	123 98
Fordham Heights .....	115 79

If certain wide streets are worked of less width, as suggested above, the cost of paving will be, per *city lot* :

Spuyten Duyvil and Riverdale .....	\$88 79
Riverdale Avenue to Broadway .....	106 09
Broadway to Croton Aqueduct .....	110 03
Fordham Heights .....	95 84

## 5. SEWERS.

The complete sewerage of the whole region will cost, per city lot :

In Morrisania .....	\$209 40
Spuyten Duyvil and Riverdale .....	159 84
Riverdale Avenue to Broadway .....	187 14
Broadway to Croton Aqueduct .....	182 92
Fordham Heights .....	200 41

The assessments for all improvements will therefore be on the property left, as follows, per city lot (25×100) :

District.	Streets worked full width.	Wide sts. worked from part of their width with side slope.
Spyten Duyvil and Riverdale, west of Riverdale avenue.	\$526 88	\$425 25
Riverdale Avenue to Broadway.....	609 06	516 09
Broadway to Croton Aqueduct.....	603 52	538 04
Fordham Heights.....	609 32	509 23
Averages.....	\$582 00	\$492 14

These estimates have been made on an exceedingly liberal basis.

They show that there need be no apprehension that the property in the Twenty-third and Twenty-fourth Wards will be ruined by improvements made on the plans proposed by the engineer, provided that the improvements are so managed by the Department, as to keep pace with, and not be too far in advance of the needs of the region. The assessments for opening and working roads will not exceed \$150 to \$230 per lot, on the property which will thus be rendered accessible and habitable, and will therefore acquire, what it has not now, a market value. Further improvements should only be made as desired by the owners, and, when seen by the Department, which has sole control of these matters, to be necessary. In conclusion, as a summary of the matter, examination of the plans shows :

1. While specific estimates of cost in each particular location have not been made, economy of location has everywhere been studied.
2. The roads are laid with particular care to adapt them to the surface and give access to all property.
3. There are not too many streets laid out, nor is the property too finely subdivided.

4. The whole of the region is not adapted to "villa sites," and any attempt to treat it solely as such would repel, instead of attracting purchasers.

5. The cost of the streets and roads proposed is not excessive, nor greater than the increase of valuation which will at once accrue from the improvements, beginning with \$150 per lot for putting the land in position to be occupied, and ending with \$492 per lot for graded, paved and sewerred streets.

6. The roads proposed will cost, on an average, \$210,000 per mile for land, grading, paving and sewerred complete.

The most expensive road is estimated to cost not exceeding \$350,000 per mile.

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