

COMMUNICATION

TO THE

COMMISSIONERS OF THE CENTRAL PARK,

RELATIVE TO THE

IMPROVEMENT OF THE SIXTH AND SEVENTH AVENUES, FROM
THE CENTRAL PARK TO THE HARLEM RIVER; THE
LAYING OUT OF THE ISLAND ABOVE 155TH STREET;
THE DRIVE FROM 59TH ST. TO 155TH ST.,
AND OTHER SUBJECTS.

BY

ANDREW H. GREEN,

Comptroller of the Park.



NEW YORK:

WM. C. BRYANT & CO., PRINTERS, 41 NASSAU STREET, CORNER OF LIBERTY.

1866.

TO THE BOARD OF COMMISSIONERS OF THE CENTRAL
PARK:

The Legislature of the State, at its last session, conferred powers and imposed duties upon the Commissioners of the Central Park, respecting territory within the city of New York, outside of the limits of the Park, that are both responsible in character and difficult of execution. The subjects comprehended in this Legislation, are

1. The changing of the grade of more than a mile and a half of the 8th avenue, from 59th to 93d streets.
2. The improvement of the 6th and 7th avenues, from the Park to the Harlem river, making together over four miles in length of way.
3. The laying out of the streets and roads, public squares and places on that part of the Island above 155th street, and a drive from that street to the intersection of 59th street and 8th avenue, a distance of over five miles.

In July last, the Board disposed of the first of these subjects, that of changing the grade of the 8th avenue, by approving the grade as provided by the

law from 83d to 93d streets, and as amended by the consent of the majority of owners of fronts on the opposite side of the 8th avenue, between 81st and 83d streets; by establishing a grade from 77th to 81st street, between the Park and Manhattan square, by approving the grade prescribed by the law, from 72d to 77th street, and by rejecting the grade indicated in the law, from 59th to 72d street.

At a subsequent date, the Board, by consent of the owners of a majority of the lineal feet of the opposite fronts on the west side of the 8th avenue, established a grade somewhat differing from that proposed by the law, between 59th and 69th streets, and between 75th and 79th streets. A profile of these grades as finally adopted by the Board, has, as required by law, been filed in the Street Commissioner's office.

The result of this action will undoubtedly improve the avenue, at a large expense to the city. The outlay from the Park fund required to reshape its border along the entire length of the change of grade, at some points involving important alterations in the surface of the Park, will also be very considerable, and with all this additional outlay it will not be practicable to produce as agreeable effects on the west boundary of the Park as now exist there.

In consequence of this change of grade, the larger portion of the wall now constructed along the 8th avenue must be taken down and rebuilt, and when the grades of the transverse roads are adapted to those

of the avenue they will be somewhat less convenient than at present.

It is not in the power of this Board to determine when this work shall be completed, as its execution is committed to the Street Commissioner; it is very desirable that it should proceed without delay.

As to the second of the above enumerated subjects, the improvement of the 6th and 7th avenues, matters at this date stand thus:

The necessary petition to the Court for widening 6th avenue has been signed, and is now in the hands of the Corporation Counsel, to take the proper measures for opening the avenue of the proposed additional width; until the report of the Commissioners is prepared this Board will probably have no further duty to perform respecting it.

With regard to the 7th avenue, public notice to owners interested has been given in the newspapers of a proposed change of grade of the avenue from 110th street to 135th street, and of fixing the grade from 135th street to the Harlem river. The grade of the avenue was, several years since, established up to 135th street, beyond that no grade had ever been fixed.

Where the grade is fixed, the law seems to require the assent of two-thirds of the owners of frontage on the avenue to change it.

As the grade is susceptible of improvement, without much additional expense, it was thought best to take the necessary proceedings to effect the requisite change.

After diligent efforts, the necessary assent of two-thirds of the owners interested was obtained, in such form as to authorize the Board to modify the grade as shown by the map herewith submitted, or in such other form as it may deem best. Notice has been given to occupants of the avenue to remove their fences and plantations from the ground of the avenue.

Having acted upon this question of grade, the next thing is to determine the character of the surface of the avenue and upon the method of its improvement.

Three plans, numbered 1, 2, 3, are submitted herewith, each indicating a method of surface improvement differing from the other. On the adoption of a plan for this improvement, the mode of sewerage, the laying of the gas and water pipes, and the actual grading of the avenue will be in order.

A very heavy rock cut, at the north end of the avenue, extending more than half a mile, and of a depth of from one to forty feet, will necessarily render the work of grading the avenue very expensive.

There has been some question as to the depth that this rock cutting should be done; an elevated grade at this point of the avenue will be much less costly, but it is believed the lower grade will better subserve the convenience of travel, add to the appearance of the avenue and be much better adapted to the situation of the adjacent property.

On the lower grade, the excavation will amount to about 465,000 cubic yards, of which 308,000 will be of rock and 147,000 of earth—the higher grade will

involve 101,000 yards less excavation, the most of which is rock.

The work must, it seems by the law, be done by contract and let to the lowest bidder after public notice—a method of doing the work which may lead to delays and inconveniences that cannot be, by any written stipulations well guarded against, especially if any unreliable contractor, or one who would purposely make trouble, should get the work. It would perhaps be well for the Board to consider the propriety of obtaining an amendment to the existing law, so that it shall not, in this work, be strictly confined in awarding the contract to the lowest bidder, but be left free to do the work partly by contract, and partly by days' work, as circumstances may determine to be best.

Some years since a plan for improving this avenue (No. 1) was laid before the Board, and has, from time to time been examined by property owners along its line. It contemplates a bridle-road or horse-back ride of thirty feet in width through the centre of the avenue.

It may be questioned whether such a ride, which, to be at all agreeable, must be made of soft and yielding material, is well adapted to the peculiar circumstances of this avenue, being intersected as it is at every 200 feet by cross streets. These crossings must be of material sufficiently hard to sustain the heavy traffic passing from one side of the city to the other. If the road is completed on this plan, it will present a

space of 60 or 100 feet, according to the width of the cross street, of hard material, followed by 200 feet of soft material, an alternation, it is believed, that will not be agreeable either to rider or horse. It is especially desirable that a bridle-road should be so arranged as to admit of rapid riding without danger. It would be difficult to obtain this characteristic in a road crossed at intervals of 200 feet by vehicles of all sorts and by the passage of pedestrians. The writer recollects no prominent instance of a road of this sort so frequently intersected by lines of cross travel.

In the freedom from danger of collision, lies much of the satisfaction of a ride on horseback; the contrast is easily seen by a rider as he leaves the 5th avenue and enters upon the Ride of the Park, which, for miles, is unimpeded by intersecting travel.

Instead of a bridle-road, a space of 20 feet through the centre of the avenue might be occupied by a grass plot or shrubbery; both of these arrangements however are objectionable, because they tend to limit the carriage accommodations of the street; they obstruct, under the best treatment, to a certain extent the facilities for those passing recognitions by the occupants of carriages going in the same or different directions that add so much to a city pleasure drive. The rows of trees placed in the centre of the avenue will add much to its beauty, and will furnish shade in one-third the number of years that will be required if the trees are confined to two lines, one at each curb. Either of these modes of arranging the avenue

will be quite likely to result in the carriages going forth, taking one side of the avenue and those returning, the other—the two being separated by the trees and the bridle-road or green, and while, by pruning the branches for a sufficient height from the ground, opportunity could be given to see across, yet the distance would be too considerable to admit of ready recognitions by persons travelling in different directions.

Such an arrangement limits the carriageway much more than the actual width of the road or green, because, in practice, carriages do not generally drive quite up to the curb, but keep off a sufficient distance for safety ; any fixed structure, such as a post or monument in a street, not only occupies its own space, but a space on all sides of it is rendered unavailable by the universal disposition of drivers to allow a sufficient distance to ensure safety. Practically, a street 40 feet wide will not accommodate more than three lines of carriages when moving at a tolerable rate of speed, though five lines of carriages, standing still or driving slowly, can be accommodated in its width.

The 7th avenue is established by law (the Board having no discretion on the subject of the width of the avenue) 150 feet in width ; Broadway, below Grace Church, is about 80 feet in width, the carriage way varying, but being about 40 feet.

The ordinances of the Corporation allot, in streets of 60 feet wide, 15 feet on each side for a sidewalk,

leaving a carriage way of 30 feet, in streets of 100 feet in width, sidewalks of 20 feet wide on each side, leaving the carriage way 60 feet; and in streets of over 100 feet in width the sidewalks are restricted to 22 feet.

The ordinances also provide that cellar doors shall not be constructed which extend more than one-twelfth part of any street, or more than five feet into any street, or stoops or steps extending more than one-tenth the width of any street, nor more than seven feet.

In the 5th avenue the court yard, steps, stoops, &c., occupy 30 feet, or nearly one-third of the whole width of the street, so that a public way of 100 feet in width has been reduced to 70 feet for all classes of travel, and if other obstructions, such as lamp posts, hydrants and trees are taken into account, it is reduced to 65 feet in width for side walks and carriageway. Now why is so much land taken from private owners at great expense for a public thoroughfare, and then, immediately allowed to be occupied by private structures that obstruct and preclude its being used as a thoroughfare? why take and pay for 100 feet, and immediately proceed to donate one-third of it to private parties? why not as well originally take but two-thirds of the land and forbid the use of any of it by private owners?

In improving this avenue, there is an opportunity to effect a reformation in this most objectionable practice, that has become well nigh universal. As-

suming that the Board has the power, might it not, with propriety, preserve the whole width of the avenue for public use? Perhaps such an innovation upon the established custom of the city in this respect would not be favorably regarded, and might be opposed by property owners. It may be urged that if owners are allowed to place their stoops, steps, areas, bay-windows, &c., in the street, it does much to ensure an even, uniform building line for the fronts of houses, and that if each proprietor were required to build his steps &c. on his own ground instead of in the street, the diversity of these appendages to the houses would probably result in an irregular appearance of the house fronts on the street; as they are not built very high, the light and air of the street are not much interfered with by them, though the way of street is. There is, however, now no law requiring one to build the front of his house precisely on the street line; it may be set back any distance on the lot. Custom and appearance, and the desire to make the most of the lot, generally induces the occupancy of the ground up to the building line, and so it would be if these appendages were built on the lot instead of the street.

This disposition of private owners to encroach on the public domain had some justification in times when cities were places of refuge, confined by encircling walls, within which populations sought refuge from nomadic hordes that ravaged the adjacent country. Every foot of space within the costly de-

fensive walls was required, narrow streets were the consequence, and even the small space comprised in the limits of the streets was encroached on by private dwellings. The brief accounts that remain of the internal economy of ancient cities, show that the dispositions of private persons to encroach on the public streets was much the same as at present.

In ancient Athens the streets were crooked and narrow; a stranger, says Dicæarchus, suddenly viewing the city for the first time, might doubt whether it was, in reality, the city of the Athenians. The upper stories of the houses frequently projected over the streets; stairs, balustrades, and doors opening outwards, narrowed the path. Themistocles and Aristides, in co-operation with the Areopagus, effected nothing further than to cause that projections should no longer be built over or into the streets, and this regulation was maintained in later times. The propositions of Hippeas and Iphiciades, for taking down such parts of buildings as projected over or into the public streets, were not carried into execution, because their object was believed to be not the improvement and embellishment of the streets, but extortion. The narrow and crooked streets of Rome were still more confined above, by projecting open balconies from the upper stories of the houses called *Maeniana*, from *Maenius*, who invented them to accommodate the spectators of the processions in the streets below.

This subject should be carefully considered before

deciding upon the plan of the avenue, as the conclusions of the Board in this case, may be a guide for its action respecting streets and avenues to be hereafter laid out.

If the bridle-road, trees and grass, are omitted from the centre of the avenue, the question arises as to the width to be devoted to the carriage-way, to the sidewalks, to the court-yards, steps, stoops, &c.

If we allow eighty feet for a carriage-way, twenty feet for each sidewalk, and fifteen feet for court-yards on each side, the whole one hundred and fifty feet will be taken up. This arrangement is shown on plan No. 2.

If the grass space between the carriage-ways, and two rows of trees remain, we can save much in space by preventing stoops, steps, &c., from intruding at all within the limits of the 150 feet in width, as shown by plan No. 3. Other suggestions varying the detail of the plan can better be shown in drawing.

Something of the effect of setting back the houses from the street line may be seen in the 4th avenue, between 18th and 19th streets, where the houses stand back about 50 feet from the avenue. London Terrace, in 23d street, affords another example of the same style of improvement. A clumsy effort at adorning an avenue by trees and shrubbery in its centre may be seen in the 4th avenue, on Murray Hill, between 39th and 40th streets. In this case, the plan was to have the sidewalks 22 feet wide each; the carriage-ways 28 feet each; and the plat 40 feet

in width, in executing it, these dimensions were somewhat changed. No one can look at this without observing the cramped and unsatisfactory aspect it gives to the carriage-road. This would be, to some extent, lessened by omitting the iron and stone fence that encloses the shrubbery in the avenue.

In my judgment, the sidewalks should not (which ever plan be adopted) be reduced below 20 feet in width: 30 feet would be better. This avenue is likely to form part of the great drive of the city, it is important that special conveniences be given to the drive-way, that it be spacious and convenient, and wear as much of a rural aspect as is practicable.

To facilitate comparison, a few examples of the width and mode of laying out the streets of other cities are given.

The Avenue de l'Imperatrice, leading to the Bois de Boulogne, is bordered by continuous gardens; inside are carriage-roads, and beyond, gardens and alleys. Its width, 429 feet, comprises the following ways:

Carriage-way.....	50 feet.
Footpath, on one side.....	36 "
Horsepath, on the other side.....	36 "
Grass and shrubbery.....	87 "
" " 	87 "
(Iron Railing.)	
2 small streets, on each side of which four sidewalks are 20 feet.....	16 "
(Iron Railing.)	
To line of houses.....	36 "
" " 	36 "
Total.....	429 "

The width of the Avenue Neuilly is.....	231 feet.
“ “ Avenue Vincennes	231 “
“ “ new and fashionable Boule- vard Malsherbes.....	165 “

The older Boulevards vary much in width, but nowhere are they less than the preceding.

It would be interesting, did space allow, to examine the history of the modes of use of streets in cities; they change as population increases. Streets were first made without any division into the carriage-ways and foot-walks, and were used by men and animals of burden, without any distinction. There are to-day, in many cities of Europe, streets having no sidewalks, and the foot passenger finds his way among the beasts and the filth of the kennel.

The dangers and inconveniences of this indiscriminate mixture of travel when carriages were introduced, led to a distribution of travel and traffic. To beasts of burden and vehicles were allotted one line of the way, and to pedestrians another, and finally in crowded streets, as in Broadway to-day, pedestrians, for convenience, arrange themselves in currents of travel, those going one way taking one side of the walk and those going the other taking the other side of the same walk. Travel has thus arranged itself into the highest degree of convenience.

Less than two centuries since the streets of London, if paved at all, were so imperfectly paved that the occasional wheeled carriage that passed through them was very likely to get fixed in the mire. From a

mutual intention to avoid the mud thrown towards the foot passage, quarrels often arose between pedestrians as to which should "take the wall" or the side of the walk most remote from the carriage way. Efforts to avoid exposure to the contents of the gutter gave rise to the still existing custom of giving to ladies the inside of the walk.

The sewerage of the avenue, as the law stands, it is claimed, is under the jurisdiction of the Croton Board. The width of the avenue will require two lines of sewer pipe, and as but few of the main sewers to the river in the cross streets are yet constructed, the question of disposing of the sewerage and surface water will for a long time be a troublesome one.

The formation and material of the surface of the road-way and walks is also a specially interesting question. A road-way of gravel somewhat similar to the Park roads or of some pleasant material for travel will be preferred by the public, but it must be remembered that it will not be practicable to exclude from this avenue the heavy traffic that will, during the process of excavating cellars and building up this neighborhood, take the best road to be found; nor after it is built up will it be practicable to exclude heavy teams with supplies for the residents, or crossing the city. This will necessitate ultimately a road more compact and capable of sustaining the wear and tear of the ordinary traffic to which our streets are subjected. In an unbuilt neighbourhood the first street opened for use

is, before it is thoroughly settled, required to sustain the haulage of the materials of filling and excavation and of timber, brick, &c., for building, and the result of this is that the superstructure of the street is ruined before the vicinity is fairly populated. Whatever road surface may now be adopted, it is probable that but few years will pass before a thoroughly well-built macadamized or Telford carriage way, completely drained, or a pavement will be required. The Rue Neuve des Petits Champs of Paris, is being constructed with a surface of asphaltic composition which is said to operate very well, but is too expensive for general use. Sidewalks are also there made of asphalt: whether this material will prove favorable in our climate is not yet fully determined, though experiments have been made. Although this material has been tried in this country, it might be well, before the roadway is made, that further enquiry be made as to its adaptation to this climate; there is abundant time for it before the excavation and filling for the roadway is completed.

The Nicholson pavement, composed of asphalt or coal tar, gravel and wood, has been, for several years, tried in Chicago on some of the most severely traveled streets and found to operate favorably. It is very durable, noiseless, pleasant for the foot of the horse, and said to be easily repaired; but the result of previous experiments with wood pavements in this city, renders it very doubtful whether any pavement of this character will succeed on the climate and soil of

this island. The order of the whole work should be such as to ensure the introduction of the gas and water pipes at a stage that will render the upturning of the streets unnecessary in the process of laying them. Much thought has been given to the investigation of these subjects, not only with especial reference to the appearance of the avenue, but because the plan to be adopted for it has close relations with the drainage and improvement of a large portion of adjacent territory.

The last of the topics above enumerated, to wit: the laying out of the streets on that part of the Island above 155th Street, and a drive from that street down to the intersection of 59th Street with 8th Avenue involves difficulties and responsibilities that can only be fully comprehended after a thorough examination of the subject in all its bearings.

This part of the Island is $3\frac{2}{3}$ miles in length and of an average width of about three-fourths of a mile. Its greatest width is just south of Spuyten Duyvil Creek, being there one mile wide. The narrowest part, a quarter of a mile, is at the extreme north end of the Island, near Kings Bridge. It comprises 1,700 acres of land, being a little more than double the area of the Park, and is bounded by 155th Street on the south, by the Hudson River on the west, the Harlem River on the east, and by Spuyten Duyvil Creek on the north—the length of shore line washed by tidal waters is about nine miles and three-

quarters, and the distance from river to river along 155th Street about 4,700 feet.

The surface of this territory is exceedingly varied, irregular and picturesque; it includes the monotonous level of the salt marsh, and the rolling pasture, and rises at times to a high degree of craggy wildness. On the east side from 155th Street up to the High Bridge and from thence to Fort George, a distance of two and one-fifth miles, the shores are a mass of bold rocks, and not readily accessible. Just north of Fort George, the eastern spur of the highlands terminates, and at its foot lies an area of about sixty acres of salt meadow, partially covered with water at high tide; from thence to the Spuyten Duyvil on the east of King's Bridge Road, the land is generally not precipitous, but of irregular surface, with occasional outcrops of rock, the shores being fringed with salt meadow to a greater or less depth. Above Tubby Hook Valley, between the hills on the Hudson and King's Bridge Road, a range of land, surmounted by the residence of John F. Seaman, Esq., rises about 100 feet above tide. Close along the Spuyten Duyvil, west of King's Bridge Road, the ground is generally a salt marsh till we reach the chain of hills on the Hudson, at the extremity of which stands an old earthwork known as Cock Hill Fort. From this fort the range of hills follows the Hudson river down to 155th street, and below to about 65th street; the descent towards the river from the summit of the range is generally very

rapid, leaving but few opportunities for the convenient passage of vehicles. The principal and only well defined opening above 155th street being at Tubby Hook. At Fort Washington Point, at the grounds of the Deaf and Dumb Asylum, at 155th, 158th, and 163rd streets, the river may be reached by passages more or less precipitous.

At about equal distances between the Harlem and Hudson rivers, a valley is formed between the two ranges of hills, commencing near the line of Fort Washington. This valley lies generally in a northeasterly and southwesterly direction. Through it runs the King's Bridge road, now very irregular in its grades, and indirect in its lines. A small stream rises near the southern point of this valley, and running northeasterly finds tide-water at Sherman's creek. Several other rivulets dry in the summer, descend from the hills to the river on either side. At points on both sides of the valley, the cliffs rise abruptly and inaccessibly, the character of the rock being much the same as that seen on other parts of the island: primitive gneiss, mixed with granite, hornblende, slate, and mica. Near Kingsbridge, the soil changes to a limestone, assuming the appearance of a whitish marble, which has been quarried to a considerable extent for building purposes.

Much of the territory in question is covered with wood—the high lands particularly; the lower portions being in pasture and arable land—oaks, chestnuts, walnuts, maples, hemlock, cedar, elm, and other

indigenous trees, forming forests and groves of great extent and beauty.

The soil above the marshes is composed of loam and clayey gravel, or hardpan, and much of it is quite fertile from long cultivation.

It is surrounded on three sides by tide-water. Its highest point is at Washington Heights, on the grounds of James Gordon Bennett, Esq., where the hills rise to the height of 271.4 feet above low water, being the highest point of land on Manhattan Island. Near this are the remains of Fort Washington, which, with several other redoubts and earth entrenchments occupied by the Americans during the attack by the British, in 1776, may still be seen. It was here that Hassler, in his famous trigonometrical coast survey, fixed one station—the next being in the State of Connecticut. The principal access to this portion of the island is at present by the Kingsbridge road, running through the valley above mentioned, to Kingsbridge; this road was laid out in the reign of William of Nassau, about the year 1695, 84 years after the discovery of the island; the bridge over the Spuyten Duyil, as it is called in the early records, was proposed about the same date. From this road public ways occasionally diverge transversely, and frequent private ways lead to the residences that are scattered over the territory. The 10th avenue, having been opened and imperfectly worked nearly to Fort George, affords a means of access to the more easterly parts of this territory. Steamboats and smaller vessels land passengers and

supplies at occasional points on both rivers; a small steamer runs regularly, in summer, on the Harlem river as far as the Century House. The Hudson River Railroad lies along the shore of the North river, having two depots within this territory, one at Tubby Hook, and one at Fort Washington Point. The Croton Aqueduct crosses the Harlem river on the High Bridge, enters the city near the lands of Richard F. Carman, Esq., passes down through the land of the late Madame Jumel, and crosses 155th street a little west of the Ninth avenue. During the present year, a plot of ground of 7,806 acres, between the line of 10th avenue and Harlem river, and near the High Bridge, has been taken for a new reservoir for the supply of this section with water by means of pumping machinery. The price at which this land has been estimated by appraisers appointed by the Court, is \$48,000, or over \$6,000 per acre. The main road is lighted with gas to Kingsbridge, and several of the cross roads are similarly lighted.

The land of the island above 155th street is owned by about 250 proprietors, in plots varying in size from 25 feet lots to tracts of many acres in extent; the largest area owned by one person is that of Mr. Isaac Dyckman, comprising about 400 acres. Within this area, there are three churches, the grounds and buildings of the Deaf and Dumb Institute, the Blind Asylum, the Juvenile Asylum, the public school at Tubby Hook, and the Neagle Cemetery.

During the past thirty-five or forty years, several

efforts have been made to get a water way for navigating vessels to and from the East and North rivers, with the view of saving distance in passing around the Battery. In 1827, the Harlem River Canal Company was incorporated, with power to cut, construct, and make a canal from Spuyten Duyvil creek to Harlem river, from and to such points and places as its directors deemed most expedient and advantageous, and to improve the navigation of Harlem river so as to afford to vessels, boats, and other freighting craft secure and easy navigation. It does not appear that under this charter anything was accomplished. The remains of a canal authorized by the Legislature in 1826, to pass from the entrance of Harlem creek across the island to the North river, to any point between 95th and 135th streets, are now to be seen. The subject has lately been revived, and, in 1863, the Hudson and Harlem River Canal Company was chartered, with power to construct, maintain, manage and operate a canal from the Hudson river, at the mouth of the Spuyten Duyvil, to the Harlem river, and to deepen the channel of either of the said rivers. By a subsequent act, the company was authorized to extend its canal to Long Island Sound. This will be a most important facility to the river commerce bound to and from the East, already estimated at over 200,000 tons annually, saving in distance more than twenty miles of dangerous navigation by the already crowded water-way around the island, and the time now lost by frequent detentions by

reason of adverse winds and tides. The canal will, doubtless, within a few years, be the means of establishing depots on the line of the Harlem river, for coal, lumber, building materials, and other supplies for the north part of the city and the adjacent settlements of Westchester county. This company has already made its surveys, located its line of canal, and acquired a considerable portion of the land required for basins and appurtenances. The canal lies just along the Spuyten Duyvil valley, and includes an old canal crossing the Kingsbridge Road, and partially constructed many years since to operate a mill for marble sawing. A considerable piece of land will be left between this canal and the Spuyten Duyvil; the arrangements for crossing it will be of much importance to land travel, and affect the administration of the commerce of the canal. The channel of Harlem river above 155th street is narrow, varying in depth from five to thirty-one feet, and is obstructed by the piers for the erection of bridges over the river. At low water, extensive mud flats are left bare on each side the channel. If this river is to subserve the purposes of commerce, it will be well to consider at an early day, whether the channel may not be advantageously widened, and the exterior line of bulkhead adjusted for this purpose. This is suggested here because of its obvious bearing on the location and expense of the continuation of the exterior street on the Harlem river, and to make provision for an adequate water way, both for con-

venience of commerce and for the health of the vicinity.

There are now not far from 350 houses on this territory, some of them country seats—spacious, elegant and costly. About 120 of these buildings would stand in the streets and avenues if the old, rectangular plan were carried out. Its population is about 4,000. The land, as at present held, generally has a frontage on either one of the rivers, or on the Kingsbridge road; the larger tracts generally extend from the river to the road. The southernmost part of the territory is being rapidly subdivided. The exceeding picturesqueness of this part of the island, the varied scenery comprehended within its wide horizon, and the unrestricted movements of the healthful currents of air over the adjacent waters, are among the characteristics that have, during the past century, rendered it a favorite resort of much of the wealth and intelligence of the city; the occupants of the beautiful retreats that now adorn these grounds are watching with interest the steady approach of improvements that are pushing towards and will soon surround them.

The tract of which I have presented a very imperfect chorography is that with which the Board has now to do. Will it be strange if its proprietors, whether of limited areas or of larger acreage, regard the exercise of the powers that have been so liberally conferred upon this Board with interest, and with some degree of solicitude. Each of these owners has,

doubtless, his own plans and expectations with reference to his property—some seeing corner lots in the near future, others apprehensive lest their cherished retreats should be seized and appropriated by the outreaching arms of an ever-unsatisfied city. An examination of the whole subject discloses embarrassments of no ordinary character, in the way of a successful performance of the duties that rest upon the Board. In addressing itself to the work of surmounting them, it will, perhaps, not be uninteresting to review, briefly, the fortunes of efforts that have heretofore been made in the same direction.

At a meeting of the Common Council of the City of New York, held Feb. 16, 1807, the following Memorial to the Legislature, with a Bill in conformity therewith, was read and approved, and the seal of the Common Council ordered to be thereunto affixed, viz:

To the Honorable, the Legislature of the State of New York, in Senate and Assembly convened:

The Memorial of the Mayor, Aldermen, and Commonalty of the City of New York, in Common Council convened, most respectfully sheweth,

That the laying out streets and roads in the City of New York, form a branch of their duties highly interesting and important. The necessity of projecting them in such a manner as to unite regularity and order with the public convenience and benefit, and in particular to promote the health of the city, must be obvious in the prosecution of the subject, however various and complicated difficulties and embarrassments exist. The first which naturally presents itself, is a radical defect in the power of your memorialists: any regulation however promotive of utility, adopted by one Board, unless carried fully into execution, may be disregarded or annulled by its successors. There are others equally palpable, and of very considerable magnitude. The diversity of sentiments and opinions which has heretofore existed, and probably will

always exist among the members of the Common Council, the incessant remonstrances of proprietors against plans however well devised or beneficial, wherein their individual interests do not concur, with the impossibility of completing those plans thus opposed, but by a tedious and expensive course of law, are obstacles of a serious and very perplexing nature.

As these evils are continually accumulating by reason of our increasing population, and the rise of frequent subdivisions of property, your memorialists find it necessary to appeal to the wisdom of the Legislature for relief in the premises.

Your memorialists do, therefore, pray that such measures may be adopted by your honorable body, as will obviate the difficulties which at present lie in the way of public improvements in the City of New York, or at least in such parts thereof, as shall appear most susceptible of advantage from the interposition of your honorable body.

The Recorder was requested to forward the preceding Memorial and Bill to the Hon. De Witt Clinton.

On the 3d of April, in the same year (1807), the Legislature of the State appointed Gouverneur Morris, Simeon De Witt and John Rutherford commissioners to lay out streets, roads and public squares of such width, extent and direction as to them shall seem most conducive to public good, and to shut up, or direct to be shut up, any streets or parts thereof which had been theretofore laid out and not accepted by the Common Council within that part of the city of New York to the northward of a line commencing at the Hudson River running through Fitzroy Road, now Gansevoort Street, Greenwich Lane, now Greenwich Avenue, and Art Street, now Astor Place, to the Bowery Road, thence down the Bowery Road to North—now Houston Street, thence through North Street to the East River. It was, by the Act, made the duty of these Commissioners to “lay out the lead-

ing streets and great avenues of a width not less than 60 feet, and in general to lay out said streets and public squares of such ample width as they may deem sufficient to secure a free and abundant circulation of air among said streets and public squares when the same shall be built upon," and they were "not in any case to lay out any street of less than fifty feet in width;" they were empowered to make surveys, a map of the streets and roads laid out by them, to erect durable monuments and to take the elevation of the several intersections or squares above high water mark. Their plans were to be final and conclusive, and they were entitled to receive \$4 per day for each day they were employed on the work.

These Commissioners were men of distinction. Mr. De Witt was the Surveyor General of the State, and Mr. Morris an eminent publicist, and one of the projectors of the Erie Canal, was, with others, in 1810, appointed to prosecute the business of constructing that great work.

It may not be amiss to endeavor, in a few words, to bring before the mind something of the condition of things as they were at the time these gentlemen entered on their work. In the year of their appointment Jefferson was President, and Daniel D. Tompkins, Governor. The assessed value of the property of the city was \$24,959,955. The total tax was \$129,155 09. Far-sighted men began to have a large realization of the growing commercial import-

ance of the city; its population was (1801) 60,489, in 1810 it reached 96,373.

It was already apparent that New York was to take precedence of all other cities of the Continent, and various schemes of public improvement tending to its advantage began to be agitated, of which the most important were the filling of the lake north of the present park, called the Kolck or Collect, the building of the present City Hall and the new Alms House (lately fronting on Chambers Street in the Park,) and the scheme for laying out the streets. Public works of the State also began to command general attention.

The war between England and France, soon involving all Europe, caused a check to the commercial prosperity of the country, New York was not an exception, importations soon ceased, and immigrants were but few. The measures adopted by the belligerents affecting the rights of neutrals, the orders in council of the British Government, the retaliatory measures of Napoleon, gave rise during the first ten years of the century to the embargo, non-intercourse and non-importation acts, and finally culminated in war.

In 1800, Boston had a population of 24,937; in 1810 it reached 33,250. Philadelphia, though founded sixty-eight years after New York, had, in 1800, a population of 70,287, considerably more than New York; in 1810, 96,287, and was the most populous city on the continent for a quarter of a cen-

ture after the Declaration of Independence. Baltimore, in 1800, had 26,514, and, in 1810, 35,538. The Alleghanies had not been crossed by any main avenue of transportation, neither the National Road, the pioneer of civilized travel toward the West, nor the Erie Canal had been commenced. Robert Fulton had just navigated the first steamboat from the Jersey shore, opposite the city, to Albany, consuming thirty-two hours in the passage. In the same year (1807) Congress had abolished the slave trade, and the President recommended the establishment of that most valuable work, the National Coast Survey, "for the purpose of making complete charts of our coast, with the adjacent shoals and soundings." The internal land travel of the country was confined to stage coaches and vehicles of small capacity; it was a journey of four to six days by the packets to Albany—two to three by stage coach. The ferries from the city were row boats, barges and lighters, and these, with sailing vessels, freighted its commerce.

At the time these Commissioners commenced their work there were very few improvements in the city above the New York Hospital. What is now Canal street was then a ditch running through Lispenard's Meadows, and crossed at Broadway by a stone bridge. The custom of each householder cleaning the street before his own premises, and that of the owner of every tenth house hanging out a lantern on a pole on certain nights, had given way, and the streets were lighted by oil lamps, few and far be-

tween; the sidewalks of Broadway had been but a few years paved from Vesey to Murray streets; the Park had just been enclosed with a post-and-rail fence. Above Canal street, the lands were partly fenced in lots and fields; and, although the jurisdiction of the Commissioners commenced in the fields far above the settled portion of the city, their surveyors were constantly annoyed by suits for trespass for going over private grounds, cutting off branches of trees, &c., to make the necessary surveys—showing, at that day, a determined opposition to the prosecution of any plan for laying out the city.

These Commissioners were allowed a period of four years to complete their work. They filed their report April 1, 1811, two days prior to the expiration of the time when their duty and office expired. De Witt Clinton was then Mayor. Messrs. Morris and Rutherford subsequently received the thanks of the Common Council for their gratuitous services.

The actual laying out on the ground of the streets, avenues and places according to the plan and the setting of the monumental stones, was afterwards committed by the corporation of the city to John Randel, Jr., the Surveyor of the Commission, who completed a set of maps of the topography of the city, that have been, and still are, the source of much valuable information, and have been constantly referred to for over forty years.

One of the first objects which claimed the attention of the Commissioners was to determine whether

they should confine themselves to rectilinear and rectangular streets, or whether they should adopt some of those supposed improvements by "circles, ovals, and stars," which, as they say, "certainly embellish a plan, whatever may be their effect as to convenience and utility;" and the consideration "that a city is to be composed principally of the habitations of men, and that straight-sided and right-angled houses are the most cheap to build and the most convenient to live in," determined them in favor of the rectangular plan, on which the upper part of the city is now laid out.

The Commissioners endeavored, within the territory that was adjacent to the then settled portion of the city, where owners had already begun to develop their views, to amalgamate their plan with those that had already been adopted by individuals. This effort they were compelled, after various attempts, to abandon; in furtherance of what they deemed the public interests, they found it necessary to override the less expanded views of individual owners.

In their plan they made provision for a site for a large reservoir, for an observatory, a grand parade, a public market, and for several public squares.

They thought it no unreasonable conjecture that in half a century the city would be closely built up to the northerly boundary of the Parade (32d and 34th streets), and contain 400,000 souls.

This period, completed in 1861, found within the

limits of the city more than double the prophesied number.

The plan having been filed, it became by the law final and conclusive; and the corporate authorities of the city, as well as owners of private property, began gradually to conform in their transfers of land to the lines of the streets and avenues laid down upon it; it was the guide to the corporation in working such streets and avenues; and no avenue or street could be laid out by the corporate authorities, except as shown on the plan, unless Legislative authority was given to do so. It soon came to be regarded as a great convenience.

Notwithstanding the growing tendency to acquiesce in its features, an examination of the statute books will show that as soon as the city began to approach the territory comprehended in the plan; as soon as it was required for actual use and occupancy, and as early as the year 1814, applications were made to the Legislature to change it; and since that year no less than thirty-eight laws have been passed for that purpose, so that almost every one of the features of the plan, excepting that of the rectangular system have been abolished or materially altered.

So difficult is it even for men of recognized experience and observation of public affairs to forecast the details of the prospective wants of a growing city. These Commissioners, in making a plan for the island, appear to have done no more than to indicate on paper (for they did no actual work on the ground) the lines of

certain avenues, streets and squares; and it is not too much to say, that they carried to an extreme, a system perhaps well enough adapted to the tolerably level ground of the lower part of the city. They found something similar to it already existing in the neighborhood of the Seventh Ward, and they fixed it upon irregular and precipitous portions of the island, to which it was not at all adapted. A plan now in existence dated November, 1803, drawn from actual survey by Casimir T. H. Goerck and Joseph Fr. Mangin, City Surveyors, shows a laying out of the City up to about 20th street. The Commissioners failed to discriminate between those localities where their plan was fit, and those to which its features are destructive, both in point of expense and of convenience.

They designated those ways which run in a northerly direction, Avenues, and those that crossed them, streets, and numbered them from 1 to 155. This nomenclature has the merit of simplicity and convenience, yet, perhaps, it is not the most efficient aid to the memory.*

* The following names of the townships in the western district of this State, were attributed to the Surveyor General De Witt:—Lysander, Hannibal, Cato, Brutus, Camillus, Cicero, Maulius, Aurelius, Marcellus, Pompey, Romulus, Scipio, Sempronius, Tully, Fabius, Orio, Milton, Locke, Homer, Solon, Hector, Ulysses, Dryden, Virgil, Cincinnatus, Junius, Galen, Sterling; but he denied the paternity of this absurd nomenclature, and credits it to the Commissioners of the Land Office, consisting then of the Governor, the Secretary of State, the Treasurer, the Auditor, and the Attorney General.

The subject of sewerage and drainage, and of lighting, do not seem to have received any special attention. This plan covers that part of the city south of 155th street only, except that the 10th avenue was continued to Harlem River, which it strikes near Kingsbridge. The commissioners were authorized to lay out the whole island; on this subject they remark, "To some it may be matter of surprise that the whole island has not been laid out as a city; to others it may be a subject of merriment that the commissioners have provided space for a greater population than is collected at any spot on this side of China. They have, in this respect been governed by the shape of the ground. It is not improbable that considerable numbers may be collected at Harlem before the high hills to the southward of it shall be built upon as a city; and it is improbable that (for centuries to come) the grounds north of Harlem Flat will be covered with houses. To have come short of the extent laid out, might, therefore, have defeated just expectation, and, to have gone further, might have furnished materials to the pernicious spirit of speculation."

The portion of the city for which they provided a plan was less difficult to arrange than the remaining portion; the territory below 42nd street is of less uneven and rocky surface than that above, if we except the Harlem commons and the marshes along the water. It is very doubtful whether the rocky ridges of the island along the shores of the rivers,

running, as they generally do, longitudinally, should be cut by numerous crossing streets, especially where the grades to reach the river must be so steep as to render the convenient passage of vehicles impossible, and whether the longitudinal streets should not be more and the cross streets less frequent. The natural indications of the island might have been more closely conformed to by the provision of more longitudinal avenues; they would be much less expensively made, the public would have been better accommodated, for the bulk of city traffic is lengthwise the island, and property owners would have been benefited, in that a lot on an avenue is considerably more valuable than one on a street. The error may yet in some degree be remedied by a relaying out of that naturally beautiful portion of the island which has not been much built on or subdivided, lying west of 8th Avenue, between 72d and 155th street. Nor is it yet fully established that, under a fair administration of the city streets, it would not have been better to have provided alleys in rear of all lots, through which the waste of the houses could be removed, instead of compelling its offensive passage and deposit in the face of the passers on the street. The objection has been made that alleys are but places to accumulate filth, and that they would not be kept clean. This is no more true with respect to alleys than it is to streets, as may be readily seen by passing through many of the streets of our city, the side walks of which are encumbered with lines

of contrivances in the shape of barrels and boxes for the storage of the refuse of dwellings. The modern style of building already brings the rears of houses inconveniently near to each other on the street blocks, and the chief justification of the abolition of alleys is, that under a shiftless administration of municipal affairs, if the offensive refuse of the city is brought constantly into conspicuous view, it will be the more likely to be removed.

The territory laid out by these Commissioners south of 155th street was sufficient to accommodate a large prospective population; it has sufficed up to this time, but the increase of numbers and the tendency to build above that street has long demanded a plan for that ground, so that the buildings about to be erected need not be found out of place when a plan is adopted.

The second effort at laying out this part of the island was made in 1851, when the Common Council of the city directed the Street Commissioner to present a plan for laying out streets and avenues in the city, north of 155th street. John T. Dodge, Esq., then Street Commissioner, appointed Messrs. Edwin Smith and Gardner A. Sage, two city surveyors, and Mr. Wm. Dodge, Jun., to take the matter in charge and to report thereon. These gentlemen made no plan, and, beyond a few meetings, accomplished nothing under their appointment, no appropriation having been made to enable them to proceed with the work.

A third effort to obtain a plan for this part of the

city was made in 1860. The Legislature, in that year, appointed a Board of Commissioners, consisting of seven persons, all of whom were, it is believed, property holders within the district to be laid out. Their powers were very ample ; they were to receive no compensation. They employed engineers and surveyors, and caused an elaborate topographical survey and map of the territory to be made, and while it does not appear that, during their four years of official term, any of the serious and responsible questions involved were finally determined, or that any streets or other improvements were finally laid out, yet the papers of their office show that these subjects had been examined and discussed. Their expenditures amounted to the sum of \$41,236.38, and several claims for services are still outstanding.

By the Act of April 24, 1865, the powers of these Commissioners were transferred to the Commissioners of the Park.

This act by which this transfer was made, also conferred upon this Board powers still more extended—adequate not only to the laying out of streets, roads, public squares and places, but to the taking of the land necessary therefor, and to the regulating, grading and improving of the same. The mode in which moneys for these purposes are to be raised is also specified in the act. This Board is, therefore, invested not only with the powers of the corporation of the city, but also those of some of the

executive departments, with relation to the streets, of this portion of the island.

An act passed a few days subsequently seems to place in the Croton Aqueduct Board the power of making a plan for sewerage of the whole island. So far as any territory which this Board has to improve is concerned, there can be no doubt by the economy of one authority executing all classes of the work, that time and money would be saved by placing the work of sewerage with this Board.

It has been well said, that, "next to the genial influence of the seasons, upon which the regular supply of our wants, and a great portion of our comforts so much depend, there is, perhaps, no circumstance more interesting to men in a civilized state than the perfection of the means of interior communication."

The chief work that the Board has to do is to make a plan of this area that will, when executed, accommodate the future necessities of this portion of the city. The ground to be laid out is of an unusually difficult formation to arrange on any symmetrical plan; it includes many small proprietorships, the improvements upon which, already made, or contemplated, will necessarily be, to a greater or less degree, interfered with by any plan that may be adopted.

It is a work that can only be accomplished, in all its details, in course of a considerable space of time.

By the law, the Commissioners are not required to complete the laying out of all the streets, roads, pub-

lic squares and places before filing maps and plans of a portion thereof.

It is for the Board to determine which portion of the proposed streets shall first be laid out and worked. In this the law greatly aids us by placing special stress upon the main drive from the north end of the 6th avenue or 7th avenue up the Harlem river side of the city, and down along the Hudson river side of the city, to the entrance to the Park at 59th street and 8th avenue.

The laying out of the ground for and the planning of a city is, if done with any large degree of foresight, a work of great responsibility, involving liberal consideration of questions of defence, of approaches, of climate, including temperature, snow and rain fall, and prevailing winds, of the means of the daily supply of water and food, of the vocations of its inhabitants, and of sanitary regulations, including modes of cleansing and purification of the city, of interment, and of the means of movement and circulation of its population and property, animate and inanimate. The adoption of a plan presupposes its execution; it should, therefore, be adapted to our climatic condition, and to the spirit of our institutions, and in making it, reference should be had to the facilities for maintaining a city laid out in accordance with it. The execution of any plan will require the raising of large sums of money, and, if it is not well considered, time and expense will require its abrogation, and the substitution of another. We

need not go off our own island to see lamentable results of the want of largeness of ideas in the attempts that have been made to provide for the wants of a great people.

The process of straightening and widening streets in the lower part of the city, where property has acquired immense value, has been going on for many years, and is still going on at a great cost. More than forty years ago, Harman Street was widened from forty to ninety feet, and called East Broadway; thirty years ago, Chapel Street, from Franklin Street to Chambers Street, was widened from forty to ninety feet, and called West Broadway; twenty-nine years ago, Centre Street was widened and cut through to the Park. This process will soon commence in the upper portions of the city.

The Imperial outlays in improving the city of Paris, afford another instance of the cost of providing for the growing necessities of modern population after a city has been built.

In looking back to the early history of what are now large cities, it is remarkable to see how little forethought has been exercised. They are but examples on a larger scale of the same insufficient provision for future accommodations that we find made by individuals in their own establishments. Probably not one ordinary dwelling house in ten is built at once on a plan that is at all adequate to meet the wants of its owner and projector; additions shortly succeed its supposed completion. The want of pecuniary means and of foresight both influence

ideas of what is necessary for the habitations of communities and of individuals.

With some exceptions on this continent, and few in Europe, the cities that have, since the commencement of the Christian era, attained great extent, have been the subjects of gradual accretion, without an original, symmetrical plan. As population required increased accommodations, the domains of private owners were appropriated, or conceded to city occupancy, by force of the law of values, and they pass to city uses, with the schemes of their owners already fixed upon them, conforming, in a greater or less degree, to the existing features of the proximate city.

The instances of European cities laid out from their inception on a symmetrical plan, are generally found under a form of government that has the power of decreeing with an irresistible authority that overrules alike the wishes and the rights of private ownership, or that provides from primeval fields accommodations for a population to be attracted by the fascinations of a court, or the vocations that thrive in its presence, or from new currents of commerce. That part of Athens only, known as the Piraeus was regularly laid out by the architect Hippodamus, probably in the time of Pericles. "Kings and potentates have vied with one another in embellishing her streets and places of resort, and if she presented like modern cities, no capacious square or long vistas lined on either side with superb edifices, it was owing to the inequality of her original site, and the scruples which

had spared her narrow and tortuous lanes, after so many capitulations."

In ancient Rome, the temples and palaces were, for the most part, planted on the summits of the hills, and in many cases surrounded by gardens; the dwellings of the humbler classes were clustered in the narrow valleys, were generally built over rows of shops, and entered by stairs from the outside; in the height of 70 feet, there were probably from 7 to 10 stories. The roads were measured from the gates of the Servian enclosure, and here began the straight lines of their interminable avenues. Within the walls no regularity existed, the streets may be said to have grown up by mere caprice or accident; following the tracks of the cattle of primitive antiquity to their pasture and watering places, they were narrow and winding. The Forum alone of all the public places was regularly designed; its open space nearly rectangular in form, was enclosed by paved roads intended for public processions, and lined where they approached the base of the hills with temples and public edifices. In districts where the masses of the population were collected, every available inch of ground was seized for building, and the want of space was compensated by elevation. The Emperor Augustus limited by law the height of the houses, and, as is supposed for the purpose of economizing space, the thickness of the walls was restricted to a foot and a half. The streets, or rather the narrow and winding alleys,

were miserably inadequate to the circulation of the people who moved along or thronged them. Juvenal laments the hardships of the poorer citizens of Rome, whom he advises to emigrate from the smoke of Rome to the little towns of Italy, where they might purchase a cheerful and commodious dwelling for the same price which they annually paid for the rent of a dark and miserable lodging.

Corinth, after its restoration, "became a centre of commerce, art and literature. The beauty of its situation, the splendor of its edifices, the florid graces of its architecture, and the voluptuous charms of its parks and pleasure grounds delighted the stranger, whom its commerce had attracted."

The city of Peter the Great, was founded on a most infelicitous site, being near the Arctic Circle, in a flat marshy region, and on a river navigated only by small vessels; the soil is such that the foundations of the buildings must be made on piles; it is laid out with regularity and embellished with squares, its streets are comparatively broad, and its buildings generally occupying large plots of ground, has already attained a rank among cities of the first class.

Where a city is symmetrically built, it will be found the work of a single mind or of a single interest, in both cases the absolute power, by reason of entire ownership, or a common interest, controlling the territory is the first requisite. These circumstances do not often occur, and the consequence is that the pro-

gress of settlement is according to the contrary views of individual settlers, or, as is said, the habitations of men are located by the paths made by the beasts of the field.

An unusual diversion of the current of the world's travel sometimes affords opportunities for rapidly building up a city.

Alexandria, the foundation of which, by Alexander the Great, terminated the commercial importance of Athens, was intersected by streets running north and south, east and west, with its canal, lighthouse, regular streets, palaces, exchange, halls of justice, temples, theatres, churches, groves, gardens, fountains and obelisks, and became the centre of commerce between the basin of the Mediterranean and Arabia and India; in turn, its decay was completed by the change of the track of commerce, caused by the discovery of the Cape route to the East Indies, and this it was that gave impetus to the great modern cities of Western Europe and blighted the ancient seats of commerce. The city of Cordova, under the Moors, contained more than 200,000 houses, 1,000,000 inhabitants, 300 mosques, and 900 baths. "After sunset, a man might walk through it in a straight line for ten miles by the light of the public lamps. Seven hundred years after this time there was not so much as one public lamp in London." "In Paris, centuries subsequently, whoever stepped over his threshold on a rainy day stepped up to his ancles in mud."

Most of the cities of our own country have attained their growth by the same process of gradual irregular expansion that has characterized those of the European continent. Examples are, however, numerous, of cities of an inferior rank proceeding, from their outset, on a plan, such as Chicago, Cleveland and Cincinnati, of such rapid growth from immigration or other favorable conjuncture of circumstances as to render it at once apparent to the proprietors of the land that a considerable area would, within a short period, be required for population.

A common interest of landed ownership and a common perception of the most profitable use of the land will generally ensure symmetry in the plan of a city. Philadelphia is an instance of a peculiarly symmetrical city. Penn, early in the settlement of the county, selected its site on a formation mainly of dry, well-drained gravel, rendering the sewerage and drainage easy, and planned the city; from the first he proposed to survey a space nearly as large as that now occupied, and which he proceeded to lay out in squares with broad rectangular streets on a comprehensive scale. From the peculiarly rocky formation of New York, a large percentage of the cost of building the city of Philadelphia has been required to get the land of the upper portion of this city in a condition fit to begin to build upon.

The City of Washington, at first known as the Federal City, was laid out in the last century by Major L'Enfant on a plan that time has scarcely

approved, the idea of pointing fifteen of the diagonal streets towards the States, the names of which they bear, having in it more of fancy than of convenience.

Washington, in a letter dated at Mt. Vernon, 1798, says with respect to the Federal City :

“A century hence if this country keeps united (and it is surely its policy and interest to do it) will produce a city though not as large as London, yet of a magnitude inferior to few others in Europe, on the banks of the Potomac, where one is now establishing for the permanent seat of the Government of the United States, between Alexandria and Georgetown, on the Maryland side of the river ; a situation not excelled for commanding prospect, good water, salubrious air and safe harbor, by any in the world ; and where elegant buildings are erecting and in forwardness for the reception of Congress in 1800.”

Jefferson, then Secretary of State, in a letter to Washington dated April 10, 1791, says :

“I received last night, per Major L’Enfant, a request to furnish him any plans of towns I could for his examination. I accordingly sent him by this post, plans of Frankfort on the Maine, Carlsruhe, Amsterdam, Strasburgh, Paris, Orleans, Bordeaux, Lyons, Montpellier, Marseilles, Turin, and Milan, on large and accurate scales, which I procured while in those towns respectively ; they are none of them, however, comparable to the old Babylon revived in Philadelphia and exemplified.”

A glance at the map of New York will show that

its earlier progress was governed by the then existing temporary conveniences of the growing population ; when the public mind became impressed with the idea that the city was to grow to great proportions, a plan was demanded for its future improvement, and the public authorities were enlightened enough to secure one ; the rectangular plan was adopted, and is fixed upon those parts of the island of more regular surface, and has also impressed itself upon the cities, towns and villages growing up in the vicinity. The growing desire to occupy the part of the city above 155th street having rendered it necessary that provision should be made for the accommodation of the class of improvement for which it is fitted, several unavailing efforts have been made to locate the lines and fix the grades of the streets and roads in such manner that improvements may be made without leaving owners to the apprehension that a change of plan would necessitate the destruction or expensive alteration of completed structures. The ruggedness of large portions of the surface has stubbornly repelled repeated efforts to fix upon it the rectangular plan of avenues and streets. These efforts have, however, left their impress, and extensive excavations may be seen upon lines of road, that have been, or should be, stopped in their course by reason of their utter impracticability.

Two generations have been educated into the system of rectilinear streets ; it is difficult to unseat ideas to which the public mind has become habituated.

These considerations, so imperfectly presented, will, perhaps, aid in appreciating, to some extent, the business in hand, and tend to impress upon the Board the importance of the subject upon the practical solution of which it is about to enter.

It will not be expected that I should go much into the detail of the intended work. That can be much better shown in a plan now in course of preparation. A few general ideas are all that can be presented with utility, until further investigation furnishes the necessary information to enable the Board to dwell upon details.

This territory lies between the city on the south, and the growing populations of the villages of Westchester on the north and east, and those of the Jersey shore on the west. Tidal waters encompass it on three sides. Across it passages for business and pleasure from all directions must be provided; and these must have direct relation and reference to the probable course of the ways on the opposite shores of each river, few of which yet being located, we shall be compelled by examination of the topography of the land across the river, to assume. It would be a mistake to act in this matter, solely with reference to the convenience of people residing upon this island; due regard is to be had to convenient access to the City for those residing elsewhere, and doing business here. The general movement of travel will be longitudinal, as well because the necessities of the people will call them to the denser part

of the city as because the steep hills along the rivers preclude frequent cross-passages.

The heavier business traffic will naturally seek the most accessible and level roads; the depots for commerce will ultimately find accommodations on the shores of the rivers and on the comparatively level land contiguous to them. The more elevated surfaces will be less subdivided, and will be crowned with elegant suburban residences. This may as well be at once recognized, and efforts to force these picturesque elevations into city lots, abandoned.

The longitudinal avenues for moving the heavier traffic through the whole extent of this portion of the island cannot, by reason of the intervening highlands, well be more than three; one of which will be immediately on the shore of each river, a few feet above high tide, and the other will generally follow the line of Kingsbridge road. These avenues should be of ample width and of light grades.

Avenues for traffic across the island, and for passage of persons and things from Westchester to the North river and Jersey, should be provided at each opening of the hills; and it may, at some remote day, be found necessary to provide one or more tunnels across the island from river to river; this will, with the water-ways on each side of the island, furnish the needed convenient facilities for the business movements of this part of the city. The act of 1860, appointing the Washington Heights Commission, expressly provides that nothing in it shall authorize the

closing of the Tenth avenue, or of the Kingsbridge road, or of the Bloomingdale road.

A street should at once be laid across from Tubby Hook to the exterior street on the Harlem river. The opening in the hills at this point must continue to be of growing importance; it affords the only good opportunity for a street of traffic between Manhattanville and the Spuyten Duyvil. A street has already been laid out on the map of a private estate at this place, which it is claimed is public by reason of dedication and use. If this street is perpetuated, it should be widened, on its southerly side. Immediately south of this street another street may be laid, that will continue in a straight line from river to river, while the existing street only runs from the Hudson to the Kingsbridge road, and at this point a bend will probably be necessary.

The act of April 14, 1852, provided for a permanent exterior street along the shore of the Harlem river, between the Sound and the Hudson river. This street has been laid out, under authority of the Common Council, of 70 feet in width; this width will be found insufficient, and some changes will probably be required in its line. This exterior street will mainly run upon the land covered with water, along the shore of the Harlem river, the ownership of which is vested in the corporation of the city.

As the effect of the filling on this land may obstruct the channel of the river by forcing the loose

mud out from the shore into the channel, the erection of a continuous line of bulkhead may be found necessary before the street is filled in. The bulkhead line lies quite near the shore, no piers being allowed by reason of the narrowness of the channel.

The law prescribes that a road shall run from the "northerly portion of the 6th and 7th avenues, in a generally northerly or north-westerly direction, upon the easterly or Harlem river side of the city, as far north as the Commissioners may determine; thence, in a generally westerly direction to or near the Hudson river, and thence in a generally southerly and southeasterly direction, along the westerly or Hudson river side of the city, until such road or public drive shall enter the Park at or near the junction of the Bloomingdale road, 8th avenue and 59th street." There is nothing in this language to prevent this road being laid along the river shore; but, for reasons that appear conclusive, when the objects to be attained are considered, and for the purpose of affording opportunities for the most advantageous improvement of the lands, it should be laid on the highlands, conforming in grade and line much to the natural surface of the land; it may be moderately circuitous, but direct where the land will admit, with grades not over one in twenty, and of this steepness only occasionally; it should be generally located so that it will be some 100 or 200 feet interior from the line where the marked declivity towards the river begins, or below this line and on

some of the favorable benches of the declivity, according as circumstances favor; the general idea being to keep it where the view will be continuously fine, and to afford opportunities for favorable villa lots on each side of the drive, where the breadth of the table land is sufficient to justify its being divided by an avenue. It would be wearisome to state the details of this line of drive, or the thousand circumstances that should enter into the consideration of its location and construction. It should not, I think, be limited to the area south of Tubby Hook, but should extend above the proposed canal to the bridges that are to cross the Spuyten Duyvil, whether the present King's, or some one or more other bridges, and thence around the high hill at the confluence of the Hudson with the Spuyten Duyvil. The drive need not at present be, necessarily, worked of its full width throughout the whole line; in actual working it should conform to the conditions of the land, and, so far as practicable, to the convenience of existing proprietorships and settlements. The land to be taken for the road should generally be of equal width throughout, for uniformity and for convenience of adjusting the slopes of its sides to those of adjacent land; but the actual road-way may, for economy in construction and maintenance, and for tastefulness, well vary in width according to varying circumstances; this arrangement will always admit of an increase of width

of the travelled road, without the further taking of land to meet the exigencies of future years.

The table land from 155th street up towards Fort George, east of the Kingsbridge road, will require for its development and readily admit of several longitudinal streets, as also will the land north of Fort George. These areas will ultimately be subdivided and more compactly built. In our times, streets are used not only for traffic and travel, but underneath their surface are carried, by the authority of the law, the channels of sewerage and drainage and of gas and water. However irregular the lines of ownership of land may now be, they will, sooner or later adjust themselves to the lines of the streets and roads when these are designated and defined; the necessity for the outlet of travel and of drainage will compel this. The owner of land on the brow of the hill must, if there is no public way through which he can drain his land to the river, find some way to drain it across the adjacent lands of his neighbor below him.

This may be tolerated in farm lands, and in the case of the drainage of the rain fall, but where the discharges of domestic sewerage are to be provided for, adequate legislation must be had to permit the laying on established lines, main drains and sewers, gas and water pipes from streets over adjacent lands. The frequency of the streets in the older parts of the city provides abundant ways for sewers without cross-

ing private property. Great obstacles, however, already exist to drainage where the streets have not been opened and worked.

The principle that should govern in the determination of the number and extent of streets and ways, is, that where they are required for public convenience, or where there is a considerable settlement or tendency to settle, whether in large or small tracts, it should be aided and encouraged by the working of proper means of access.

In presenting a plan for this part of the city, it by no means follows that all the streets laid down on the plan are to be worked immediately. There are, however, over a hundred miles of streets now on the plan of the city that have not been worked, and should not be, until population requires them for use.

It would be unwise to exercise the power of opening and working streets before they are needed; the owners interested should not be required to advance the moneys to pay the necessary expenses, long before a compensating use can be made of the property. These expenses are often considerable, and, if made before the property is usable, are in the light of advances of money without interest, and to owners of small means, they are often oppressive. The owners of adjacent property may generally be relied on as the best judges of the necessity of opening and working those ways that are more especially intended for the accommodation of the neighborhood.

All those roads, streets, squares and places that are ultimately to exist, should be indicated in line and grade on a comprehensive plan and put on file to be afterwards opened and worked as occasion requires. The course and direction of the streets should be determined with reference to the probable currents and volume of travel from the city below, from the future cities that are to crown the opposite Jersey heights, the fields of Westchester, and from the waters that are to bear that portion of commerce that is to seek accommodation at this end of the island. The Spuyten Duyvil and the Harlem River are already spanned by several bridges—others will be established as population thickens on their shores. No less than seven bridges, with and without draws already exist across these waters and another is in progress. Most of the avenues of the city leading to the Harlem River, will, ultimately be carried over on bridges to the mainland, and this stream and its connections with the Hudson will, within a few years, run “a silent highway” in the midst of a dense city, occupying each of its sides, like the Seine or the Thames.

The conveniences for supplying cities with water and gas and with the means of sewerage and draining, are intimately connected with their systems of public ways.

The drainage and sewerage of the city, thus far, has been often unscientific in plan and arrangement, and much of it very unskillful in execution; with the improvements of the last ten years in the science, it

would be inexcusable if this part of the city were to be left without the best possible provision in this respect.

A plan for a city intended to include arrangements for the most important public necessities, would provide for slaughter houses, markets, and dumping-grounds, and the mode of disposing of the refuse of the city. The law, however, imposes no such duty upon the Board, and as their location depends so much upon questions of private ownership, it is scarcely worth while here to do more than mention them.

The discharge of the sewage into a river like the Harlem, may perhaps be tolerated for a few years, but the time is not distant when other arrangements will be required, and they should be now contemplated. In London, enormous expenditures are now being made to free the city from the dangers and annoyances arising from the discharge of the waste into the Thames. Few have any idea of the immense bulk of the refuse of a large city. Our waters have, thus far, mainly received that of this city, but that mode of disposing of it has already gone on too long, and will soon be, if it has not already become, the occasion of serious impediments to the navigation of the waters of the city.

Some idea of the quantity of the refuse of ancient cities and of the inartificial method of disposing of it, will be gained from a brief extract from a late work by the Hon. G. P. Marsh :

“Every traveller in Italy is familiar with *Monte Testaccio*, the mountain of potsherds, at Rome ; but this deposit, large as it is, shrinks into insignificance when compared with masses of similar origin in the neighborhood of older cities. The castaway pottery of ancient towns in Magna Grecia composes strata of such extent and thickness that they have been dignified with the appellation of the ceramic formation. The Nile, as it slowly changes its bed, exposes, on its banks, masses of the same material, so vast that the population of the world during the whole historical period would seem to have chosen this valley as a general deposit for its broken vessels.”

“In the neighborhood of the Nile manures are little employed, the domestic waste, which would elsewhere be employed to enrich the soil, is thrown out in vacant places near the town. Hills of rubbish are thus piled up which astonish the traveller almost as much as the solid pyramids themselves.”

“The heaps of ashes and other household refuse collected on the borders and within the limits of Cairo were so large that the removal of them by Ibrahim Pacha has been looked upon as one of the great wonders of the age.”

“The soil, near the cities, the street sweepings of which are spread upon the ground as manure, is perceptibly raised by them and by other efforts of human industry, and in spite of all efforts to remove the waste, the level of the ground on which large towns stand is constantly elevated. The present streets of

Rome are twenty feet above those of the ancient city."

"The Appian Way, between Rome and Albano, when cleared out, a few years ago, was found buried four or five feet deep, and the fields along the road were elevated nearly or quite as much. The floors of many churches in Italy, not more than six or seven centuries old, are now three or four feet below the adjacent streets, though it is proved, by excavations, that they were built as many feet above them."

The Act of 1865 devolves upon the Board the duty of continuing a Drive from 155th street to the junction of the Bloomingdale Road, 8th avenue and 59th street, "such road to follow the course of the Bloomingdale Road below 106th street, whenever the Commissioners shall deem such course advantageous. The said Commissioners shall determine the location, width, courses, winding, and grades of said road and public drive, and may widen the Bloomingdale Road, and determine the grades thereof, and of intersecting streets and avenues, as they may deem it necessary for the perfecting of such road or public drive."

From 106th street north, the location of this drive is left discretionary with the Commissioners of the Park. Near this street the Eleventh avenue crosses the Bloomingdale Road. An inference may be drawn from the terms of the law, that the drive is not to follow the Bloomingdale Road above this point; at all events, the discretion of the Commis-

sioners is left entirely undirected as to following the Bloomingdale Road above 106th street, while there is something more than an intimation in the law, that it should be followed, below 106th street, "wherever the Commissioners shall deem such course advantageous."

The Eleventh avenue has already been opened, 100 feet wide, up to 144th street, and cessions of portions of its width have been made to 148th street, leaving but a short distance to be opened to reach 153d street, where it strikes the grounds of the Trinity Cemetery, through which the drive following the avenue will naturally pass. Below 106th street, the main questions for the Board to determine will be, what divergences from the line of the Bloomingdale Road shall be made, and the width of the proposed drive. Broadway has been laid out, by several Acts, of a width of 75 feet up to 86th street; beyond that, it is now merely a country road, discontinuable at any time by act of the Common Council.

A glance at the map will show that if the drive were to follow the Bloomingdale Road from 86th to 105th street, it would bring its easterly line very near the line of the Tenth avenue, at some points within 67 feet of that avenue, and so near as to render the course of that road between these two streets disadvantageous for the drive. If the Bloomingdale Road between these points, were not already where it is, no one would deem it proper to place it there. The owners of fronts on the road may deem

it desirable that the new drive follow the line of the road, and if a different location is deemed detrimental to their property, it will be because the new drive will take the travel, and diminish the importance of the Bloomingdale Road; if it takes the travel, it will be because it is the better route. If it is the better route, it is sufficient reason why it should be adopted. The drive might follow the course of the Bloomingdale Road from 59th street to 71st street, thence take the Tenth Avenue to 101st street, and thence cross the Bloomingdale Road to the 11th avenue. The effect of this would be the abandonment of a still greater portion of the line of the Bloomingdale Road, a still wider departure from the intimation of the law that the line of the road below 106th street was to be followed.

On the other hand, perhaps, it would be better to locate the drive on the course of the Bloomingdale Road from 59th street to 86th street—thus preserving the diagonal line of the street, the property on which, in a rectangular city, is generally considered as of peculiar value—thence at about equal distances between the 10th and 11th avenues, up to where it would strike the present line of Bloomingdale Road, at about 105th street, thence on the line of the Bloomingdale Road to the 11th avenue, and thence along the 11th avenue to 155th street. The number and value of the buildings on the line that will be affected is inconsiderable.

The Eleventh avenue, as the grades of the streets and avenues of this part of the city are now established, occupies high ground for nearly the whole distance from 106th street to Manhattanville valley, and from this valley to 155th street. From this avenue, the grades, as now fixed, fall towards the river; some work has already been done upon it, and it is probably the line that can be worked with more economy and expedition than any other. It is also the nearest avenue to the river that it is practicable to take. The 12th avenue lies to a great extent under the bank, is near to, or occupied by the railroad, and will be less and less attractive as those classes of business that generally cling to the river move upwards. The land of the 11th avenue being already owned by the city, for nearly its whole length, the cost of opening a new avenue between it and the 12th avenue will be avoided.

In locating this drive, it will be found necessary to look at the ground in this district as it now is, and as it will be when existing legal requirements have been carried out, and the surface reduced to its final shape. It may not be amiss to say, in passing, that this district affords an exemplification of the peculiar infelicity of the plan on which it has been laid out. There is no doubt that a wise regard to the public convenience, the interests of the property owners, and the economy of expenditures, both public and private, require a re-examination and re-arrangement of the plan of portions of the territory

west of the 10th avenue, north of 72d street, to 125th street, and west of the 8th avenue, north of 125th street to 155th street.

Should the line of Broadway, the Bloomingdale Road, and the 11th avenue, be approved for the drive, it will be rendered attractive by many existing improvements. On it the Orphan Asylum has a front line of 238.5 feet; the Lunatic Asylum a front of over 1,500 feet, and Trinity Cemetery a front of 460 feet on each side. The grounds of these institutions will probably for a long time remain open spaces, and be important ornaments to the drive. If the angles formed by the intersection of the line with the 8th, 9th, 10th, and 11th avenues should be taken for public use, symmetrically arranged, and so restricted as to their use as to prevent their becoming objectionable, they will afford fit space for monumental ornamentation, become architectural centres or nuclei for public edifices, add much to the variety and magnificence of the drive, and continue on Broadway the succession of parks and places that are now strung along its line—the Battery, the Bowling Green, the City Hall Park, Union and Madison Squares, the Central Park.

With respect to the width of the Sixth and Seventh avenues, from the Farmers' and Mariners' Gates of the Park, to the Harlem River, the Board has no discretion, both being fixed by law. It is otherwise with the drive from the Merchants' Gate of the Park to and around the north end of the

Island, as well as with the streets and roads above 155th street; of these, the width is to be determined by the Commissioners of the Park, and upon no portion of their duty will there be a greater variety of sentiment. We are so much influenced by what we are accustomed to see, that the constant tendency will be to determine this question by what is immediately around us. Fortunately there are at this moment such marked examples of large expenditure to rectify the mistakes of former years in the width of the streets of this city, that liberal views will readily be entertained. The intelligent determination of the width of an avenue for travel, and of the proper material for its surface, involves the consideration of the present and prospective volume of travel upon it, the character of this travel, the relative proportion of the various classes of it, whether for man on foot or in vehicles, or for traffic or pleasure, and the class of traffic, in fact the whole subject of the circulation of the population of the city. The ventilation of the whole city and the light and air of its buildings are also to be considered in fixing the width of its streets. On the upper part of this Island there is no doubt that the avenues running lengthwise should be the most capacious—the cross streets acting as so many feeders to them.

The crowd already upon the existing avenues shows that as population increases they will be inadequate—not perhaps that they are too narrow, but of insufficient number. When the Island is entirely

built over, and this city, literally the metropolis—the mother city—of cities already springing up on its confines, the cross thoroughfares that are the termini of bridges and ferries will become more important and more thronged; but it is not probable the travel up and down the city will ever be much less, proportionately to the cross travel, than at present. The tendency of population is towards the upper end of the city, and Westchester county, which is accessible by bridges in all weather, thus so locating population as to increase the use of the longitudinal streets. While we are especially impressed from the remarkable tendency of people to collect in cities, with the necessity of a large provision in the width of ways, it is not to be forgotten that the error may be easily fallen into, of making them too wide. The desideratum is to find the proper width for the particular circumstances. The need in a great city like ours for storage accommodation is such that public places that are left open and unused, are immediately seized upon for private purposes.

For example, the slips and the streets along the river are occupied with all sorts of articles, such as lumber, timber, iron boilers, anchors, chains, and other heavy merchandise. It is, of course, cheaper for merchants to store these articles in the streets than to hire places for them; but this sort of use of streets is not to be provided for in determining their width—they are not places for storage, but for circulation. The law of the street is motion, not rest, and theoretically the man who stops with his

team in the street violates the law, as does he who stands upon the sidewalk. If one desire rest for himself or his goods he must find it outside of the channels appropriated to travel, the encumbrance of which the law does not permit. We are now discussing the street as a legal institution, and not as respects the possibilities of its ornamentation. In tropical countries, much more live in the streets than is possible in our climate, provision for or against it is therefore unnecessary.

We occasionally in some country city see a wide street ornamented with umbrageous trees, having spaces of green interposed in its area, the portion used for travel being very limited. This arrangement is only possible where thronging population and crowding commerce are not at liberty to overlay and smother the laws that are made to secure the legitimate use of the public streets.

It would seem inexpedient at any rate until some better permanent administration of our streets is secured, not to attempt these fanciful arrangements to any great extent in a commercial city, under our form of government, where pecuniary interests are likely to be promoted by facile representatives, allowing their constituents the use of public property to the injury of those who pay rents and taxes, as is instanced in the case of railroads occupying streets that have been graded and prepared, as it were, for and without expense to them, without any compensation for franchises worth mil-

lions; in the stacks of lumber, timber, etc., that encumber the public ways, and in the numerous permissions granted by the Common Council to use the public walks, streets and parks for private advantage, that lately have become so frequent as to have secured a general ordinance to facilitate them.

It is to be borne in mind that every additional foot in width of a street adds proportionately to the cost of grading, regulating and paving it, thus laying an increased burden upon property owners who pay the assessments.

The system of improving the surface of the street will depend much on the character of the use to which it is to be subjected; of the approved modes of surface construction that which is best administered will be found the best. The keeping of the street in repair, whether it be of pavement, or gravel, or macadamized, requires a large annual outlay; the waste of material on a largely travelled road, except it is paved, is almost incredible, and every foot of paved surface beyond the space required for convenient use, adds unnecessarily to the annual tax.

The visitor at Washington can scarcely have failed to observe the unnecessary width of its principal thoroughfare—Pennsylvania Avenue. This avenue is 170 feet in width from house to house. It is said that it was the intention of the author of the plan of the city to lay out a promenade in the centre of the avenue, to be planted with trees, and that an engraving is in existence representing this walk. The following extracts from a late communication of the

Mayor of Washington to the Secretary of the Interior, shows how the expense of wide streets is regarded: "The adoption of the plan of wide streets and avenues was by General Washington, for some practical utility, though it may not as yet have been developed, and if a way of obviating the difficulty could be found without ultimately and permanently destroying that plan, it would be a temporary relief, and until the utility of wide streets should be developed, it would be well to avail ourselves of it."

"The avenues vary from one hundred and twenty to one hundred and sixty feet in width, and the streets from eighty to one hundred and forty feet, the average being ninety feet, costing more than double the amount of streets of the same length and more moderate dimensions, and as it has not grown in the usual manner, but has necessarily been created in a short time, the pressure for improvement has been burdensome to its citizens." The Fourth Avenue, above 132d Street, was several years since widened to 140 feet, to accommodate the railroads. The other avenues of the city are generally 100 feet wide. Market Street, in Philadelphia, is 100 feet, and Broad Street, in the same city, 113 feet wide; the other streets of that city are generally 50 to 66 feet wide, and many of the squares are subdivided by small streets or alleys. Commonwealth Avenue, in Boston, has been lately laid out of a large width, and planted with rows of trees. Brooklyn has its Atlantic Avenue, of 120 feet in width, Chicago, its Michigan Avenue, 120 feet in width.

The Neva Perspective, in St. Petersburg, one of the finest streets in Europe, is 130 feet broad. Unter den Linden, in Berlin, is about 300 feet wide. The width of several of the Boulevards of Paris have already been stated.

In forming a judgment on the question of the width of the drive, it will be well not to leave out of view the fact, that as the city railroads have been thrust into streets where they should not go, they are quite as likely to be placed upon this drive, in spite of all remonstrances and opposition. Is it not better, then, to give this drive such width as will accommodate a railroad, if it should be forced into it, rather than leave it of a width that will render its use difficult and inconvenient when the railroad is placed there.

The width of the avenue being determined, the mode of its subdivision and grades becomes prominent; the width of the carriage-way, the walks, the lines of trees, the courtyards, etc., the mode of surface drainage, the sewerage, and the lighting will come up for settlement; the conclusions arrived at will depend much upon the views that we take of the character of the use to which this drive is to be devoted. It is not likely that it will be practicable to exclude from it vehicles of traffic. The part of the city west of the park through which this drive is to pass, will probably be built with dwellings of a costly character, and these, after having served their day and generation, will give way, as in other localities, to the pressure of business. If the drive is made

of adequate width, it will be easy to adjust its subdivisions to meet the changes that time may show to be desirable.

It is probable that a change in the bulkhead line above 155th street will be found necessary, in order that the landings may be made by boats; at many points the ground is bare at the bulkhead line, at low water.

The subject of the nomenclature of the streets is an interesting one, and will early require attention.

No public pleasure ground of the city, except the Battery, lies adjacent to the river.

The exceeding picturesqueness of the ground along the Hudson River, both above and below 155th street, much of which is well grown with fine park trees, affords an opportunity to supply what will shortly be a want in a part of the city against which it cannot be urged that sufficient space has already been taken for parks. This ground need not be very extensive; one of the points jutting out into the river, cut off from the hills by the line of the Hudson River Railroad, that from the slope of the land, affords a convenient opportunity to bridge over the railroad, and a safe and agreeable access from the hill to the river side would be suitable. The view of the river and the opposite shore is unsurpassed, and a convenient access to the water will do very much towards the encouragement of swimming schools, boating and other aquatic sports.

Fort Washington Point, occupying about eight acres of land, with a portion of the land to the east

of the railroad, offers, perhaps, the most favorable opportunity to establish a Park of this character: it would immediately become a place of resort, and the exterior street should be so arranged as to continue the connection of the Park with the river without the intervention of any bulkhead. At least two of the numerous commanding summits lying still further to the north should be secured for public grounds.

It would be desirable to establish, in the neighborhood of the city, a Fair Ground, for the periodical public exhibition of agricultural and mechanical products from all parts of the State and Nation. It could, under proper regulations, be arranged to serve the purposes of a market for horses, cattle, sheep and other living animals, for use or consumption.

The growth of the city will, within a few years, push the live stock markets that now adorn the Fifth Avenue beyond the limits of population, and the facilities which it is hoped will soon be afforded by railroads will make them convenient of access if located either at the extreme northerly part of the Island or in Westchester county. Establishments of this character, even if they look simply to the improvement of agriculture, are more wisely located in the immediate vicinity of a large city than in the country. Where one person would visit them if situated in the interior, thousands from the country, temporarily drawn to the city on business or pleasure, would count much upon the instruction and entertainment to be derived from them; such estab-

lishments should be planted not too near, but in convenient proximity to the localities where masses of men congregate.

Within the limits of these Fair Grounds might be arranged a course for horse exercise. There is a very large class of gentlemen in this city devoted to riding and driving, including many enthusiasts on the subject of improving the breed of horses; the large sums of money they are willing to pay for animals of peculiar points of breeding, shows how strong is their interest in their favorite animal. By the census of 1860, it appears that there were in this country, in round numbers, 7,300,000 horses. The services of this class of animals to man have long rendered them objects of attention and culture, and whatever facilities can be properly furnished to aid in their improvement should not be lightly regarded.

As the movement of population up town will soon require for other uses the roads that have for many years served as a race-course, some other public road will be seized on where horses can be exercised and fast-driving can be indulged. It is vain to argue against such establishments from the abuses that may attend them.

A course for riding and driving at a higher rate of speed than would be safe on the streets and roads of the city, would be one effectual mode of preventing dangerous driving elsewhere; but should not such establishments be the creations of private enterprise? It will, I think, on consideration, be found that the necessary expenditure for a Course of this charac-

ter would be so considerable as to prevent its use, except by those whose wealth enables them to meet the required dues; others would still seek, on some public road, the opportunity to indulge in their favorite sport.

In the Bois de Boulogne is the race-course Longchamp, with pavilions of different classes, of great extent, and fitting arrangements for the accommodation of crowds. This Course, under the direction of the Society for encouraging the breed of horses in France, and under the supervision of the officers of the Wood—is frequented by immense numbers of people. It is one of the most popular entertainments of Paris. The Ascot, Derby, and Epsom Courses, in England, maintained for many years, show how general is the taste for this class of entertainment, and how permanent is its hold on all classes. A piece of road, disconnected for the present, from the Main Drive, might be appropriated for this purpose for the next few years, and until approaching population requires it for other uses. It is not, perhaps, too early to consider the question of purchase by the city of a large tract of ground in Westchester County to be devoted to these classes of objects.

The owners of property that I have had an opportunity to see personally, generally express themselves gratified with the prospect of having the long deferred work of laying out the northerly portion of the Island satisfactorily accomplished. They regard the whole subject as of great importance, in acting

upon which it is quite probable the views of private owners will to some extent of necessity be subordinated to requirements of the public interests.

The convenience of travel will, in my opinion, be subserved by opening and widening Harlem Lane from 110th street, near 6th avenue, to Manhattan street, and by widening that street. There is no power conferred on the Board for this improvement, but it would be so manifestly an advantage to the neighborhood, that the requisite amendment to the law would be readily obtained.

By the Act of 1860 it is made the duty of the Board to lay out a new avenue, 100 feet in width, to be called the New Ninth Avenue, along to the east of the grounds of the Convent of the Sacred Heart. It seems to me that the termination of the avenue, as fixed by the Act, might be improved by opening it into the Kingsbridge Road, somewhere near Breakneck Hill, by means of which convenient access to the plateau on the hill, to the north part of the Island, and across the city, could always be had. To effect this, an alteration in the law would be required.

As power to make applications for opening the streets in the district above 155th street, and for opening and widening several streets below that street is vested in this Board, I think it exceedingly desirable to apply to the Legislature for such amendments to the law as will facilitate a reduction of the expenses of this class of proceedings, and to get rid of the gross abuses that have long fastened upon them.

The manner in which any plan that may be presented by the Board will be received by the public, depends much upon the evidence it bears of an intelligent, comprehensive, appreciation of the various subjects it presents. To ensure the approval of present and future times, it must comprise something more than a succession of regular figures, such as instinct leads the industrious insect to arrange for its habitation and storehouse. It would be easy to write an essay that would stimulate and encourage the imagination with visions of parks, groves, terraces, fountains, statuary and palatial residences; we have, however, to deal with practical things and not excite unattainable expectations. Money will be needed, and it should, as far as is possible, be required at such times, and in such amounts as will not be burdensome, and so applied as to give no just occasion for criticism. While sufficient time should be taken to thoroughly mature a plan, it is to be remembered that delays are prejudicial to the interests of proprietors as well as to the convenience of the public; until the lines and grades of the streets and avenues are determined, improvements will be retarded. The unsettled plan operates as notice to proprietors that if they proceed to improve, it is at the risk of waste of their outlay. This state of things ought not to exist one day longer than is necessary, and energy and intelligence should combine to terminate it. The tendency of modern contrivances for transportation seems to be to facilitate the mass-

ing of population in cities. New York, præeminently commercial, is rapidly becoming a great manufacturing centre of the country, population presses upon its territory, and with convenience for rapid travel through its extent, will very soon wholly occupy it. For the want of convenient means of reaching the upper part of the island in the same time that points thirty miles further off can be reached, population is compelled to seek the towns in the country. Tarrytown can, by the cars, be reached from Chambers street in less time than it requires to get by the horse-cars to Harlem River Bridge, and numerous other places, similarly situated, receive accessions of population from the city because the means of rapid movement to desirable situations on the island are not provided. This is a subject of permanent interest to the city, and to owners of property that is not occupied because it cannot be got at. Something more than the accommodations now furnished by horse-cars must be had.

If we assume the population of the city, in 1865, at one million, which is probably less than its actual number, and that the increase is to continue in the same proportion as it has for fifty years past, the year 1880 will close with two millions people on this island. On this assumption, the territory south of 135th street will be built over in ten years, and all south of Kingsbridge in five years more, even on the supposition that the north part of the city is to be as densely occupied as the more central

part. There are doubtless portions of the marshy grounds on the Harlem River that will for a time be left unoccupied in the flight of population. The settlement of the island is not by the regular building up of entire successive streets, the avenues are generally first filled, and settlements radiate from centres, like Harlem, Yorkville and Bloomingdale. The wise exercise of the powers of the Board, on the subjects under consideration, will do much towards accommodating this rapid growth, a commodious system of ways will provide unobstructed circulation for this increasing tide of human existence, and enhance the comforts of daily life, by rendering habitations of the people more salubrious and agreeable.

New York, December, 1865.

Respectfully submitted,

ANDW. H. GREEN,

Comptroller of the Park.