

filling and grading at \$1,752,424, amounting, with proportionate contingencies of \$411,134, to a total of \$4,522,483.<sup>1</sup>

The corresponding expenses under the open-valley plan have been approximately estimated at \$100,000<sup>2</sup> for the improvement of the channel, \$230,000<sup>3</sup> for excavation and grading, and \$200,000 for retaining walls, etc., amounting, with \$53,000 contingencies, to a total of \$583,000.

To these preliminary expenses must be added, in the case of the second plan, the cost of building additional bridges across the valley and renewing some of the existing bridges, which, according to their number and character, might amount to from \$1,000,000 to \$1,500,000, to be expended from time to time as occasion may demand, while from the cost of the first plan is to be deducted the net salable value of the land not occupied by streets and parkways, amounting to about 1,160,000 feet.<sup>4</sup> While any estimate of this salable value can be little more than a guess, we may accept as a basis the estimates given in Captain Rosell's report, taking as the minimum 86 cents and as the maximum \$2.58 per foot.<sup>5</sup>

This would give maximum gross returns of \$2,992,800, and minimum gross returns of \$997,600; or, after deducting the cost of neces-

<sup>1</sup> Senate Mis. Doc. No. 21, 52:2, p. 3.

<sup>2</sup> This figure of \$100,000 provides for the removal of minor irregularities and the protection of the banks from wash.

<sup>3</sup> An approximate estimate by this Commission gives—

450,000 cubic yards of earth to be moved within the valley itself, at 40 cents.....	\$180,000
100,000 cubic yards of earth to be excavated and removed to Potomac Flats or elsewhere, at 50 cents.....	50,000
	<hr/>
	230,000

<sup>4</sup> This area is less than that given in Senate Mis. Doc. No. 21, because of the additional land required for a wide boulevard.

<sup>5</sup> The estimated value of these lands under condemnation in 1892 averaged 86 cents per foot, and the estimated value under sale was given as twice that amount. Senate Mis. Doc. No. 21, p. 7. The minimum value under sale assumed in this report is equal to the previously estimated value under condemnation, and the maximum value assumed is three times that amount. The maximum value is from nine to twelve times the present average assessed valuation of improved upland property in neighboring parts of Georgetown, and between three and four times the valuation of similar improved upland property in Washington.

sary streets, \$130,000,<sup>1</sup> net gross returns not less than \$870,000 nor more than \$2,860,000.

From the above figures it would appear that under favorable circumstances the profit on land sales under the first plan might make its total cost some \$400,000 less than that of the second plan, but that otherwise its cost might exceed that of the second plan by some \$2,000,000.

This is not, however, quite a sound comparison, because, on account of the magnitude of the work and the length of time required for the settlement of the enormous fill under the first plan, it would be not less than fifteen and probably twenty years from the beginning of the work before the land or the boulevard would become available for use,<sup>2</sup> while the less costly second plan would be completed within five years. The interest charges, at 2 per cent, on the sums invested in land holdings and in construction under the second plan, would be nearly \$400,000; but under the first plan during fifteen years they would amount to over \$2,000,000, and, should they run for five years more, would amount to more than three and a quarter millions.

It is evident, after all due allowance is made for the imperfect data upon which the comparison is based, that the first plan would under any circumstances be far more costly than the second plan with its open valley.

The parkway provided under either plan would be in itself agreeable and dignified. Under the first, or culvert plan, there would be a

broad, central roadway, flanked by four rows of trees in turf parkings, with promenades. Outside of these parkings would be wide streets for house frontage and for traffic, with the usual sidewalks and narrow parkings. The grades would be easy, the alignment agreeable, and the general effect, regardless of the quality of the abutting private property, would be similar to that of many of the notable boulevards of European capitals. But it is impossible so to disregard the appearance of the surrounding and inclosing buildings, for in boulevards of this formal urban type it is the buildings that fix the character, while the trees are merely a decorative adjunct.

The portion of Georgetown and Washington through which the line

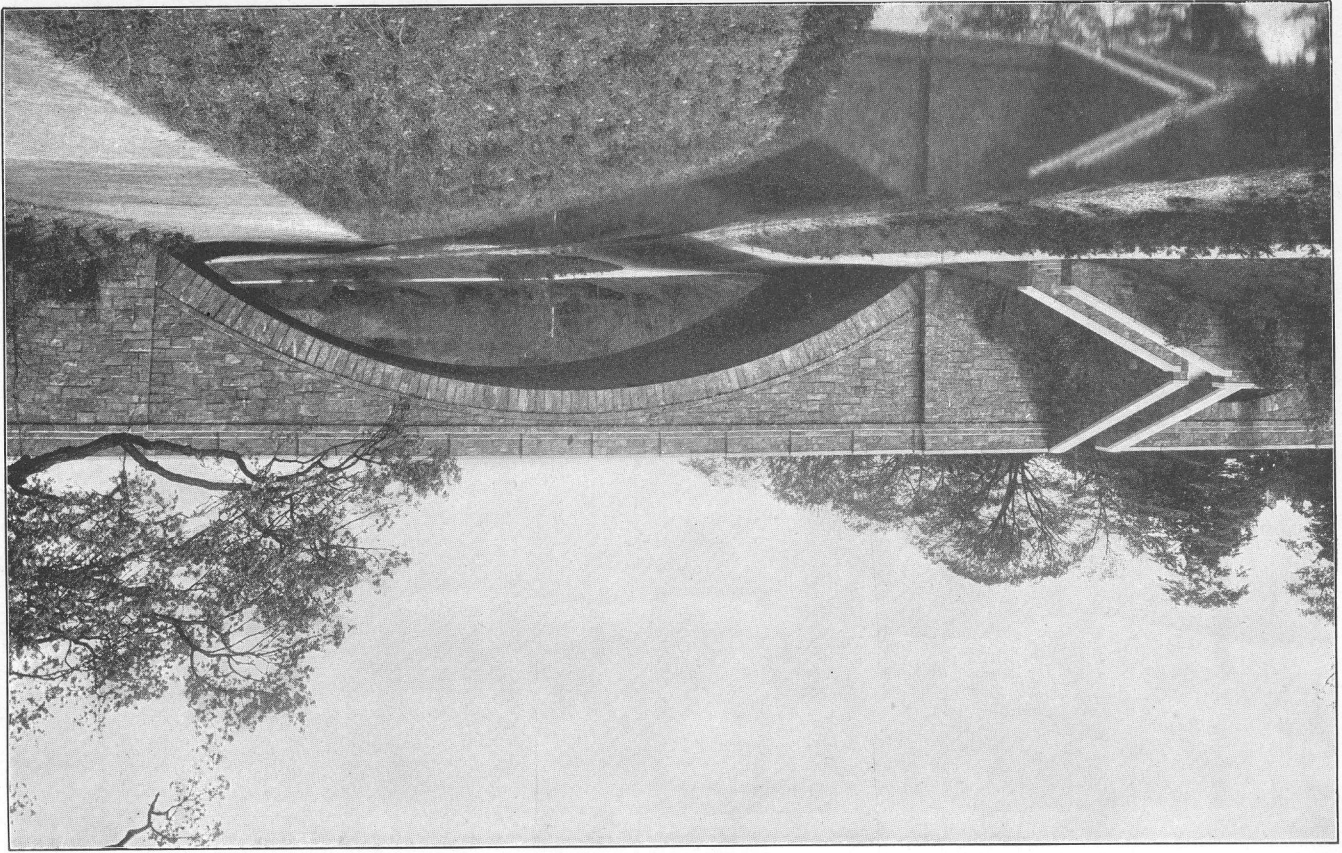
<sup>1</sup> 8 550 linear feet of 90-foot street, estimated at \$13.75 per foot by District Commissioners' office, \$117,562.50, plus 10 per cent for contingencies, equal \$129,318.75.

<sup>2</sup> Senate Mis. Doc. No. 21, 52d Cong., 2d sess., p. 6.

passes is now given over partly to manufacturing and partly to a poor class of residences. It is very far from agreeable in appearance, and it is hardly to be expected that it will become a first-class part of the city, because natural growth exerts no pressure in that direction. The tide of development can often be deflected by park and street improvements, but it can very seldom be reversed. A parkway, therefore, built according to the first plan would probably be lined by factories, tenement houses, and the like, on a level with the drive and separated from it only by the width of a street and four rows of tree trunks. A formal urban boulevard is very dignified, impressive, and interesting when it presents an agreeable aspect of city life, but when it presents a disagreeable aspect of city life and remains, as it must, just as intimately a part of that life it ceases to be satisfactory.

Under the second or open-valley plan the broad main drive accompanied by paths would run along a little above the creek, somewhat as does the new drive through Rock Creek Park. The present valley, which has been narrowed by the constant dumping of earth over its edge, would be widened by excavation at the restricted points to a semblance of its original form and clothed with turf and trees, while the necessary provision for business traffic and for building frontage would be made by border roads on a level with the existing streets. Along these border roads the same factories, tenements, and the like would doubtless be built as in the other case, but with the traffic roadways from 30 to 40 feet above the park drive such occupation would not intrude itself forcibly upon the attention, even if it were not entirely cut off from view.

Besides secluding the parkway from direct and intimate association with an unattractive part of the city, the higher elevation of the regular streets would permit them to cross the parkway above grade by bridges spanning the valley, so that the busy and growing traffic of pedestrians, wagons, carriages, and especially electric cars would not be brought into conflict with the pleasure travel. From every point of view this is to be desired. For the driver of a spirited horse, for the wheelman, even for one strolling afoot along the parkway, the necessity for crossing a busy thoroughfare at every block, together with several electric-car lines, would seriously mar the ease and comfort of a pleasure excursion, while the obstruction to business traffic by grade crossings of a thronged parkway is not to be ignored. In the city of Boston recently the objections to a long diagonal crossing

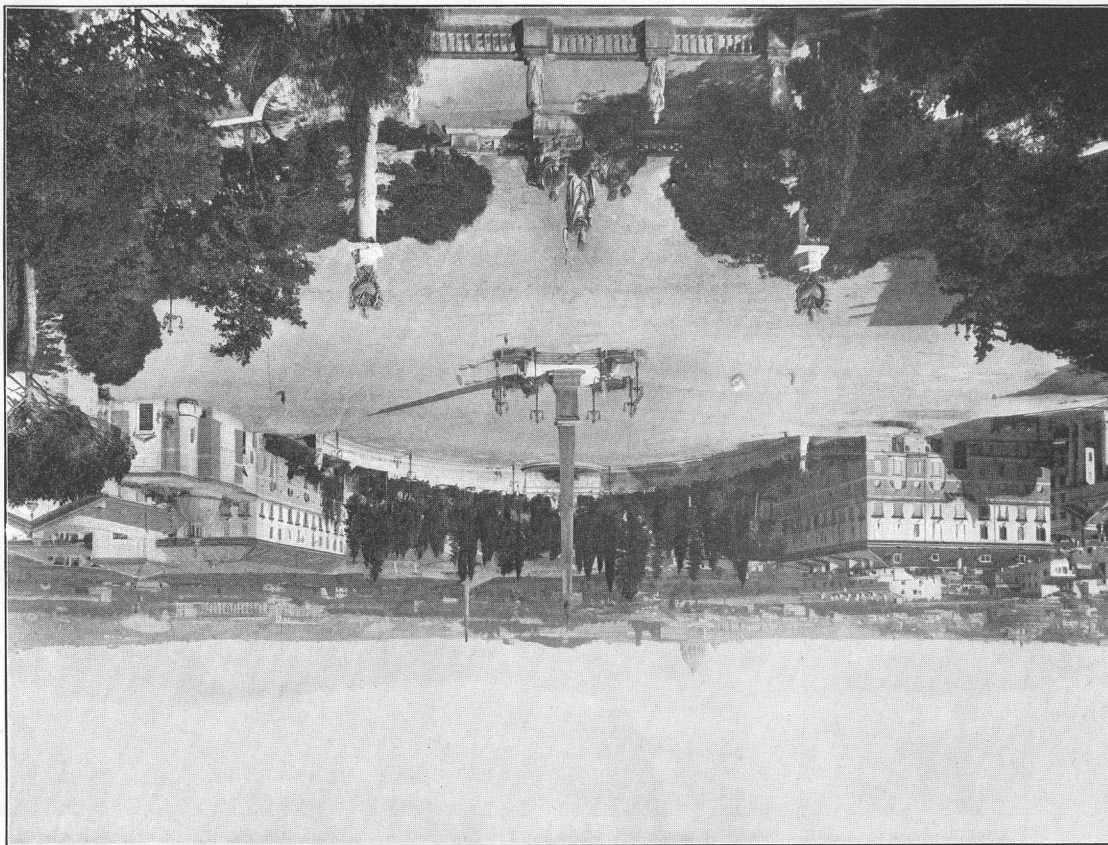


of a traffic street with the principal parkway were felt to be so great that the city went to a large expense to provide a second street for traffic and electric cars, less direct, but passing under the park drive.

An advantage of the street-level boulevard that would offset, at least in part, the obstruction which it might offer to cross traffic is, that it would permit more connecting streets across the valley than would be reasonable or feasible with the open valley plan, where each cross street would have to be carried on a bridge. But with half the streets carried across on bridges, as is perfectly feasible, the interference of the valley with cross-town travel would be very slight. It is not a question of a uniform tide of travel from one side of the valley to the other; it is a question of travel between various regions somewhat remote on either side—travel which naturally tends into a few main arteries. If the valley were converted into a uniform plain the bulk of the travel would still continue to flow on a few principal lines, and if these be well provided for by bridges the absence of a few intermediate crossings will be of little consequence.

Objection has been made to a valley parkway secluded in any degree from the streets by difference in level—particularly if the seclusion be increased by trees and bushes—on the ground that it would be very difficult to police in such a region as that bordering upon Lower Rock Creek. This raises a problem not to be lightly pushed aside; but if carried to its logical conclusion, it means that we are to have in the poorer quarters of the city no parks in the least degree retired from the streets or materially differing in treatment from their bald and sordid surroundings; for any park is more liable to abuse than is a street. The answer to the objection is that we can not have good things in this world without paying for them and that part of the price of parks is the policing of them. The attempt to secure the policing of parks as a mere incident of street policing is not a wise policy and must in any large city give way to a regular and systematic policing of the parks. Moreover, in this particular case the difficulty may easily be exaggerated, for the fact that the sides of the valley cut off the sight of adjacent streets and houses from the main drive and paths does not necessarily mean that the valley itself is to be filled with dense thickets and somber groves. It may, indeed, be open and sunny, with but enough trees to give desirable shade.

It would appear, then, that the open-valley project would afford the more satisfactory parkway and that its cost would certainly be much



NO. 75.—PIAZZA DEL POPOLO, ROME. A COMMANDING SITUATION WISELY TREATED FOR THE ENJOYMENT OF THE PEOPLE.

less than that of the culvert plan; but there are still other points to be taken into consideration, of which the most important is, perhaps, that the culvert plan would add a considerable area to the building land of the city, from which in time a large income would be derived in taxes. The same argument may be raised against the withdrawal of any park land from commercial occupancy, and it is merely a question whether in this case the value of the park-like borders to the drive and its partial seclusion from disagreeable surroundings would be worth the loss in taxes. In our opinion it would be, especially when it is considered that the potential purchasers of this land are not likely to be lost to the District as taxpayers, but will simply purchase other private land, increasing its value by improvements and paying the same taxes upon it. This raises the question, too, whether it is a wise policy and in accordance with our principles of government for the public authorities to go into real-estate business in competition with the citizens. There appears to be at present no lack of land for sale in Washington, but rather a lack of sufficient market, and for the Government to put additional land upon that market would seem a questionable blessing. If the Government is not to go heavily into real-estate speculation in competition with the landowners of the District, the cost of the culvert project becomes so enormous as to be utterly out of the question.

It is our conclusion, then, that the Rock Creek parkway should be treated as an open valley, crossed as often as may be necessary by handsome and substantial bridges, flanked by traffic roads connecting on a level with the adjacent city streets, and including at a lower level near the stream a drive or drives and such paths as may be needed.

#### APPENDIX E.—BOTANICAL COLLECTION.

THE advantages to botanical science, to horticulture, to forestry, and to landscape architecture, of a great systematic collection of living plants under the direction of the Department of Agriculture, are too great to need argument. The Department has already found itself compelled to make partial collections for study and experiment in special fields; but from lack of funds and because of the limited purposes in view in each case, these collections have been quite unrelated one to another, and have been unavailable for general purposes. The investigations of the Department and others who have occasion to study large groups of plants for any purpose, have no such collection of living and growing specimens at their disposal as have been got together by the Government authorities of England, France, Holland, Germany, and Russia. They have been compelled to rely mainly upon the dried specimens of herbaria, supplemented by a very few collections of living plants maintained by educational institutions.

Although of immense value to the purely scientific, systematic botanist, the dried herbarium specimens are of very limited use in studying the general character, appearance, and habits of the plants in nature; and it is in order to meet the practical requirements of the people at large, who want to use the plants intelligently in farming, gardening, forestry, and ornamental planting, that the living plants should be brought together so that they can be examined with economy of time and travel. The existing collections, of which the Arnold Arboretum at Boston, the Shaw Botanical Garden at St. Louis, and the New York Botanical Garden are the most important, are limited in their ability to supply this need, not only by reason of the space required for a complete collection and the cost of the work, but because of local climatic

conditions, for in the climate of Boston, New York, and St. Louis thousands of plants of the utmost value and interest to large sections of the country can not be grown at all.

A great and adequate national botanical collection will necessarily be a slow growth, and its organization and arrangement must be the outcome of long study and gradual development; but as suggestions to guide the steps that may first be taken toward its establishment, the following conclusions of the Commission may be helpful. They are the result of some familiarity with the present arboreta and botanic gardens and of discussion with several botanists of eminence.

It is obvious that all the plants native to the territory of the United States, to say nothing of desirable exotics, can not possibly be gathered together in a single place and grown there. Their climatic requirements range from the arctic to the tropical; and even within the main continental territory of the United States there are differences quite as radical, if not so striking, as between Alaska and our tropical islands. We should therefore look forward to the ultimate establishment of several working collections, probably in connection with certain of the invaluable experiment stations of the Department of Agriculture, in a few localities having typical climatic conditions fairly representing the whole range of United States territory.

It would doubtless be possible to arrange for utilizing such valuable existing collections as those of the Arnold Arboretum, the Shaw Botanical Garden, and the New York Botanical Garden as the stations for their respective sections, supplementing their present activities and resources by governmental cooperation, bringing them into closer touch with one another, so organizing their aims and efforts as to avoid needless repetition and waste of energy, and providing for the prompt and full publication of the results of study at the various centers. This branch of the undertaking would require but little expenditure in proportion to the results, for it would in the main but provide for the wise and orderly direction of the existing local activity of wealthy communities; but it is quite as important to the welfare of the country that there should be similar working collections for study and experiment in less developed sections, where local activity can not be expected for very many years to establish them, where far less is known as to the possibilities of plant life, and where such knowledge would be of immense advantage to the development of the country.

Washington is the appropriate place for the station representing the climatic region of the Middle Atlantic States, and southward to the beginning of the subtropical section, and it should be provided with a large working collection of the flora, both native and introduced, of the region which it represents. Like the other working collections that at Washington should be placed and arranged with a view, first, to the successful growth of the plants under fairly normal conditions, second, to convenience in caring for them, and studying them as individuals and botanical series, and only third, to the appearance of the collection as a whole. It is a business proposition, and not a matter primarily of public recreation.

As stated, however, in the body of the report, it is desirable, as a matter of popular instruction and enjoyment, and also for the sake of presenting in a clear and forcible manner the greater and more fundamental aspects of systematic botany, that there should be in addition to this large working museum, a synoptic collection representing all the more important botanical divisions by those species of each group having the greatest interest, whether economic, artistic, or purely scientific. Such a collection as this, which might well be placed in Potomac Park, should be selected and arranged not only with a view to the successful growth of each species of tree, bush, and herb, and to their convenient inspection, but with the most scrupulous regard to the pleasing character of the resulting landscape, a motive that could not be followed with great success in the unlimited miscellaneous collection for experimental purposes.

In such a synoptic series, for example, the seventy or eighty species of oaks of the United States would be represented only by the kinds of greatest importance, which are certain to grow at Washington into great and beautiful specimens of an aspect that will fit in harmoniously with the proposed landscape of the park; the sixty or seventy species of hawthorn would be represented by a few of the commonest and most beautiful varieties, upon whose appearance when grown it is possible to count with reasonable certainty, and which therefore can be so placed as to produce a pleasing result; and similarly with the smaller shrubs and herbaceous plants. With the two latter especially the results of cultivation can be indicated in a beautiful and striking manner by choosing a few of the genera that have responded most successfully to garden cultivation and exhibiting them very perfectly,

presenting, for example, every one of the almost countless varieties of lilacs, of clematis, of peonies, or of poppies, and of a few of the more interesting economic plants, such as grapes. A few such collections, grouped each by itself in a retired garden or bay of the wood along the easterly side of the park, if well planned with that end in view, need in no way interfere with the quiet simplicity of its general landscape, and would afford an immense amount of enjoyment as well as instruction.

APPENDIX F.—LIST OF THE DRAWINGS, DESIGNS, AND MODELS ILLUSTRATING THE REPORT OF THE COMMISSION ON THE IMPROVEMENT OF THE PARK SYSTEM OF THE DISTRICT OF COLUMBIA.

[Exhibited at the Corcoran Art Gallery, Washington, D. C., January 15 to February 25, 1902, and now on exhibition in the Library of Congress.]

GALLERY.

CENTRAL GROUP.

1. Map of District of Columbia, showing existing public spaces.
2. Map of District of Columbia, showing existing and proposed public spaces.
3. Map of District of Columbia, showing proposed additions to park system.
4. Diagram of the parks of New York.
5. Diagram of the parks of Boston.
6. Diagram of existing and proposed parks of Washington.
7. Diagram of the existing parks of Washington.
8. Diagram of the parks of Paris.
9. Diagram of the parks of London.
10. Typical section of Potomac Quay.<sup>1</sup>
11. Typical section of Rock Creek Parkway. Treatment recommended.
12. Typical section of Rock Creek Parkway. Alternative project with covered channel.
13. Typical section of one of the Valley Parkways, such as Piney Branch, Soapstone Creek, and Georgetown Parkways, showing the preservation of existing natural scenery.

<sup>1</sup>The sections Nos. 11 to 17 were rendered by Sears Gallagher and Percival Gallager.

14. Typical section of Potomac Drive, short distance above Aqueduct Bridge.
15. Two panoramic views showing present conditions.
16. Typical section of Potomac Drive below Chain Bridge.
17. Section of Savannah Parkway.
18. Plan of Savannah Parkway.

## MALL DIVISION.

19. General plan, describing area included between Capitol and Lincoln Monument, White House and Potomac Park.
20. Birds-eye view of general plan from point taken 4,000 feet above Arlington. (Rendered by F. L. Hoppin.)
21. Birds-eye view of general plan from point taken 4,000 feet over Insane Asylum, Anacostia Heights.

## CAPITOL DIVISION.

22. Plan of Capitol grounds (L'Enfant) 1791.
- 22*a*. Plan of Capitol grounds (Thornton) 1803.
23. The Capitol. West elevation, showing proposed Terrace, restoration of the Bulfinch gates and boundary fence, fountains and approaches. Rendered by A. R. Ross.
24. Section through same, east and west. Rendered by A. R. Ross.

## MONUMENT DIVISION.

25. Plan showing proposed treatment of Monument Garden. Rendered by Geo. de Gersdorff.
26. Section through Monument garden on White House axis, showing proposed treatment of approaches and terraces forming a setting for the Washington Monument. (Looking east.) Rendered by A. R. Ross.
27. Section through Monument garden on Capitol axis, looking north toward White House. Rendered by A. R. Ross.
28. Section through Mall at Fifteenth street, looking west, showing Monument approaches and terraces. Rendered by A. R. Ross.
29. Section through canal, looking east, showing terraces and approaches to Monument garden. Rendered by A. R. Ross.

## LINCOLN MONUMENT DIVISION.

30. Plan showing proposed treatment of Lincoln memorial site.
31. Elevation of same on proposed site.
32. Section of same.
33. General section, Lincoln monument site, showing proposed memorial bridge connection at this point.

## HEMICYCLE.

34. Model of Mall, including areas between Capitol and Twenty-seventh street, White House and Potomac Park, showing present conditions. Scale, 1 foot equals 1,000 feet. George Carroll Curtis, geographical sculptor.
35. Model of Mall, showing treatment proposed by the Commission. Scale, 1 foot equals 1,000 feet. George Carroll Curtis, geographical sculptor.

## CAPITOL DIVISION.

36. View of Capitol as seen from Mall (Third street). Rendered by Robt. Blum.
37. View showing proposed treatment of square at head of Mall. Rendered by C. Graham.
38. Gate house and posts, old Capitol Grounds. (Bulfinch.)
39. View showing proposed treatment of basin, terrace, and Capitol approaches, head of Mall. Rendered by Henry McCarter.

## MONUMENT DIVISION.

40. View of Monument and garden terraces from White House. Rendered by Jules Guerin.
41. View of Monument and garden terraces, seen from canal, Lincoln division. Rendered by Jules Guerin.
42. Views of projected buildings, restaurants, pavilions, etc.
43. One of the six pavilions in Monument garden. Rendered by Henry McCarter.
44. View in Monument garden, main axis, showing proposed treatment of approaches and terraces, forming a setting for the Washington Monument. (Looking east.) Rendered by Jules Guerin.

45. View from terrace, base of Monument, looking toward Arlington. Rendered by Jules Guerin.
  46. View from terrace, base of Monument, looking toward White House. Rendered by Jules Guerin.
  47. View of terrace and approach to Monument, seen from the garden. Rendered by H. McCarter.
  48. View of Monument garden, looking toward White House. Rendered by O. H. Bacher.
- LINCOLN DIVISION.
49. View showing proposed development of site for Lincoln memorial, seen from canal. Rendered by Robt. Blum.
  50. Proposed development of Lincoln memorial site, seen from Riverside Drive. (Rendered by Carlton T. Chapman.)
  51. View of the same, seen from Old Observatory site. Rendered by Jules Guerin.
  52. View of same, seen from Washington Monument. (Rendered by O. H. Bacher.)

## WASHINGTON COMMON DIVISION.

53. View of memorial structure and public playgrounds looking south. (Rendered by Jules Guerin.)
54. View of Washington common and public playgrounds, showing proposed baths, theater, gymnasium, and athletic buildings. (Rendered by Jules Guerin.)
55. View of public square and above group of buildings, showing proposed memorial structure. Rendered by Jules Guerin.

## MALL DIVISION.

56. View in Mall at Sixth street. Rendered by J. Guerin.
57. Mall seen from Fourteenth street, looking toward Capitol. (Rendered by Jules Guerin.)
58. General view of Monument Garden and Mall, looking toward Capitol. (Rendered by C. Graham.)
59. View of Monument seen from Mall at Fourteenth street. (Rendered by Jules Guerin.)

- 59*a*. View from the West—Monument.
- 59*b*. View from balloon.
60. Projected plan of the City of Washington, 1790, designed by Peter Charles L'Enfant, under the direction of General Washington.
61. Plan of the City of Washington, 1791, designed by Peter Charles L'Enfant, under the direction of General Washington.
- 61*a*. Model of Monument Garden. Scale, 1 inch equals 32 feet.

## PHOTOGRAPHIC ENLARGEMENTS.

62. Fountain of Marcia, Rome.
63. Fountain in Front of Farnese Palace, Rome.
64. Fountain, Place Chateau d'eau, Paris.
65. Parade Ground, Boston Common.
66. Column in Garden of the Luxembourg, Paris.
67. Broad Avenue, Old Hadley, Mass.
68. Avenue, Cirencester, England.
69. Avenue, Windsor.
70. Broad Avenue, Old Hadley, Mass.
71. "Charles Sumner" Elm, Front of Capitol, Washington.
72. View from Terraces, St. Germain, Paris.
73. Terrace, Garden of the Tuilleries, Rue de Rivoli, Paris.
74. Fountain, Hampton Court, London.
75. Piazza del Popolo, Pincian Hill, Rome.
76. Ringstrasse, Vienna.
77. Fountain and Vista, Chantilly, France.
78. Fountains, Versailles.
79. Fountains, Versailles.
80. Fountain, Place Saint Sulpice, Paris.
81. Fountain of San Paolo, Rome.
82. Fountain de l'Observatoire, Paris.
83. Fountain Versailles.
84. Fountain, Barberini Palace, Rome.
85. Fountain of the Medici, Garden of the Luxembourg, Paris.
86. Fountain, Quirinal, Rome.
87. Terrace, Versailles.