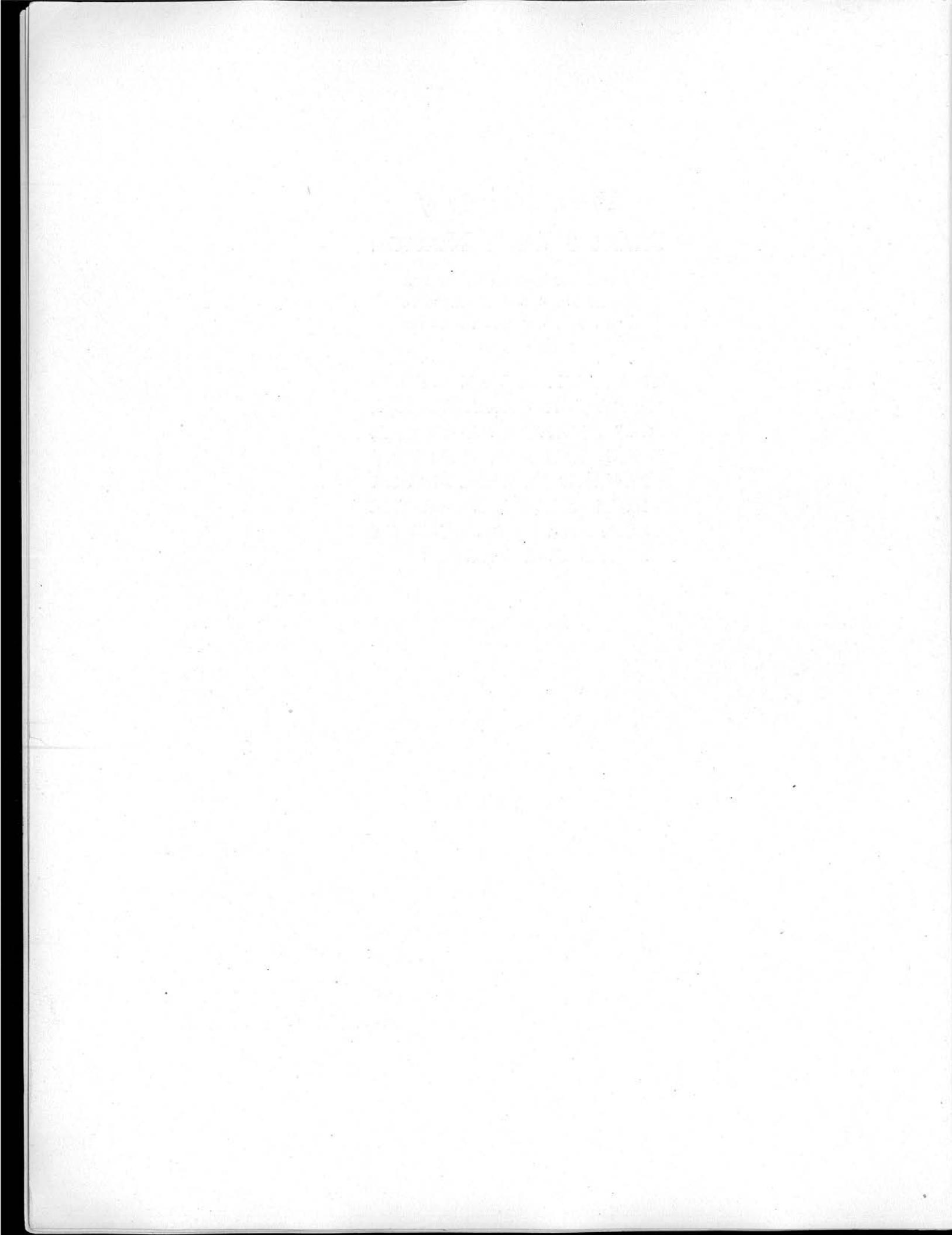


To the Memory of
CHARLES DYER NORTON

THE FIRST CHAIRMAN OF THE
COMMITTEE ON THE REGIONAL
PLAN OF NEW YORK AND ITS
ENVIRONS

IN APPRECIATION OF HIS
COMPELLING ENTHUSIASM,
ENERGY AND LEADERSHIP,
THESE VOLUMES, CARRYING
FORWARD THE WORK FOR
WHICH HIS VISION SAW THE
NEED, ARE DEDICATED BY
HIS COLLEAGUES



FOREWORD

IN THIS final volume the Committee on the Regional Plan of New York and Its Environs completes its presentation, in descriptive text, maps and drawings, of the Regional Plan. About nine years have elapsed since the Committee made a start with this undertaking. The voluminous monographs on important phases of city and regional planning which it has published give some indication of the extensive field of inquiry that has been covered and the wide ramifications and extraordinary complexities of the problems dealt with.

The Plan, including the part of it which is outlined and illustrated in this volume, has been both a collective and an individual task. The ideas and designs it contains are usually a composite of many minds, and include contributions in thought and collaborative effort of eminent architects, engineers and city planners, as well as of members of an able staff.

It was found essential, however, for the sake of unity in the comprehension of problems and in designs, that the direction and control of the task of making the elaborate survey and plan should be the work of one individual. In an even greater degree it has been essential that the complete analysis of the innumerable related problems, the sifting of essentials and non-essentials, the logical sequence of their presentation in the text of the reports, and the determination of the grouping and coordination of all the elements of the Plan in a single concept, should be done by one person. This was the task assigned to Mr. Thomas Adams, the author of this volume and of a great part of the text of the other published reports.

This task has involved the initiation of many ideas and projects in addition to the supervision and coordination of proposals and designs of collaborators; the development of a new philosophic conception of city planning under modern conditions in a democratic country; and the study of every fact and line of text in the reports leading up to the whole ten volumes of the Survey and Plan.

In this volume Mr. Adams presents a conception of the spirit that enters into the making of cities, an outline of the principles and standards that

FOREWORD

must be followed in guiding the building of cities in the New York region, and a series of illustrations of special opportunities for development in the Region. The delay in its publication has been mainly due to the need of sifting and coordinating a great quantity of material and ideas.

The Committee hopes and believes that the results already obtained from the Plan fully justify all the effort and expenditures made. It has been notably successful in the intangible forms of creating a city planning consciousness and stimulating local effort, as well as in influencing and guiding actual developments in the right directions. It has also, we believe, rendered a real service in establishing some of the principles underlying the problems of city and regional planning, and so has been of use to those struggling with similar problems elsewhere.

This volume marks the climax to the work of the Committee, but, as is said in the concluding chapter, it is a beginning rather than an ending in what must be a continuous process of planning. What we have attempted to do is only to lay the foundation for planning the future development of the Region. On that foundation there must be built a wider understanding of needs and problems in the physical structure of the city, a wider appreciation of true economy, of order and beauty in city building, and a fiery discontent with those conditions that destroy or impair the home.

The duty of carrying on the educational work and promoting the development of the Region in harmony with the Regional Plan has been undertaken by the Regional Plan Association, a permanent body that has been formed for this purpose, under the distinguished leadership of Mr. George McAneny.

In signing my name as Chairman of the Committee, I cannot do so without a reference to my talented predecessor whose genius and enthusiasm inspired the task—for to Charles Dyer Norton belongs the credit for initiating and launching the project. It was he who was able to convince the Trustees of the Russell Sage Foundation that the work was worthy of their support through a period of years. I feel confident that the inspiration and foresight that were behind the Plan at the beginning will continue as an impelling force with those who must now take up the manifold tasks of executing it.

December, 1931

FREDERIC A. DELANO

AUTHOR'S ACKNOWLEDGMENTS

THE making of the Regional Survey and Plan, described in this and the preceding nine volumes, has been a work of collaboration on the part of a large number of persons. This fact did not prevent proper recognition being given to those who made individual contributions to the eight volumes and numerous supplementary monographs that analyzed and described the Survey. It has, however, presented some difficulties in assigning credit and responsibility to persons who have made contributions to the two volumes in which the Plan itself is presented. The first of these volumes was so much a joint undertaking that it was thought best to issue it as the work of members of the staff of the Regional Plan. This, the second volume, also is the result of much collaboration. While I am personally responsible for the ideas and conclusions it contains, these ideas and conclusions are the fruit of a continuous process of discussion of facts, tendencies and principles by members of the Committee and its staff, over a period of seven years.

Among those whose contributions to the Survey and Plan have been outstanding and not adequately acknowledged in the volumes are Mr. Frederick P. Keppel and the late Nelson P. Lewis. Whatever achievement the work of the staff may represent is due in large measure to the inspiring and skilful leadership of Mr. Keppel and the guidance of Mr. Lewis, with his unique engineering ability and knowledge of New York, during the early years of the undertaking.

At all stages the assistance and advice of Mr. Edward M. Bassett, Mr. Henry James and Mr. Robert Whitten have been especially valuable. It is believed that, in the main, the volumes constitute a "body of doctrine" that will be endorsed by all who have shared in the task of making the Survey and Plan.

In preparing the text describing the proposals, and in carrying out the extensive editorial work that has had to be undertaken, I have enjoyed the able collaboration of Mr. Harold M. Lewis and Mr. Lawrence M. Orton. Technical contributions of value have been made by Mr. C. Earl Morrow. Painstaking secretarial work has been efficiently carried out by Miss Frances Perry and Miss Loretta Hendrick; and also by Miss Abby R. Pike, who has prepared the indexes for this and all preceding volumes.

The names of those, including several eminent architects, who have cooperated in preparing designs for specific projects, are mentioned in the text or are printed under the drawings illustrating the designs, but no names are given on plans or drawings that have been produced by the joint efforts of members of the staff. With few exceptions the making of plans and drawings has been the result of collaboration. One of the exceptions is the contribution of Mr. Eric Gugler, who, with the aid of Mr. Paul Manship, made the design for the monumental treatment of Battery Park. This has been a labor of love on their part and is gratefully acknowledged on behalf of the Regional Plan Committee. The plan of Radburn is an independent, but none the less significant, contribution to the plan of the Region. It was prepared for the City Housing Corporation by Mr. Clarence Stein and Mr. Henry Wright, in consultation with Mr. Robert D. Kohn and Mr. Frederick L. Ackerman, and with myself as representing the Regional Plan.

May I use this opportunity to say, on behalf of the staff, that the confidence imposed in us by the Committee and its Chairman, Mr. Frederic A. Delano, their untiring patience and unfailing soundness in leadership, have contributed in a major degree to the completion of a task that, with all modesty, has required unusual concentration of will and energy.

THOMAS ADAMS

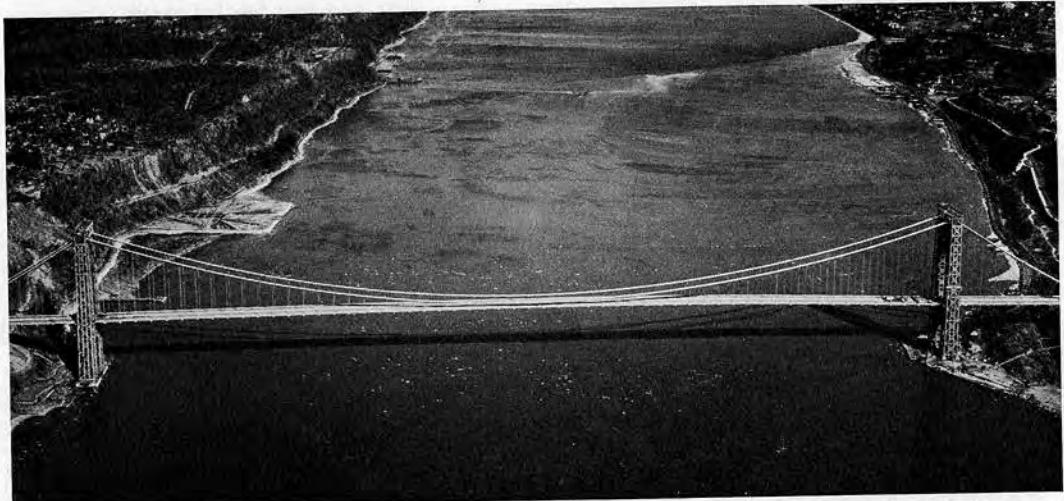


Photo by Curtiss-Wright Flying Service

THE GEORGE WASHINGTON BRIDGE—OPENED OCTOBER 24, 1931

One of the first acts of the Regional Plan Committee, in 1923, was to recommend to the Port of New York Authority that the bridge over the Hudson be erected at 178th Street instead of at 57th Street, as then proposed. The bridge, like the Regional Plan, forms a link between New York and metropolitan New Jersey.

TABLE OF CONTENTS

PART I

THE MAKING OF THE CITY

	PAGE
I. CITY BUILDING IN A DEMOCRACY	
Planning Traditions in America	25
The Planning and Building of Washington	26
The Re-planning of Chicago	31
Traditions of New England in Town Building	31
Making and Remaking Cities and Towns in the New York Region	33
The Problems of New York City	36
Past Planning in New York City	38
The Future of the City and Region	42
II. CIVIC ART IN RELATION TO STREET PLANNING AND ARCHITECTURE	
Comprehensive Planning in the Past	47
Early Planning of Street Systems	50
Planning and Growth in the Nineteenth Century	54
The Example of Paris	58
The Re-planning of Paris	60
Defects of Suburban Growth in the Environs of Paris	63
Permanence in City Building	66
Differences between New York and Capital Cities	68
Space about Buildings in New York	75
III. CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS	
Art and Economics	79
Art in Work	79
The Economic Foundations of the City	80
The Endurance of Building	82
The City as a Home	86
Civic Art and Living Conditions	86
Architecture and Amenities in the Suburbs	93
IV. BEAUTY AND REALITY IN CIVIC ART	
Beauty as an Objective	99
Architecture and Amenities	99
Social Value of Beauty in Cities	103
Impossible Utopias	105
Beauty and Reality in the Skyscraper	108
Magnificence and Limitations of Skyscrapers	112
V. INDIVIDUALITY OF COMMUNITIES AND THEIR COMMON PROBLEMS	
Traditions and Civic Character	119
Situation in the New York Region	122
Community Spirit and Common Problems	122
Unity through Cooperation	122
The Spirit of New York	126

TABLE OF CONTENTS

PART II GUIDANCE OF BUILDING

	PAGE
VI. PLANNING LAND FOR BUILDING	
Basic Realities in Planning	135
Realities in Law	135
Realities in Social and Economic Conditions and Tendencies	137
Human and Mechanical Power	138
Planning New Developments	141
Recentralization	142
Official Maps	144
Planning of Subdivisions	144
Local Improvement Finance	145
Proportions of Building and Open Land	147
Ratio between Public and Private Areas	147
Open Spaces on Private Land	148
General Standards and Their Application	149
VII. ZONING: PRINCIPLES AND PROPOSALS	
Scope and Methods of Zoning	153
Variety and Uniformity of Regulation	153
Limited Scope of Regional Zoning	155
Related Character of Different Restrictions	155
Social and Economic Basis of Zoning	157
Social Factors	158
Economic Factors in Central Areas	160
Basic Standards for Zoning	166
Open Suburban Areas	166
Close Suburban or Intermediate Areas	171
Sub-Central and Central Areas	177
Practicability of Standards	185
Problems Common to All Areas	190
VIII. HOUSES AND HOUSING NEIGHBORHOODS	
Summary of the Problem	195
Fundamental Elements	195
The Problem of the Suburbs	196
The Problem of the Central Areas	199
Suggestions for a Constructive Housing Policy	201
Assumptions	201
Proposals	203
Regulation of Housing Densities	205
Application of Area-per-Family and Open Space Requirements	208
Public Purchase and Development of Land	214
Greatest Opportunity for Private Enterprise	219
IX. IMPROVEMENT OF TERMINAL FACILITIES	
The General Problem	221
Knots of the Network	222

TABLE OF CONTENTS

	PAGE
Dock and Industrial Waterfront Improvements	223
Facilities on the Hudson River	223
The East River	226
Upper New York Bay	229
Staten Island Piers	230
Brooklyn Waterfront	231
Newark Bay	232
The Lower Bay	233
Methods of Freight Distribution	237
General Factors Affecting the Problem	238
General Methods Proposed	242
A Central Food Terminal and Market	251
Passenger Terminal Facilities	252
Trunk Line Railroad Terminals	252
Transit Services and Ferries as Links in the Terminal System	257
Terminals for Motor Vehicles	258
Sub-Stations for Retail Deliveries	259
Parking Facilities	259
Bus Stations	263
Airports	265
X. FITTING STREETS TO THE BUILDINGS	
Needs and Principles of Street Expansion	275
Inadequacy of Streets in the New York Region	276
Principles of Street Expansion	279
Proposals for Improving Street Capacities	284
New Streets and Widenings	285
Highway Grade Separations in Suburban Areas	294
Two Level Streets in Central Areas	298
Early Engineering Studies of the Regional Plan	299
Proposals of Daniel L. Turner	304
Proposals by Committees of Architects	305
The Proposals of Ernest Flagg	315
Approaches to Tunnels, Bridges and Ferries	316
Responsibility for Cost	317
Methods of Carrying Out Major Street Improvements	318
Conclusion	320
PART III	
OPPORTUNITIES IN REBUILDING	
XI. SCOPE AND CHARACTER OF OPPORTUNITIES	
A Philosophic Conception	325
General Character of Proposals	327
Imaginative Elements	327
Scope of Projects	333

TABLE OF CONTENTS

	PAGE
Special Opportunities	335
Development of Nerve Centers	339
Order of Presentation of Projects	342
XII. IN DOWNTOWN AND MIDTOWN MANHATTAN	
Problems in Re-planning	345
First Architectural Studies	348
City Hall Square	348
West Side Waterfront	349
East Side Waterfront	350
Fifty-ninth Street Section	353
Second Architectural Studies	354
Expansion of the Civic Center	354
West Side Waterfront	356
Midtown and Upper East Side Waterfront	364
Proposals Incorporated in the Regional Plan	376
Their Scope and Relation to Architectural Studies	376
Battery Park Watergate	377
The Civic Center	381
The West Side	388
The Midtown and Upper East Side	392
Second Avenue Speedway and Chrystie-Forsyth Parkway	393
Re-planning the Lower East Side	398
Miscellaneous Street Improvements	407
Elevated Sidewalks and Arcades	411
Summary of Proposed Improvements	416
XIII. IN UPPER MANHATTAN AND THE BRONX	
Central Park	419
Some History	420
Functions of the Park	422
The Traffic Problem—Report by Frederick Law Olmsted, Jr.	423
Proposals	430
Proposed New Parks	436
East River Parkway	436
East River Islands	437
Lower Bronx River Valley	442
Upper West Side and Harlem River Parks and Parkways	442
Upper West Side Waterfront	446
Watergate and Other Proposals South of 125th Street	447
Section between 135th and 158th Streets	449
Vicinity of George Washington Bridge	452
Harlem River Valley	452
Bridges and Approaches at Western Extremity	452
Strategic Advantages of Harlem Valley	455
The Waterway and Its Bridges	456
Land Development	462
East and West Concourse in The Bronx	470

TABLE OF CONTENTS

	PAGE
Upper East Side of Manhattan	470
Some General Considerations	471
Summary of Proposed Improvements	472
XIV. IN BROOKLYN, QUEENS AND STATEN ISLAND	
Inner Brooklyn	475
General Conditions	475
Re-planning of Civic Center and Brooklyn Bridge Approach	478
Columbia Heights	482
Marginal Railroad	488
Summary of Proposed Major Street Improvements	489
Outer Brooklyn	490
Parkway Circuit in South Brooklyn	490
General Needs	492
Jamaica Bay Section	493
Need of Additional Zoning	496
Queens Centers	497
Sunnyside Terminal and Business Center	498
Queens Civic Center and Airport	504
Some Special Highway Problems	509
Highway Intersections in Queens	509
Long Island Approaches to the 38th Street Tunnel	514
Staten Island Developments	517
Commercial Waterfront and Civic Center	517
Combined Park and Pleasure Resort at Great Kills	519
XV. IN METROPOLITAN NEW JERSEY	
Waterfronts in Hudson County	527
Jersey City-Bayonne Waterfront	527
An Opportunity in Hoboken	530
Plan of Bayonne	530
Newark	534
Civic Center	535
New Pennsylvania Railroad Station	538
Plan of Hackensack Meadows	540
General Proposals for Use of Land	540
Straightening of Hackensack River	542
Detailed Sectional Plan	544
Plan of Meadows Reclamation Commission	546
XVI. IN THE ENVIRONS	
Specific Opportunities in Planning	549
Paterson Civic Center	550
Smaller Centers and Architectural Features	553
Preserving the Palisades	556
The Morris Canal	563
An Aspect of the Problem of Preserving Open Areas and Historic Features	566
Planning New Communities	568
Specified Areas Not Proposed	570
Design of New Towns	570

LIST OF ILLUSTRATIONS

	PAGE
XVII. THE END AND THE BEGINNING	
The Regional Plan as an Opportunity	575
Achievements of the Plan	576
Some Final Impressions	577
Utopias and Earthquakes	577
Interference with Liberty	578
Costs Due to Planning	578
Foresight and Stability	579
The Skyscraper and Spaciousness	580
Monumental Buildings and Incinerators	583
Automobiles, Airplanes and Pushcarts	583
Changes of Population Distribution	585
What the Future Holds	586
If Wisdom Prevails	587

LIST OF ILLUSTRATIONS

The Face of the City	<i>Frontispiece</i>
The George Washington Bridge	6

PART I

THE MAKING OF THE CITY

View up Broadway from the Arch of the Customs House	24
Upper Manhattan from University Heights	25
The Lincoln Memorial, Washington	30
A New England Avenue, Manchester, Vermont	32
A Portion of the Old Village Common, Easthampton, Long Island	35
Beauty Resulting from Natural and Spacious Development	37
An Early View of Park Row	39
City Hall Park, Broadway and Park Row, in 1847	41
A View of City Hall through the Arch of the Municipal Building	43
Brooklyn—Past, Present and Future	44
Fifth Avenue, Facing Central Park	46
Ruins of the Temple at Angkor	47
View of Carcassonne	53
New York, from Brooklyn (1876)	56
Beginnings of Bad Housing—Upper Manhattan in 1894	57
The Beauty of the Seine Waterway and Bridges	58
The Seine—Commercial Use of a Waterfront Need Not Destroy Its Beauty	59
Extension of Boulevard Haussmann	60
Louis XIV Commanding the Building of the Invalides	61
The Boulevards of Haussmann	62
Rue de Rivoli	63
Ragged Edges around Paris	65
Design for the New American Embassy in Paris	66

LIST OF ILLUSTRATIONS

	PAGE
Public Buildings in New York	69
New York Office Buildings	70
Museum of the City of New York	71
Notable Church Buildings in New York	73
New York Buildings	74
New York Buildings (Continued)	75
Higher Educational Buildings	76
View across Madison Square	77
Radburn, New Jersey, Where Art and Nature Combine to Make Good Living Conditions	78
A Group of Homes in Bridgeport	79
An Apartment Neighborhood Proposed to Front on the Bronx River Parkway at Fleetwood	83
Open Space in the Block Bounded by Bleeker, Sullivan, Houston and McDougal Streets	84
Tenement Backyards in the Same Neighborhood	85
A Modern Group of Tenements in the Lower East Side of Manhattan	87
Tudor City, Showing Large Open Space Preserved by the Developers	89
A Conception of a Great Apartment House Group on the Manhattan Waterfront	91
Apartments at Radburn, New Jersey	93
Playfields in Union County, New Jersey	94
Bringing a Touch of Nature to City Children	95
A Summer Home, Mt. Kisco, New York	96
Domestic Architecture in the Environs	96
A New York Mansion, Riverside Drive	97
The Hotel Center at Fifty-ninth Street, Overlooking Central Park	98
The Forewaters of Lower Manhattan	99
The Columbia-Presbyterian Medical Center	101
Skyline of Mont St. Michel	104
Manhattan from Governors Island	105
Skyline of Lower Manhattan from Brooklyn	106-107
Skylines of the Past	110
Skylines of the Present and Future	111
A Proposed Art Center for Manhattan	112
Within the Forecourt of the Proposed Art Center	113
A More Distant View of the Forecourt	115
Durham Cathedral	116
Chartres—The Cathedral Dominating the Whole City	117
View in Central Park, Showing the New Midtown Skyline to the South	118
The Acropolis at Athens	119
An Architectural Conception for Modern Chicago	121
Rio De Janeiro—A Beautiful Modern City	123
A View in Bath, England	124
Model of the New City Hall of Buffalo	127
West Point Expresses Individuality as a Military Center	128
The Statue of Liberty	131

LIST OF ILLUSTRATIONS

PART II

GUIDANCE OF BUILDING

	PAGE
Power Plant Facing the East River	139
Design for a Modern Power Plant	140
Court of the Daily News Building, Chicago	150
The Future Tower City	152
The Towers of Midtown Manhattan	153
Palace at Benares, India	156
Hotel Pierre, an Example of Modern Setbacks	158
A Major Economic Activity Carried On in Spacious Surroundings	161
The Evolution of the Empire State Building—The Greatest Skyscraper	164-165
Comparatively High Coverage of Land, with Uniformly Low Buildings, Hamburg, Germany	169
The New Louisiana State Capitol, Baton Rouge	179
The New Union League Club Building	181
Suggestion for Arrangement and Setbacks of Apartment Groups in New York City	184
The Empire State Building, in Splendid Isolation	186
An Architect's Solution of the Problem of Obtaining Space about Buildings of Great Bulk	189
The City Hall, Los Angeles	191
The Burr Playground, Newton, Massachusetts	194
Station Plaza, Forest Hills	197
A Telephone Building Suitable for a Residential Neighborhood	198
Kohler Village, Kohler, Wisconsin	202
Attractive Features in a Neighborhood of Row Houses, Forest Hills, Long Island	206
Informal Grouping of Houses about a Cul-de-sac, Forest Hills	207
A Spacious Apartment Development, Jackson Heights, Long Island	209
Design of Rear Garden Space, Jackson Heights	211
The Paul Laurence Dunbar Apartments in Harlem	213
A Telephone Building Suitable for the Business Center of a Residential Neighborhood	217
Recreation Pier, Atlantic Avenue, Brooklyn	219
Railroad Terminal Proposed for the Hudson River Waterfront, Manhattan	220
Stettin, Germany, Showing Harmonious Development of Waterfront	221
General View of the Waterfront at Antwerp	226
View Showing the Quay and Upper Drive, Antwerp	227
Loading Facilities at Antwerp, as Viewed from a Promenade above the Storage Sheds	228
The Causeway between Sandy Hook and Rockaway Beach Proposed by Colonel Wilgus	235
A Conception for the Lighthouses at the Harbor Entrance	236
A View of Traffic on West Street, Manhattan	239
Views of Freight Handling in the Vicinity of Pier 23, Manhattan	241
The Port Authority's First Union Inland Freight Terminal	242
View of Trucking Congestion on Lower West Street, Manhattan	246
The Holland Vehicular Tunnel under the Hudson River	247
West Side Freight Yards, Looking North from 68th Street	249
Present and Proposed Trunk Line Passenger Terminals in Manhattan, Queens and The Bronx	253
Entrance to Concourse, Pennsylvania Station	254
The Concourse, Grand Central Station	255
The 42nd Street Bus Terminal of the Baltimore and Ohio Railroad	256

LIST OF ILLUSTRATIONS

	PAGE
Suburban Station, Fairlawn, New Jersey	257
Design for a Bus Terminal	264
Prize Winning Airport Design	268
Airport Projected on the Hackensack Meadows at Secaucus	270
Floyd Bennett Field	271
Glenn Curtiss Airport—A Combined Land and Seaplane Base on Flushing Bay	272
Shops on Two Levels in Chester, England	274
Vanderbilt Avenue at Grand Central Terminal	276
An Early Proposal for a Two Level Street in Manhattan	278
Sketch Showing Future Development of Queens Boulevard	280
Wacker Drive, Chicago	282
One Type of Grade Crossing Elimination as Proposed in Queens	283
Viaduct Carrying Park Avenue over 42nd Street at Grand Central	284
Street Widening in Paris	286
A Sidewalk Arcade in London	288
Second Story Arcades, Chester, England	288
Arcades in Paris	289
Views of Arcade in the New York Telephone Building on Vesey Street	291
Arcades in Interior of Apartment Block at 270 Park Avenue	292
A Two Level Arrangement Proposed for Broadway in 1870	298
Air View of Southern Manhattan, Showing Raised Waterfront Boulevard	301
New North and South Avenues Proposed by Daniel L. Turner	304
Sketch Plan Prepared by East Side Committee of Architects	306
Three Steps in the Realization of Increased Street Capacity	307
Architectural Possibilities of Second Level Pedestrian Walks and Arcades	309
Cross Sections Showing Increased Street Capacity Secured with Each Step	310
Separation of Grades at Intersections	312
Model Illustrating the Essential Features of the Scheme of Elevated Ways	313
Mr. Flagg's Proposal for the Separation of Local and Through Vehicular Traffic, and of Pedestrians	314
Building Suggestive of Suitable Architectural Treatment for an Elevated Street	320
River Edge, York, England	321

PART III OPPORTUNITIES IN REBUILDING

An Opportunity about to Be Realized—The Tri-Borough Bridge	325
Two Views Showing the Need of Better Building on Valuable Sites in Manhattan	326
Existing Conditions on Manhattan's East River Waterfront	328
A Project for a Modern Civic Center for St. Louis	330
A Good Example of Modern Architecture Applied to Modern Materials in Bridge Building	331
Medical Center Being Developed by the New York Hospital-Cornell Medical College Association	332
Another View of the New Medical Center	333
Present Conditions in the Harlem River Valley	336
The Waterfront of Algiers	337
Front View of the Waterfront, Algiers	338

LIST OF ILLUSTRATIONS

	PAGE
West Side Elevated Highway	339
One of the Finest Opportunities Is to Preserve the Palisades	340
A View of Geneva, Switzerland	343
Monument and Spheres Proposed as Central Features of an Enlarged Battery Park	344
Study for an Art Center Facing Central Park	345
Proposal for Treatment of City Hall Square Made in 1924 by the New York Chapter, American Institute of Architects	347
Study of Architectural Treatment for West Side Waterfront South from the Present End of Riverside Drive	350
Construction Work on the Sixth Avenue Extension	350
Suggestions for the Lower East Side by Advisory Committee of Architects	351
A Proposed Recreation Pier and Building Development between Brooklyn and Manhattan Bridges	352
A Closer View of the Projected Recreation Pier and Elevated Highway	352
Treatment of a Bridge Approach Suggested by Advisory Committee of Architects	353
Air View of Manhattan South of 49th Street Showing Areas That Would Be Affected by the West Side Proposals	359
West Side Manhattan—Study of Proposed Two Level Development between West 23rd and West 59th Streets	360
View across Welfare Island Showing East River Waterfront of Manhattan from 34th Street to 59th Street	362-363
Apartment Buildings Overlooking Commercial Frontage of East River	364
Architectural Design for a Power Station	365
Forty-second Street, Looking West from the East River Front	366
Study for Treatment of the Area between the East River Front and Tudor City	367
Sketch Studies of the East River Waterfront between 32nd and 40th Streets and 79th and 87th Streets	368-369
East River Waterfront above 60th Street as Seen from the Queensboro Bridge	370
View over Welfare Island toward the Upper East Side of Manhattan from Queensboro Bridge	371
Architectural Studies of Type of Development Suggested along a Raised East River Waterfront: Sections from East 40th to East 48th Streets and East 48th to East 56th Streets	372-373
Sections from East 56th to East 64th Streets and East 63rd to East 71st Streets	374-375
Battery Park at Present	377
Bird's-Eye View of Battery Park Project When Completed	378
The Battery Park Monument as It Would Appear from Broadway	380
View of Monument and Spheres from the Upper Bay	381
Suggested Use of Park for Ceremonial Purposes	381
A Monumental Building Proposed as the Dominant Feature of the Civic Center	384
A More Distant View of the Proposed Building for the Civic Center	385
An Early Study of an Enlarged Setting for the County Court House	386
An Alternative Design for a Civic Center Building with Ample Setbacks and Courts	387
A Residential Group Suggested above the Upper End of the 60th Street Railroad Yards	390
Cross Section at 72nd Street, Indicating the Possible Disposition of Vehicular and Rail Traffic	390
A Railroad Terminal, Warehouses and Office Buildings above the Central Portion of the Yards	391
Cross Section of Yard and Building Development at 65th Street	391
Proposed Development of Second Avenue	395
The Chrystie-Forsyth Area as It Looks Today	398

LIST OF ILLUSTRATIONS

	PAGE
The Proposed Chrystie-Forsyth Parkway	399
Aerial View Showing Park and Highway Proposals for the Lower East Side	405
Three Views Showing Architectural Treatment of Elevated Sidewalks Proposed by Advisory Committee of Architects	413
Times Square as It Would Appear with the Proposed Elevated Sidewalks	414
The Store, Office and Theatre Group Known as "Radio City"	415
Elevation of the Plan for the Bronx Side of the Harlem River	419
View of Central Park Showing Massive Irregularity of the Skyline to the South	427
The Roosevelt Memorial	432
The Tri-Borough Bridge, to Connect Queens with The Bronx and Manhattan	434-435
The Hell Gate Bridge	441
Design for Development of Fort Tryon Park as an Observatory	442
Architectural Study for the Development of Fort Tryon Park	443
A Model for the Treatment of the West Side Express Highway through Riverside Park North from 72nd Street	446
Elevation of the Watergate Proposed for the Hudson River Front at 116th Street	446
Perspective of the Proposed Watergate and Riverside Drive	447
Elevation and Section of the Proposed Watergate at 116th Street	448
A Recent View of Grant's Tomb and Vicinity	450
A Design for the Improvement of Grant's Tomb and Its Setting	450
Approaches to the Eastern End of the George Washington Bridge	451
Parks and Main Highway Connections near the Junction of the Hudson and Harlem Rivers	453
On the Heights above the Harlem River Valley	454
Disorderly Development at the Eastern End of the Harlem River	455
Sketches of Possible Types of Bridges over the Harlem River	457
Architectural Study Showing Possible Treatment of Several Features of the Harlem River Valley Plan	458-459
Air View of Approaches to the Eastern End of the George Washington Bridge	461
Perspective of the Proposed Mott Haven Terminal and Surroundings	465
A Bird's-Eye View of the Plan of Development for the Harlem River Valley	466
Studies of the Great Plaza between the Projected Railroad Terminal and the River	467
Elevation of the Manhattan Side of the Harlem River, Suggesting Types of Development Expected to Follow the Construction of the Proposed Driveway	468
A View along the Future Harlem River	473
Proposed Brooklyn Bridge Approach as Seen from Borough Hall (Plan I)	474
The Skyline of Downtown Brooklyn	475
Perspective of Plan II for a New Brooklyn Bridge Approach	479
Existing Conditions in Area Proposed for Expansion of Brooklyn's Civic and Business Center	480
Existing Conditions on Furman Street below Columbia Heights	484
A Close-up View of the Proposed Apartment and Park Development on Columbia Heights	485
View of Brooklyn Heights Showing Proposed Waterfront Apartment and Park Development	486
Airplane View of Existing Conditions in Downtown Brooklyn	487
The Present Brooklyn Waterfront as Seen from a Pier of the Brooklyn Bridge	488
An Airplane View of Downtown Brooklyn Looking toward Borough Hall, Showing How It Would Appear with Plan I Carried Out	489
United States Army Supply Base in South Brooklyn	491
View of Lower Manhattan from the Foot of Montague Street	492

LIST OF ILLUSTRATIONS

	PAGE
A Perspective of the Terminal and Office Building Proposed above Sunnyside Yards	499
Sunnyside Yards Looking Northeast from the Queens Borough Hall	500
Undeveloped Conditions in the Queens Plaza District	502
View from Diagonal Street over Sunnyside Yards	502
Aerial Plan of Project for Queens Plaza Improvement	503
Perspective Sketch of Proposed Queens Borough Civic Center from Borden Avenue	508
Perspective Sketch of Proposed Queens Borough Civic Center and Air Terminal, View Looking South	509
Projected Grade Separations on Queens Boulevard at Intersections with Woodhaven and Nassau Boulevards	510
Perspective Sketch of the Proposed Treatment of the Intersections of the Metropolitan Loop Highway, Creedmoor Parkway and Nassau Boulevard	513
Proposed New Ferry Terminal and Office Building at St. George, Staten Island, and View of Existing Conditions	518
Perspective Sketch of "Playland" at Rye Beach, Westchester County	521
Design for an Amusement Park in Florida	524
Proposed Bath House Group, Great Kills Park, Staten Island	525
A Conception of the Future Skyline of Stevens Institute, Hoboken	527
An Air View Showing the Principal Features of the Bayonne Plan	529
Sketch of Possible Development on the Site of Stevens Institute in Hoboken	530
Mutual Benefit Life Insurance Building, Newark	534
Air View of Projected Development of the Meadow Areas on Newark Bay	535
Perspective View of the Newark Civic Center Proposal	537
Projected New Pennsylvania Railroad Passenger Station at Market Street, Newark	539
A Glimpse of the Industrial Section of the Proposed Hackensack Meadows Development	541
Design for Entrance to the Future Civic and Business Center of the Meadows City	543
Type of Development Possible along Small Canals in the Upper Part of the Hackensack Meadows	544
Another View Featuring the Parkway Development Proposed to Border the Canals	545
A Conception for the Development of Paterson's Civic Center	548
Bath House, Wilson Woods—Hutchinson River Parkway	549
Features of the Paterson Civic Center Plan—The County Building, a New Public Library	551
Memorial Tower Proposed to Dominate the Paterson Civic Center	552
Architect's Sketch of the Islip Town Hall under Construction in 1931	552
Preliminary Sketch of a Civic Center for Islip, Long Island	553
Civic Centers Proposed for Smaller Communities in the New York Region	555
Re-design of the Aeration Basin at Kensico Offers an Unusual Opportunity	556
View Up the Hudson from the Top of the Palisades	557
Hairpin Turn on the Englewood Entrance to Palisades Park	558
Castle Overlooking the Rhine, Germany	559
Sketch of Approaches at the New Jersey End of the Hudson River Bridge	563
The Morris Canal in Montville, Morris County	564
The Morris Canal in the Northern Part of Bloomfield, Essex County	565
A Swimming Championship Meet on the Raritan at New Brunswick	566
Bathing Beach, Lake Ronkonkoma, Long Island	567
Perspective of Lawrence Farms Showing Ultimate Development	572
Design for Cottages at Pocantico Village, near Tarrytown	573
Sketch Showing Conception of a Central Area in Which There Is Proper Restraint of Height and Density of Building	574
Bridge over the Susquehanna River	575
The New Waldorf-Astoria Hotel	581

MAPS AND DIAGRAMS

PART I

THE MAKING OF THE CITY

FIGURES IN TEXT	PAGE
1. Major Ellicott's Survey of Washington	27
2. Stages in the Development of the Street System of the District of Columbia	29
3. Lower Manhattan in 1797	38
4. Manhattan Island 130 Years Ago	40
5. Medieval and Modern Edinburgh	48
6. The Breakdown of the Edinburgh Plan	49
7. Manhattan Plan of 1811	50
8. Drainage Plan for Haarlem Lake Polder, Holland	51
9. Peking, China—A Rectangular Plan	52
10. Carcassonne—An Irregular Plan of the Middle Ages	53
11. Northern Part of Rome—Diagonal Treatment of Main Arteries	54
12. Karlsruhe—A Fan Shaped or Radial Plan	55
13. Map of Paris and Environs	59
14. Map of Vienna (1833)	72

PART II

GUIDANCE OF BUILDING

15. Radburn, New Jersey—Plan of Model Community	134
16. Chart of Elements Involved in Regional Planning	136
17. Air Map of Manhattan below Fulton Street	148
18. Diagram Illustrating Proposed Maximum Coverage of Land by Buildings	148
19. Cologne, Germany, Showing Zones Influenced by Location of Fortifications	154
20 a. Envelopes of Types of Buildings Recommended for Business Centers—Open Suburban Areas	172
20 b. Envelopes of Types of Buildings Recommended for Business Centers—Close Suburban or Intermediate Areas	174
20 c. Envelopes of Types of Buildings Recommended for Business Centers—Sub-central and Central Areas	175
21. Diagram Illustrating Desirable Layout for Gasoline Filling Stations	177
22. Comparative Height of Leading Skyscrapers	182
23. A Possible Compromise in Regulation of Building Bulk	187
24. Play Space for a Tenement District	200
25. Hudson River Frontage Where 1,000 Foot Piers Can Be Built between Present Shore and Pierhead Lines	225
26. Port Development Possibilities in Upper New York Bay	229
27. Lower New York Bay, Showing Recent Proposals	234
28. Diagram Showing Possible Rail Connections with the Union Inland Freight Terminal	245
29. Important Airports, Existing and Proposed, That Would Serve the Metropolitan Center	266
30. Mr. Malcher's Plan for Facilitating Movement at Intersections without Grade Separation	287
31. Drawings Showing Method of Arcading a 60 Foot Street, and Resulting Increase in Traffic Capacity	290
32. Suggested Arrangement for a Center Walk in Commercial Streets 60 and 70 Feet Wide	294

MAPS AND DIAGRAMS

FIGURES IN TEXT	PAGE
33. Plan and Sketch Showing One of Several Different Arrangements Which Might Be Proposed for the Separation of Grades at an Important Intersection	296
34. Use of Adjoining Streets to Secure Continuous Movement of Traffic at the Intersection of Two Main Arteries	297
35. Plan of Proposed Elevated Driveways, Borough of Manhattan	300
36. Elevated Driveway for Canal Street, Proposed by Nelson P. Lewis in 1922	302
37. Details of the Express Automobile Runway Proposed by Mr. Flagg	315
38. Typical Section through Avenue, under Mr. Flagg's Proposal	316
39. Close Grouping of New York's Theatres in the Times Square District	318

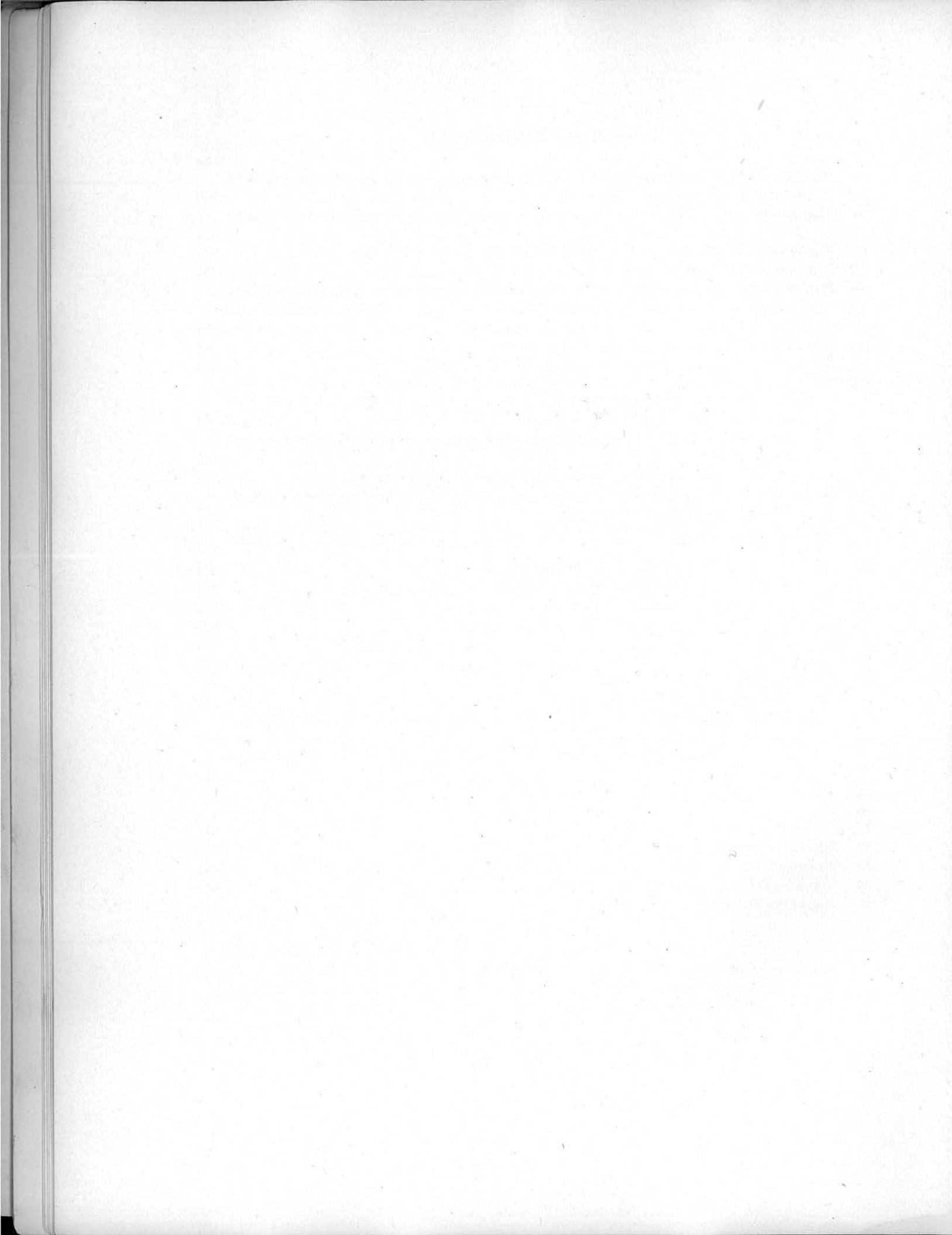
PART III

OPPORTUNITIES IN REBUILDING

40. View of Manhattan, The Bronx, Inner Brooklyn and Queens, and the New Jersey Waterfront Showing Many of the Proposals Discussed in Chapters XII-XV	324
41. Tentative Plan for the Development of the West Side Waterfront	348-349
42. Plan of Development for the Manhattan Civic Center	355
43. Second Architectural Study for the Development of the West Side of Manhattan	356-357
44. Architectural Study for East Side Waterfront between 23rd Street and 88th Street	362-363
45. Air Maps of the Battery Park Plan	379
46. General Plan Showing Proposals for Manhattan South of 86th Street	383
47. Plan of a Typical Section of the Proposed Second Avenue Development	396
48. Plan of the Chrystie-Forsyth Parkway	397
49. The Recent Falling Off in the Population of the Lower East Side of Manhattan Shown on Dot Maps for 1920 and 1930	401
50. Parks and Street Widening Proposed for the Lower East Side as Part of a General Plan of Rehabilitation	403
51. Cross Section of Canal Street, Showing the Proposed Elevated Speedways and Second Story Arcades	408
52. Map Showing Proposed System of Elevated Pedestrian Ways	412
53. Sections Showing Methods of Constructing Elevated Sidewalks	414
54. General Plan Showing Proposals for Manhattan North of 86th Street, Including the Lower Bronx	418
55. Diagram Showing Central Park Traffic Count of December 6, 1924	424
56. Plan for Development of the Lower Reservoir Site, Central Park	431
57. A Study of the Recreational Possibilities of Welfare Island	438-439
58. Plan for the Development of Fort Tryon Park Prepared for the Donor, Mr. Rockefeller, by Olmsted Brothers	444
59. Suggestions for the Treatment of Lower Riverside Drive, Advisory Committee of Architects	445
60. Park Department Plan for Lower Riverside Drive, Submitted in 1927	449
61. Proposed Plan of Waterfront Parks, Playgrounds and Parkway on the Manhattan Side of the Harlem River from East 125th Street to the Harlem River Driveway	462-463
62. The Proposed Harlem River Parkway in Manhattan, Showing Its Relation to Existing Structures and Land Uses	464

MAPS AND DIAGRAMS

FIGURES IN TEXT	PAGE
63. Plan Showing a Conception of the Possibilities for Re-planning on a Grand Scale on Both Sides of the Harlem River Valley	469
64. Map Showing the Location of a Proposed Cross Country Driveway to Connect the Hudson River with the Long Island Sound, Borough of The Bronx	471
65. Plan of Proposed Brooklyn Bridge Approach (Plan I)	477
66. Plan of Proposed Brooklyn Bridge Approach (Plan II)	481
67. Plan of Downtown Brooklyn Showing Proposed Columbia Heights Apartment and Park Development and Proposed Marginal Railroad, and Their Relation to Proposals for a Civic Center and Brooklyn Bridge Approach	483
68. Detail Map of Proposed Queens Plaza Improvement	501
69. Detail Map of Proposed Queens Borough Civic Center and Air Terminal	505
70. Map Showing Principal Traffic Arteries and Street Widenings, Borough of Queens, in Relation to Proposed Improvement of Queens Plaza and Proposed Queens Borough Civic Center and Air Terminal	507
71. A Study for the Relief of Traffic Congestion at the Intersection of Woodhaven Boulevard and 61st (Eliot) Avenue	511
72. Plan of Nassau Boulevard Showing Proposed Highway Grade Separations	512
73. Proposed Treatment of Highway Intersections of Metropolitan Highway Loop at Creedmoor Parkway and Nassau Boulevard	512
74. Study for Long Island Approaches to East River Vehicular Tunnel to 38th Street, Manhattan	516
75. Tentative Plan for a Union Passenger Terminal, Borough of Richmond	519
76. A Preliminary Study for the Development of Great Kills Park, Staten Island	520
77. Plan of "Playland" at Rye Beach and Manursing Island Park	521
78. Proposed Plan for Waterfront Park at Great Kills, Staten Island	523
79. Plan for the Development of the Central Portion of the Hackensack Meadows	526
80. The Proposed Uses of Land under Water and Their Relation to Existing Parks in Bayonne	528
81. Plan of Development for the Newark Bay Waterfront of Bayonne	531
82. Section through Proposed Barge Basin at 23rd Street, Bayonne	532
83. Typical Section of Proposed Park and Residential Development North of 30th Street, Bayonne	532
84. An Apartment House Development Proposed as Part of the Plan for the Newark Bay Waterfront of Bayonne	533
85. Proposed Civic Center for the City of Newark, New Jersey	536
86. Diagram of Convenience of Travel from Home to Work and Play in a Planned City, Hackensack Meadows	546
87. Plan of the Proposed Paterson Civic Center	550
88. Proposed Development of a Community Center for the Village of Bronxville, New York	554
89. Suggested Development of the Top of the Palisades	561
90. Plan of the Village of Lawrence Farms	571



PART I
THE MAKING OF THE CITY



From a drawing by Luigi Kasimir

Courtesy of Kennedy & Co.

WHERE THE POWER OF NEW YORK'S INDIVIDUALITY IS EXPRESSED

View up Broadway from the arch of the Customs House.



Francis S. Swales, Architect

UPPER MANHATTAN FROM UNIVERSITY HEIGHTS—A CONCEPTION OF THE FUTURE

I. CITY BUILDING IN A DEMOCRACY

Planning Traditions in America

EVERY city is made and is as man makes it, but its growth is subject to the evolutionary processes of nature. It is an artificial growth in which art has to be allied with nature, and the supreme art in city building is to perfect that alliance. The arts of transportation, of manufacture and of exchange, as well as the art of building, enter into the making of the city.

These arts may be employed to produce efficiency and to express beauty and order and yet fail to express civilization, if they are attained by slavery of the people's will. Beauty of building belongs to the body, not to the spirit of the city; but where health and beauty are present as the products of the desires and impulses of a free people, the highest art in city building is achieved.

Perhaps there has been too much worship of the kind of beauty and order that despots have created in the city at the cost of liberty. Better the order that is striven for and slowly evolved in a state of freedom, than a higher perfection of order that may be born of domination. Under the French monarchies and the autocratic state control of Prussia a degree of beauty and order has been attained in city building that arouses admiration for its physical qualities. But in the past this was largely bought at the cost of freedom. John Stuart Blackie, in 1853, wrote these lines about Berlin:

"And these long lines of formal streets, that go
In rank and file, by a great captain's skill
Were marched into this cold and stately show,
Where public order palsies private will.
Order is strong; strong law the star commands;
But birds by wings, and thought by freedom lives;
The crystallised stone compact and four-square stands,
But man by surging self-born impulse strives,
Much have ye done, lord of exact Berlin,
But one thing fails—the soul to your machine."

THE MAKING OF THE CITY

Looking at Berlin today the foregoing appears as a harsh judgment, since the unusual spaciousness of parks and streets secured by public order is essentially a spiritual achievement. Now, too, public order in Berlin is supplemented by a greater sense of freedom than formerly existed. A high degree of public order may exist with personal freedom—and a stately beauty of building may accompany and even spring from the liberty that gives equality of opportunity. The price of liberty is not disorder and ugliness. Failure in city building in democracies is due to ignorance in choosing leaders.

Both planning and re-planning of cities are parts of a continuous process of adaptability to growth and change that is going on in every city in America. In theory at least every citizen participates in planning his city. The city represents what he will or will not stand for. The desires, emotions and customs of millions of people have made New York City what it is. In its foundations and its building it has been willed and planned into being, in piecemeal fashion, by succeeding generations of its people.

If the future of the city is to be developed in greater perfection it will be because of the public demand. What that demand will be will depend on the education, guidance and inspiration given by those who, by reason of knowledge and understanding, are given the power to lead, and, by reason of good fortune, the opportunity to use it.

As a higher leadership is evolved much that is now reality in city building will pass into the discard as being unreal, and the main issue will be not the physical form of the city, nor the balance and beauty of its artificial growth and natural environment, but, in Browning's phrase, "the figure of the man, woman and child these are the frame to." The man truly makes the city, but he makes it as a mold for making mankind.

But New York is already largely made. Part of the duty of those who plan for the future growth of the city is to consider how some of what has been wrongly made may be remade, as well as to obtain in its future expansion a degree of order, beauty and economy approaching that which already exists in the capital of the country.

THE PLANNING AND BUILDING OF WASHINGTON

No country has a more inspiring tradition in city making than the United States. Washington affords an example of planning and building a city under a democracy which gives an historic background to civic art in this country. Its first president was its first city planner. Those who laid the foundations of its constitution also laid for it foundations in the art of city making. Nor is Washington the creation, in a greater degree than other American cities, of autocratic government. While, as we shall point out later, it has enjoyed special privileges as a national

CITY BUILDING IN A DEMOCRACY

capital in regard to the concentration of monumental buildings, its civic art is the result of voluntary leadership and patriotic sentiment rather than political overlordship. The gains and losses due to government control are well balanced. The real gains have been obtained as a result of the expression of the aspirations of a people through the agency of individual leaders in art and public policy.

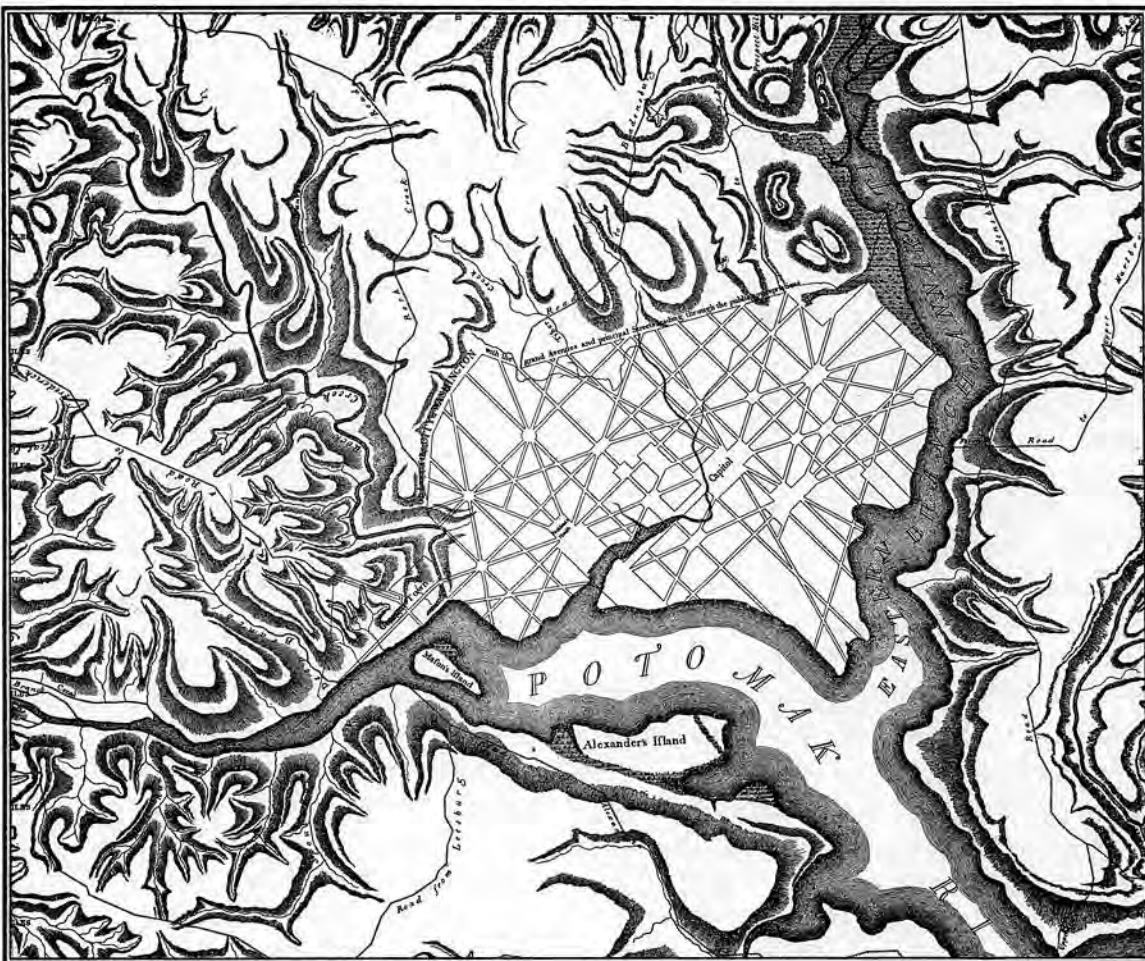


FIG. 1
MAJOR ELLICOTT'S SURVEY OF WASHINGTON SHOWING L'ENFANT'S PLAN

The ground plan was laid by Washington, Jefferson and L'Enfant with the aid of Major Ellicott. We are told by Thomas Nelson Page¹ that, in laying out and building the city, "the creative and propelling force was Washington himself. The intellect and directing force was Jefferson. These two combined to produce the breadth and greatness of the plan."

¹ WASHINGTON AND ITS ROMANCE, Doubleday, Page & Co., New York, 1923.

THE MAKING OF THE CITY

They had the true statesmanship necessary to envisage the future needs of the country in respect to a capital city.

"In laying out the city itself," says Page, "it was decided to do so on a large plan with a view to the future greatness of the capital of the nation. Washington believed that within a century, should the country keep united, 'it would produce a city, though not as large as London yet with a magnitude inferior to few others in Europe.' "

In those days as now there were the practical men who could see no advantages in planning for the future. To them the growth of a city was dependent on natural law. In their opinion idealism and art were very fine, but the normal thing was to let things drift, and city growth take its chance. But "Washington and Jefferson paid no attention to the scoffers or to the ridicule, but proceeded with their large conception."

The actual work of making the plan was entrusted to L'Enfant and later to Major Ellicott. (See Fig. 1) President Washington knew the advantage of public ownership of land and asked the private owners to convey to the government in fee simple all the lands within the boundaries selected for the city "so that it might be planned as a whole."

The land, other than what was reserved by the government for public buildings and their grounds, was divided into building lots and apportioned equally between the owners and the government. The lots assigned to the owners were to be as near the original location as possible; if this was impossible and an agreement could not be reached, the owners were to receive proper compensation. The lots belonging to the government were sold at auction, and the proceeds devoted to grading and improving some of the streets.

Early Zoning in Washington.—The following statement of Jefferson indicates that the heights and arrangement of buildings were considered as well as the layout of streets. He suggested a regulation "to provide for facilitating the extinguishment of fires and the openness and convenience of the town by prohibiting houses of excessive height, making it unlawful to build on any one's purchase any house with more than two floors between the common level of the earth and the eves, nor with any other floor in the roof than one in the eves."

From his study of foreign cities he had noted that a restriction of height "keeps down the price of land, keeps the houses low and convenient, and the streets light and airy. Fires are much more manageable when houses are low." An early visitor to the city noted the following building regulations: "The houses should be built of brick or stone, the walls to be thirty feet high and to be built parallel to the line of the street, either upon it or withdrawn from it as suited the taste of the builders."

From Europe Jefferson brought President Washington plans of Karlsruhe (page 55), Amsterdam, Strassburg, Paris, Orleans, Bordeaux, Lyons, Montpelier, Marseilles,

CITY BUILDING IN A DEMOCRACY

Turin, and Milan. He proposed that the streets of Washington should be no narrower than 100 feet and that if they were long and level they should be 120 feet wide. Although at that time it could not be anticipated that the steam railroad would cause cities to grow as large as has been the case, or that the motor would develop such rapid and intensive traffic on the streets, Jefferson seems to have been

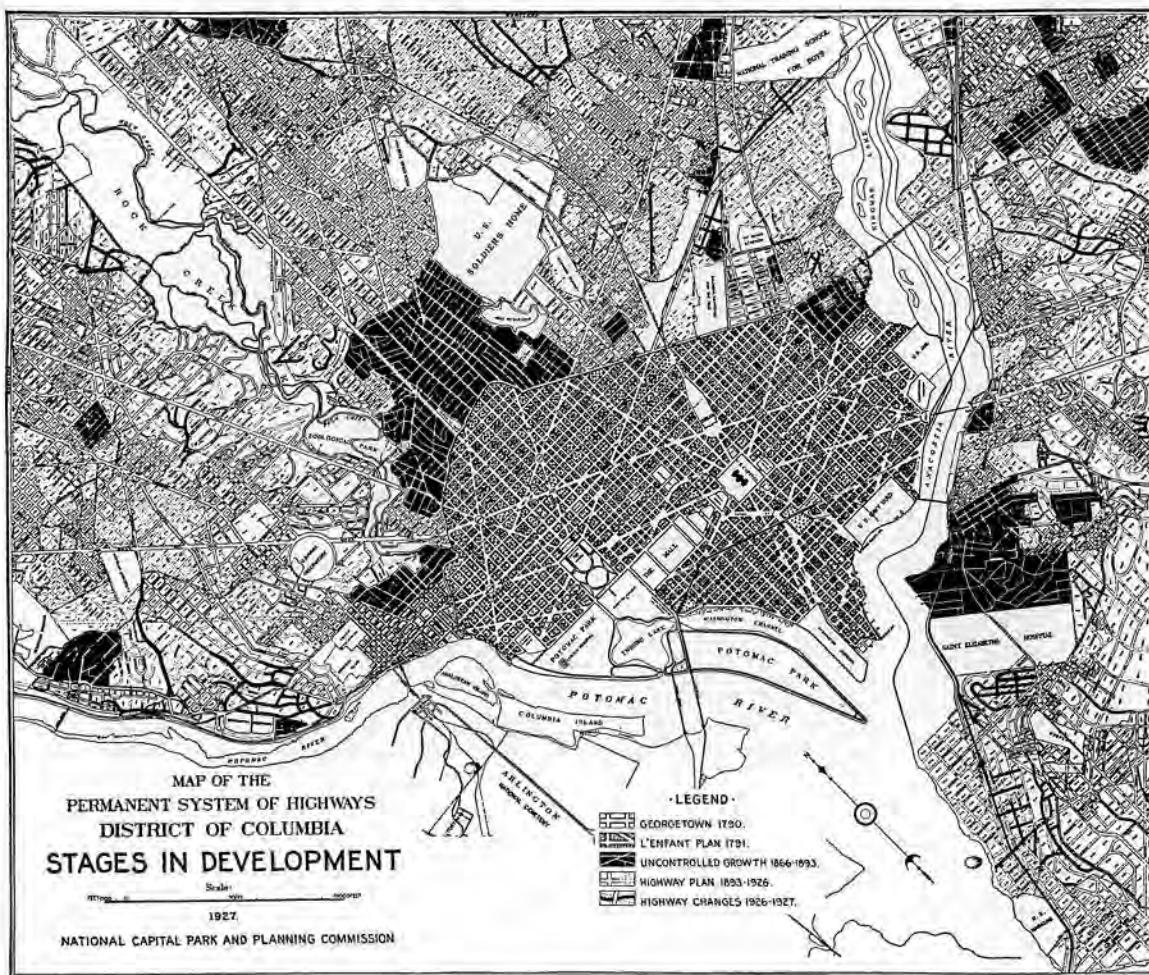


FIG. 2
STAGES IN THE DEVELOPMENT OF THE STREET SYSTEM OF THE DISTRICT OF COLUMBIA

liberal enough in his ideas to meet the changes that have since taken place. For instance, one can imagine how beneficial it would have been if the extra 20 feet in width had been provided for in the north and south avenues of Manhattan. Such extra width would have made the high buildings less of a difficulty on the score of creating congestion.

THE MAKING OF THE CITY

We repeat what was said in the first volume of the Regional Plan, that no city in this country is able to deal with modern problems of traffic with the same efficiency as Washington, notwithstanding that its plan was made a hundred and forty years ago. The architectural distinction and spaciousness of the city could not have been obtained without its plan.

Recent Developments in Washington.—But in some of its building growth in the latter half of the nineteenth century the city was allowed to fall away from the high ideals with which it was started. Efforts were made in 1902 and succeeding years to



Courtesy of the National Commission of Fine Arts

THE LINCOLN MEMORIAL, WASHINGTON

restore some of its lost quality and to remove some of the blighted conditions created by utilitarian forces in the government. Under the leadership of men like Senator McMillan, and of artists like McKim, Burnham, St. Gaudens, and Olmsted, it was shown that reversion to the original conception of the treatment of the Mall and a bold constructive policy in regard to the railroad approaches were the greatest needs. These have since been met to a large degree in practice and to a complete degree as matters of public policy.

Perhaps, however, the greatest failure of latter day policies in regard to the Washington region has been the lack of planning and control of the developments outside the city proper. The high standards set up by Washington and Jefferson within the area of the original city have not been maintained in the new develop-

CITY BUILDING IN A DEMOCRACY

ments that have taken place outside the boundaries of this area. The preservation of the beauties of Rock Creek Park at the beginning of this century was the first step in preventing the complete destruction of suburban amenities. Now the government has brought into being a regional park and planning commission consisting of leaders in government and in the science and art of planning, to insure that future growth will be worthy of the early traditions in civic art on which the capital was established.

Compared with other cities Washington has the advantage of having been started on the right principles, but in respect to the recent and present day expansion of its environs, it is subject to the same difficulties encountered elsewhere; difficulties which arise in re-planning what has been mis-planned and in controlling private developments that are contrary to the spirit in which the central area was planned.

THE RE-PLANNING OF CHICAGO

As Washington is the classic example of planning a large city from the beginning, the Burnham Plan of Chicago is the most brilliant example of city re-planning in the United States. Reference has already been made¹ to the dominant characteristics of this plan, to its high place as an architectural conception, and to the large extent to which it has been carried out. As a work of civic art its chief note was in suggesting a magnificent project of improvement for the lake front of the city. The steady march of the city towards the realization of this project has been a great tribute to the vision of the planners and to the public spirit of the citizens of Chicago during the last twenty-five years.

Here, too, as in Washington, Paris and all modern cities, the control of the new developments in the outskirts of the city presents the most pressing problem of modern times. To deal with it there has been created a Regional Planning Association which is endeavoring to prevent the continuance of mis-planning in the wide region that lies within the influence and accommodates the overflow of population of the mother city.

TRADITIONS OF NEW ENGLAND IN TOWN BUILDING

While the making and remaking of Washington and Chicago afford the best examples of city building in compliance with a comprehensive city plan, we can go further back than the period of inception of either city to find good town planning traditions in this country. Perhaps it is now too late to recall the examples of sound principle in town development in the old New England towns for the purpose of illustrating what might be done to improve conditions in New York City or the larger satellite cities in the Region. Even these cities, however, can be benefited by adopting the principles of community planning and the methods of development which were followed by the early Puritans as a guide to residential growth in

¹ Regional Plan, Volume I, pages 152-156.

THE MAKING OF THE CITY

suburban areas. But it is in the outlying towns and villages, forming as they do such important elements in the urban structure of the Region, that most benefit is to be derived from the application of these principles and methods. Some of the fine quality of the New England community is still preserved in the City of White Plains, which lies well within the commuting radius of Manhattan. In a more ample measure Easthampton, Long Island, retains the charm of the spaciousness and orderly growth associated with these early towns. Other noteworthy examples outside the Region are: Concord, Massachusetts; Manchester, Vermont; and Litchfield, Connecticut;



A NEW ENGLAND AVENUE, MANCHESTER, VERMONT

W&H

ticut; all well preserved and showing by contrast the false notes that have entered into the haphazard and inconvenient forms of urban growth in modern times.

In their beginnings these old towns were free from the wasteful stupidities of speculative land subdivision. They were developed in compliance with utilitarian needs but with proper regard to social ideals and the requirements of nature. Their buildings were grouped in intelligent social units, and designed on simple lines, with proper scale and without unnecessary ornament. Their wide tree-planted streets were as useful as they were beautiful. Methods of trade and transportation and the amplitude of space made congestion unnecessary, while regard for nature and order prevented misuse and untidiness. The same needs as existed in these towns, in

CITY BUILDING IN A DEMOCRACY

combining the opportunities for social intercourse with convenience in tilling the soil, now exist in the more rural counties of the New York region.

As early as 1694 the Malden Commissioners were ordered to "employ an artist to lay out ye lands" of the town. In Cambridge, houses had to range even and be set back from the street. There was no checkerboard planning. In most cases streets were of varied width and followed irregular lines, with graceful curves adapted to the levels of the land. Sizes and shapes of blocks were varied to suit different purposes instead of being standardized to no purpose.

As Professor Frank A. Waugh has pointed out, the best of these towns offer inspiration, suggestion and practical data to the modern town planner, especially in regard to the provision of varied treatment of streets and blocks and of central commons or village greens in residential communities.

Many of these towns have suffered decay because of injuries done to them by building on commons and highways, and by the erection of new structures out of harmony with their oldest buildings, but a great proportion still retain that power to give human satisfaction which they derived from intelligent planning.¹

Making and Remaking Cities and Towns in the New York Region

What may be done to plan, make and partly remake smaller cities, towns and villages in the New York region as a whole is so much overshadowed by the immensity of the problem of re-planning the City of New York that it is not surprising that the scope of the Regional Plan is not grasped by many people. When, however, in this volume we speak of city building we are referring to all forms of building in the whole 5,528 square miles of territory for which a plan of ways of communication and land uses has been made. Those whose vision of the problems to be dealt with is limited to specific localities of which they have knowledge—say Manhattan at one extreme and the hamlets of Suffolk at the other extreme—will fail to appreciate the significance of parts of our discussion of needs and opportunities. All the territory within and about New York must be thought of in its totality to understand and state the problems presented. This is so in regard to the control of building as in regard to all other artificial elements in urban growth.

It is in the outlying fringe that the opportunities for improvement are greatest. As the regional survey has shown, it is there that the greatest potentialities exist both for creating good conditions and for the application of measures for prevention of bad conditions. Places like the towns and villages of Rockland, Somerset, Suffolk and Fairfield counties need planning of their building developments as much as the City of New York, and from the point of view of what may be accomplished by preventive methods their need is even more urgent. The control of building

¹ See also page 93 ff.

THE MAKING OF THE CITY

densities, the encouragement of good architecture, and the preservation of amenities are of primary importance in these communities. Transportation systems, highways and parks should be planned in harmony with a plan governing the expansion and design of buildings. The first beginnings in all bad development and the sources of all congestion lie in the methods of subdividing new areas.

Next to the problem of congestion in the centers of the large cities the most defective condition is the too wide dispersal of houses on premature subdivisions in the semi-rural areas.¹ An intelligent compactness of development is required to enable the improvements needed for healthful and convenient living conditions to be provided or to prevent enormous waste of money in extending improvements over areas of widely scattered houses.

There is a group of social philosophers whose gospel is "decentralization," no matter how unplanned and haphazard it may be. To them, the most pressing urban problems would be solved if the economic forces that draw industries and people into huge cities and disperse population into small urban and rural units could be broken down. Assuming, for example, that it were possible to stop New York City from attracting more industries and population—this, it is claimed, would be the means of making it a more tolerable place in which to live and at the same time give opportunity and encouragement to the development of new and smaller communities. But the exponents of this theory do not stop to think that unplanned and uncontrolled dispersal is as bad as unplanned centralization. It is the quality of a particular development that matters—the quality that is given to it by a well conceived plan, by a well balanced distribution of buildings and by other things that combine to make a healthful city. Even if New York ceased to grow, there is no certainty that the new developments which replaced it would be better simply because they consisted of small urban units or widely dispersed rural communities. There are slums and congestion, ugliness and disorder, in small village communities and among the scattered rural populations of this Region as well as in the great cities.

The vital question is that of employing the art of city building so that both inside the city centers, and outside them in the rural environs, the most healthful and efficient conditions can be obtained. With proper planning and control of new developments, a wider dispersal of both industries and population than now exists in parts of New York City will yield great social and economic advantages. One value of regional as distinct from city planning is that it brings into consideration a sufficiency of open area surrounding the congested centers to give all the space that is needed for an efficient distribution of land uses, as well as convenient sites for the creation of model communities.

If the open areas in the environs are properly planned to take care of extensions of existing cities or to provide for new self-contained communities, and if the degree

¹ Regional Survey, Volume VII, pages 231-235.

CITY BUILDING IN A DEMOCRACY

of intelligence shown in planning these areas and centers is proportionate to the greater opportunities they afford as compared with the lesser opportunities presented in the big centers, then dispersal will proceed by forces of attraction. It is futile to talk of compulsion. It is stupid to suggest that, because one believes in small cities, while recognizing that we cannot overcome the economic forces that make cities as



Photo by Samuel H. Gottscho

Courtesy of the Long Island Chamber of Commerce

EASTHAMPTON, LONG ISLAND

A portion of the old village common, which is being preserved.

large as New York, therefore all efforts to make plans for what appears to be inevitable growth should be condemned.

The character of city development, building and architecture that is likely to occur in the New York region is that which seems probable after careful study of tendencies in growth and opinion; not what any small group of persons desire it to be.

THE MAKING OF THE CITY

THE PROBLEMS OF NEW YORK CITY

The whole Regional Survey may be regarded as a description of the physical and economic forces that have entered into the making of New York City, and the Regional Plan, as presented in these two volumes, contains more detailed suggestions for the city than for the areas outside the city. But much more needs to be done in investigating the possibilities of planning the metropolitan center than has been possible or desirable in a regional plan.

Dr. Nicholas Murray Butler, President of Columbia University, has alluded to the problem of New York as follows:¹

"This city has a problem or series of problems more difficult, more many-sided, more highly concentrated and more intense than have been presented to any city before in the history of the world. They have had, some of them, large problems, vast problems, difficult problems, but this is the problem of America and the problem of ancient Rome combined in a single setting."

"It was the problem and the hope and the purpose of ancient Rome to extend the rule of law, one conception of citizenship, one feeling of human solidarity over a vast variety of people, religions, languages, races spread over vast and widely distributed territory.

"That is our New York problem, with the distribution over widely distributed territory stricken out. Here on this small spot of the earth's surface are all the elements of the problem of ancient Rome, to be met, to be dealt with, to be organized, to be elevated, to be applied in the spirit of America."

The highly complex social problem described by President Butler requires for its solution every contribution that can be made to the improvement of the physical environment, as well as to the education of the citizens. Prof. V. G. Simkhovitch somewhere says that it is the physical forces that really govern life and that social science does not deal with life but with its background. The city planner is the craftsman whose plans, if they be good plans and based on forward-looking vision, must present the physical framework on which social improvement can be brought to fruition, with the preliminary aid of education. His overwhelming task, however humbly faced and inadequately fulfilled, is to deal with some of the major physical forces that "circumscribe and govern our life."

The failure of New York and other cities has consisted in failure to adjust the physical forces that relate to the arts of transportation and building to social needs. If a city plan presents a sound conception of order and beauty in building, and of order and efficiency in transportation and industry, it will be a great educational instrument—none the less because it achieves its purpose without the effort or even the consciousness of the citizen. That is why it is so vitally important in New York, with its diversity of social elements, to give it more of the quality of Washington in those parts where this is still possible.

Perhaps all we can hope from a regional plan is to show what the problems really are and indicate one of the ways toward their solution. Another great university

¹ Address at the inauguration of Dr. Frederick B. Robinson as President of the College of the City of New York, May 7, 1928.

CITY BUILDING IN A DEMOCRACY

president, Dr. A. Lawrence Lowell of Harvard, has said that the real difficulty in life is to find out the problems to be solved and is not the want of capacity to solve them.¹

It is perhaps needless to say that the making of a plan for building the city-region of New York is far different from that presented to the original planners of Washington, or to those whose duty it is to rearrange a city that has already been well planned. Moreover, the defective suburban growth about New York City is not merely a series of bad excrescences extending beyond a central area with the spacious and well balanced qualities of Washington. Nevertheless, Washington demonstrates to New York and all cities the value of making and carrying out a comprehensive plan, the economic value of preventing excessive concentration of building bulk on the land, the combined beauty and utility that a city gains from ample open space, the affection and love that a beautiful city inspires in



An old English village



Old Deerfield, Massachusetts

BEAUTY RESULTING FROM NATURAL AND SPACIOUS DEVELOPMENT

its citizens, and the necessity of continuous planning of all new growth. The fact that Washington enjoys certain advantages as a capital city that a purely commercial city does not enjoy does not lessen the value of these demonstrations to the commercial city, for they are qualities that are essential to economic stability in any city.

In the case of Chicago the example given is one of spirit and enterprise in dealing with problems of a character similar to those that exist in New York; and in part the failure of a great plan to achieve its real purpose if building bulks are not adequately controlled. In both cities the chief problems are, first, to find remedies for existing evils due to almost complete mis-planning in the past, and second, to prevent the recurrence of these evils in new areas. The second difficulty is greatly increased by reason of the inability to cope fully with the first. Both cities are also faced with the enormous difficulties due to the common acceptance and toleration of congestion,

¹ *New York Times*, November 25, 1928.

THE MAKING OF THE CITY

as if it were a desirable thing, and the consequent indifference to overbuilding as its chief cause.

Although early planning efforts in New York City are described in the regional survey,¹ a brief reference will be made at this point to certain characteristics of these efforts, to indicate some of the ways in which they have impressed themselves on its subsequent development.



FIG. 3
LOWER MANHATTAN IN 1797, AT THE TIME WASHINGTON WAS PLANNED

PAST PLANNING IN NEW YORK CITY

The early planning efforts in New York City have in different ways influenced the making of the city. The plan of 1811 was a street plan, too inflexible and too deficient in conformity to levels of land to be a sound basis for city building. Its chief failures were the lack of provision of open spaces other than streets, and of diagonal thoroughfares similar to those that L'Enfant gave to Washington. But perhaps no other plan would have produced better results, since the blunders of over-

¹ Regional Survey, Volume VIII, pages 156-172.

CITY BUILDING IN A DEMOCRACY

building which have been perpetrated during the last fifty years, and only partially relieved by the zoning plan of 1916, would have destroyed the balance of any street plan.

The stereotyped character of the plan is indicated by the statement in the report of Commissioners on Harbor Encroachments in 1856,¹ which stated that "neither the city authorities nor private owners could without violation of law modify or add to the streets as laid down by the Commissioners, except by previous consent of the legislature." Although "such consent has been frequently asked and obtained" the purposes behind the changes appear to have been mainly to permit modifications on the exterior streets adjoining the waterfront. The duties of the Commissioners of 1807 "were limited to laying out the streets within certain bounds and did not extend beyond the upland."



AN EARLY VIEW OF PARK ROW

The layout of the harbor, and the planning of the piers, slips and basins, were within the discretionary power of the city Corporation. It is claimed that in exercising this power the Corporation made serious intrusion on the property of the state, both on the North and East rivers. Perhaps the most serious of these and one which presents the most striking example of lost opportunity occurred on the shore of the East River between Grand and Twenty-third streets. In this stretch of waterfront, Exterior to Tompkins streets, the land was flat and low, with indentations on the shore line. If the low-lying area, which was subsequently filled in, could have been retained as a public open space, with provision for commercial use of the waterfront, the subsequent decay that has taken place on the lower East Side would have been prevented and its residential character would have taken a more permanent and attractive form.²

¹ REPORT OF THE NEW YORK HARBOR COMMISSION, 1856.

² See proposals for developing park areas on lower East Side, Chapter XII.

THE MAKING OF THE CITY

Tompkins Street between Rivington and Twenty-third streets, and East Street between Rivington and Grand streets, were first adopted as the marginal streets. Later, in 1835, the Corporation applied for a line more inland, between Thirteenth and Twenty-third streets, on account "of the great expense consequent on filling up such a large area of low land." The result was that the legislature gave power to the city to regulate and lay out that part of the city, but owing to its inability to obtain the surrender of certain grants of land under water the ordinance of the city became inoperative. In 1849 the city adopted the line of 1826 from Grand to Thirteenth streets and in 1850 extended the line between Thirteenth and Twenty-third streets "into the river so that it commences about 105 feet, and at the point of widest



FIG. 4

MANHATTAN ISLAND 130 YEARS AGO WAS MORE RURAL THAN STATEN ISLAND IS TODAY

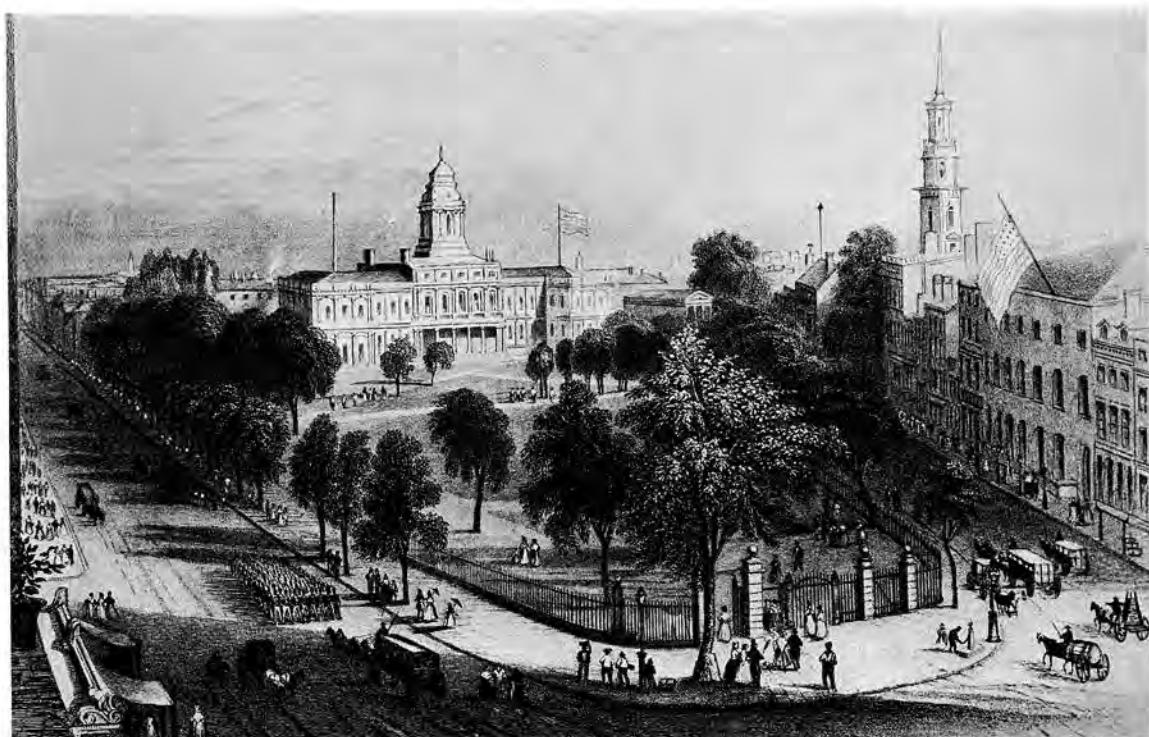
divergence is 1,080 feet exterior to the line laid down by the legislature in 1826, and 2,400 feet beyond the limit of the grant of 400 feet made to the city by the state in 1807." The Commissioners of 1859 add that "the grantee from the city has transgressed even the line laid down by the common council. He has erected a bulkhead several hundred feet in length beyond the limits as determined by the Corporation."

This case is cited at length to show how far short the plan of 1811 was of dealing with the layout of the city along the waterfront areas, and that much of the blame which has been attached to the commissioners who made the plan should be placed on the shoulders of the city Corporation. The latter controlled the layout of the margins of the island and the building development on the blocks, and it is in

CITY BUILDING IN A DEMOCRACY

these two respects that the planning of Manhattan is most faulty. One of the improvements most needed to save the lower East Side from further deterioration is to give it some of the waterfront park area which more foresight on the part of the city authorities would have given to it at the proper time.

Planning efforts in the city have had many ups and downs. Opportunities were seized at different periods which gave to the city such fine improvements as the open waterfronts along Riverside Drive and Harlem River, the wide boulevards and remarkable park system of The Bronx, the guidance of Olmsted in laying out Central



CITY HALL PARK, BROADWAY AND PARK ROW IN 1847

and Prospect parks, and finally the zoning law to restrict heights and densities of buildings. Other opportunities were lost, such as the one already referred to in failing to preserve an east waterfront park near Fourteenth Street and to adopt the advice of Frederick Law Olmsted and William Cullen Bryant to establish another waterfront park on the upper East Side. Prevention of building on these areas would not have intensified building on the other parts of the island, but would merely have added slightly to the building on the still vacant land of the other four boroughs.

Sufficient has been said to indicate that New York City has not been without periods of real effort to make the most of its magnificent natural setting, and to

THE MAKING OF THE CITY

control its growth, but as a whole it has been the victim of piecemeal planning and of doing things when it was too late to do them right.

THE FUTURE OF THE CITY AND REGION

The major part of both volumes which describe the Plan discusses those artificial elements that enter into the future building of the city-region.

In this place we shall refer to only one fundamental question of regional growth as it affects the calculations on which the Plan has been made. This question is whether great changes toward improvement of urban conditions will be achieved without a great effort to plan and reform the whole community structure in the Region.

Three ideas may be said to prevail on this subject. One assumption is the optimistic one, that economic pressure and the working of natural law will accomplish most of what is necessary in regard to distribution of buildings and population. It is claimed under this theory that the point is already nearly reached when diminishing returns will arrest congestion, that the motor vehicle will encourage a high degree of dispersal as the railroad has encouraged a high degree of centralization, that new methods of producing and distributing electric power will add to the forces that will gradually, but surely, spread cities and cause disintegration of the over-built areas. Hence we should plan with these possibilities in mind, and add the impetus of the plan to the forces already at work in bringing about reform.

A second assumption is that the evils of congestion are over-rated, that the value of concentration is so great that buildings of practically unlimited height and bulk should be allowed to arise on private land and the city should incur the cost of widening streets, of building elevated streets and sidewalks, of providing airport sites on the tops of buildings, and so on, in order to facilitate movement and maintain accessibility for whatever degree of building intensity can be promoted. Hence, we should plan to facilitate more concentration and to realize to the full the attainment of a skyscraper city, if we proceed on this assumption.

A third assumption is that conditions will continue as they are, except to the extent and degree that they are changed by conscious effort, and that this effort should be directed toward obtaining better balance in the distribution of building bulks, industry and population. In this connection it is claimed that congestion is a real evil and that when it is reached the values of concentration are seriously diminished from an economic point of view. To these economic losses there have to be added great social losses due to lack of open space about buildings for light, ventilation and recreation. Economic pressure will operate only to prevent conditions from becoming more, and not in making them less, intolerable. No profound changes in the densities and general structure of cities are in sight as a result of the motor vehicle or probable changes in connection with electricity, although, as pointed out

CITY BUILDING IN A DEMOCRACY

in the regional survey, it is possible that these things will have considerable effect in promoting wider dispersal in the future. The aggregate cost of providing a vast extension of transit facilities, of the widening and elevating of streets, of bridges and tunnels across wide rivers, of new open spaces necessary for affording light to buildings, and other requirements of any complete skyscraper city might be ruinous to the wealthiest of cities. Only by intelligent planning and control of city growth on sound economic lines can we avert the dangers inherent in a negative policy of "drift" or a positive policy of forcing the city skywards without consideration of costs.

We are compelled, as a result of our studies, to accept the third possibility and to suggest that it needs to be faced in this general form, even if in certain details the anticipations will prove to be at variance with what actually happens. Intelligent, courageous leadership and planning are needed to cure evils and to prevent their recurrence, for there is no other way. The root causes must be ascertained and attacked and a sounder conception of civic art created by means of education and object lessons. What can be realized is to a large extent determined by what the citizens wish to be realized.

We have referred to the possible effects of the motor vehicle and possible changes in the methods of producing and distributing electric power as probable agencies in promoting wider distribution. It is not certain, however, that they will lessen centralization. The greatest cities in future are likely to continue to be where coal, oil, and water power can be conveniently brought together in conjunction with the best facilities for transportation. New York has the latter facilities in such an exceptional degree that it can obtain all the energy it needs from coal and oil at the minimum of cost. In the future there will probably be, as predicted by Sir James Irvine,¹ President of the University of St. Andrews, Scotland, intelligent concentration of cities in new places where materials and energy can be economically assembled. But these new city-regions will be more



Photo by Brown Bros.

A MODERN VIEW OF CITY HALL

As seen through the arch of the Municipal Building. In the background, the Woolworth Building.

¹ Address at the meeting of the Institute of Politics, Williamstown, Mass., August 4, 1926.

THE MAKING OF THE CITY

likely to slow up the growth in other cities to a greater degree than in New York with its strategic position and established supremacy.

It appears obvious, therefore, that there are still great potentialities of growth in



Painted by D. Putnam Brinley

BROOKLYN—PAST, PRESENT AND FUTURE
From a mural painting in the Brooklyn Savings Bank.

the New York region as reflected in its ability to assemble materials and power and as predicted in our estimates of increase of population. This does not mean that wider distribution of industry and population within the Region should not be encouraged, but rather the reverse, to the extent that it will create greater industrial efficiency and

CITY BUILDING IN A DEMOCRACY

more healthful living conditions. The motor vehicle will assist this wider distribution but only as it enables industry and population to spread themselves circumferentially instead of in radial corridors.

At present, however, the great highway systems lead the motor along radial lines which have been planned in accordance with the same pattern as the railroads. The motor vehicle, so far, has helped to increase and widen the radial wedges of urban growth, but has not yet created extensive urban belts between them. It has facilitated the spreading of the residential population which the commuting railroads began—but this has added to congestion of the centers as much as it has relieved them. Every transportation facility that makes for convenient access between the periphery of a city and its centers promotes business concentration in the centers as well as residential dispersal in the environs. More means of communication around cities, at some distance from the centers, are needed to spread both industries and population effectively, and an object of the Regional Plan has been to show how this result can be attained.

Finally, the future strength of New York is likely to be impaired not by lack of the essentials provided by nature, but only by lack of the art of man in making the most of these essentials. In proportion as it fails in comparison with other cities to direct and control the artificial elements in its growth so as to maintain health, order and efficiency, it may be forced to accept a lowered status and a diminished power as a city-region.



From a drawing by Luigi Kasimir

FIFTH AVENUE, FACING CENTRAL PARK

Where artificial forces in city growth are driving out the homes of the rich.

Courtesy of Kennedy & Co.



RUINS OF THE TEMPLE AT ANGKOR, A GREAT CITY PLANNED AT LEAST 1,000 YEARS BEFORE WASHINGTON¹

II. CIVIC ART IN RELATION TO STREET PLANNING AND ARCHITECTURE

Comprehensive Planning in the Past

THE term *civic art* may properly be used to define the art of planning the ground on which the city stands and the buildings of the city as a comprehensive whole, with the general object of securing orderly, healthful and efficient development. In other words, it is the art of coordinating effectively all the elements in civic design and of relating these harmoniously to natural conditions. It is expressed in such things as roads and bridges, harbors and railroads, sizes and shapes of lots, and in preservation of natural beauty, as much as in buildings. The architect, the landscape architect, the engineer and the lawyer all have important contributions toward the making of a city plan. While as a rule over-emphasis of science has resulted in imposing unwise limitations on art in engineering, over-emphasis of the place which building in itself occupies in the making of the city has helped to lessen the influence of the architect on engineering elements which enter into its making.

¹ The Angkor Ruins of Cambodia include one of the world's greatest temples. The restoration of the ruins indicates the presence of a great town five miles square, surrounded by walls, gateways and moat. The town plan of Angkor Thom was made at least 1,000 years before L'Enfant planned Washington. In its heart there was a wonderful theocratic city containing a fine processional terrace and civic center. Outside the town lie the splendid remains of the master temple set in its own grounds and surrounded by a moat 220 yards wide. The causeway shown in the illustration terminates in a triple-pronged gateway.

It is stated that there are within and beyond the confines of the city of Angkor Thom itself networks of irrigation canals and water systems flowing from giant artificial lakes. The fields which were once cultivated are now arid waste. The civilization which gave Angkor Thom 1,000,000 inhabitants also formed great pyramidical temples of Java and spread through eastern Asia.

THE MAKING OF THE CITY

Before the revolutionary inventions of the nineteenth century transformed industry and means of transport, and started the transformation of cities, all city planning was within the sphere of the architect. But in these earlier times the architect comprehended all engineering and landscape problems as his own. Specialization had not become necessary, since the average city was as small in scale as a modern neighborhood or university, and simpler in its methods of sanitation and means of transport than a modern rural township.

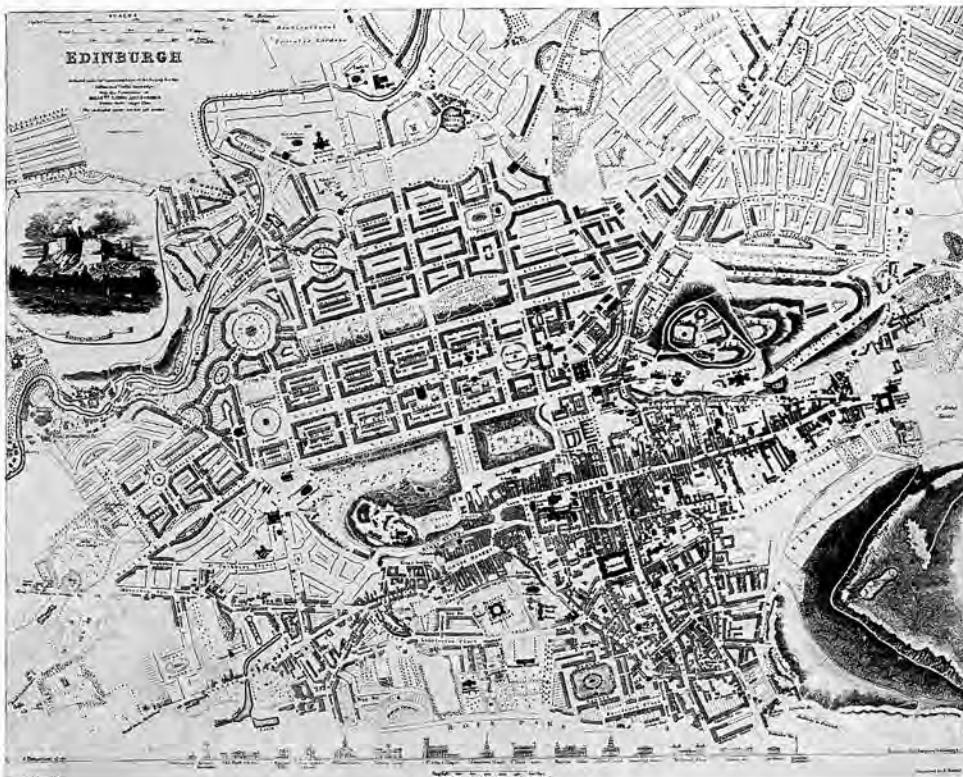


FIG. 5
MEDIEVAL AND MODERN EDINBURGH
A contrast of Gothic irregularity with classic formality.

In the preface to the first volume of the regional survey it was stated that the art of city planning had been pursued since cities were built.¹ From the earliest times until a century ago city planning appears to have been comprehensive in its treatment of buildings and all other elements in the city. Kahun (2500 B. C.) was apparently as much a plan of buildings as of streets. The descriptions of Babylon by Nebuchadnezzar and Herodotus refer to a city, not a street system. The first city planner in Greece (Hippodamus) was an architect. Vitruvius wrote of the planning

¹ See also "Town and City Planning," by Thomas Adams, ENCYCLOPÆDIA BRITANNICA, Vol. 22, pages 332-335.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

of cities in which architectural design and street planning went together. In ancient Greece and Rome formal street systems were designed in relation to the architecture.

In medieval times ecclesiastical princes and their artist craftsmen created cities in which the architecture, street lines and open places formed a combination with a charming irregularity and a picturesque quality that have not been surpassed in other periods. The buildings appear to have been erected and grouped around irregular places and winding streets, without regard to achieving unity in the street system.

In the Renaissance period the grouping and monumental design of the castles, churches and other public buildings, and the control of all architectural design, were the primary considerations in laying out the streets. Sir Christopher Wren's plan of London was a harmonious coordination of architectural and engineering design.¹

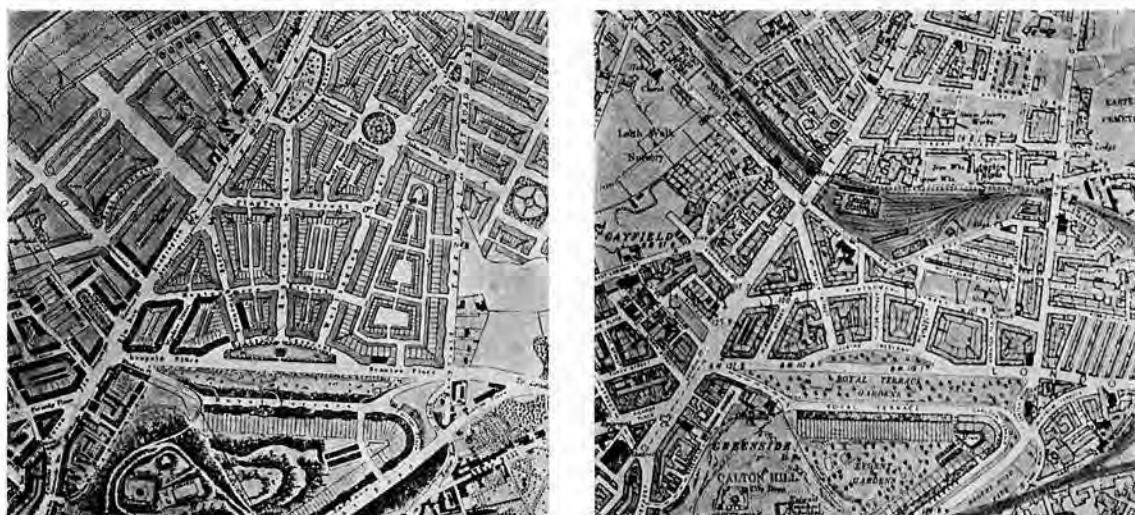


FIG. 6

THE BREAKDOWN OF THE EDINBURGH PLAN

On the left, a part of Edinburgh as planned in 1816. On the right, the same part as actually developed. Note the abandonment of the upper portion of the plan after the introduction of the railroad.

Because cities in European and Asiatic countries had to be built for defense, and enclosed with walls or ramparts, they were given a unity which modern cities do not have. This unity made for a completeness of design. The presence of overlordship, and ambitions of kings and bishops, and their desire for magnificence and expression of power, underlay the grand manner of planning and building cities.

In 1766 Edinburgh was planned, and as the city owned the land, the buildings were all designed and harmoniously grouped by leading architects. Other architectural developments on a large scale in conformity with carefully planned street patterns were carried out in London and Bath, in England, during the later eighteenth and early nineteenth centuries.

¹ See Regional Plan, Volume I, Fig. 10.

THE MAKING OF THE CITY

EARLY PLANNING OF STREET SYSTEMS

The planning of street systems without consideration of buildings and architecture has perhaps been more characteristic of the city planning methods employed in newer than in older countries. For example, in Penn's plan of Philadelphia, the streets, squares and blocks appear to have been designed without particular regard to any unity and architectural treatment of the buildings of the city. One result has been that the building development of Philadelphia is not distinguished by any higher degree of order in the arrangement and composition of its buildings than the average unplanned city of America. In Philadelphia and other American cities the ground plans were greatly influenced by the rectangular system of layout of farm lands for settlement. As in the Roman Empire, the land surveyor measured and arranged the farms in squares, and thereby did much to lay the foundation for the rectangular block system of cities. The same surveyor planned the city blocks and naturally followed the line of least resistance in making the building lots conform to the original farm lots. In the American city the disposal of the lots to individuals, with liberty to make the best use of them for their private purposes, was the governing factor in development, rather than architectural control in the interests of the community. Both in rural and urban settlement there has always been a feeling that a rectangular plan oriented with the compass was the most orderly and logical pattern.

In planning Washington, L'Enfant, the engineer, was apparently influenced by French architectural traditions, and, as we have seen, he had the guidance of Jefferson, a keen student of architecture and city planning. The street pattern he made was a combination of radial and rectangular streets, and its chief defect was that the diagonal lines were superimposed on the right-angled pattern instead of the reverse.

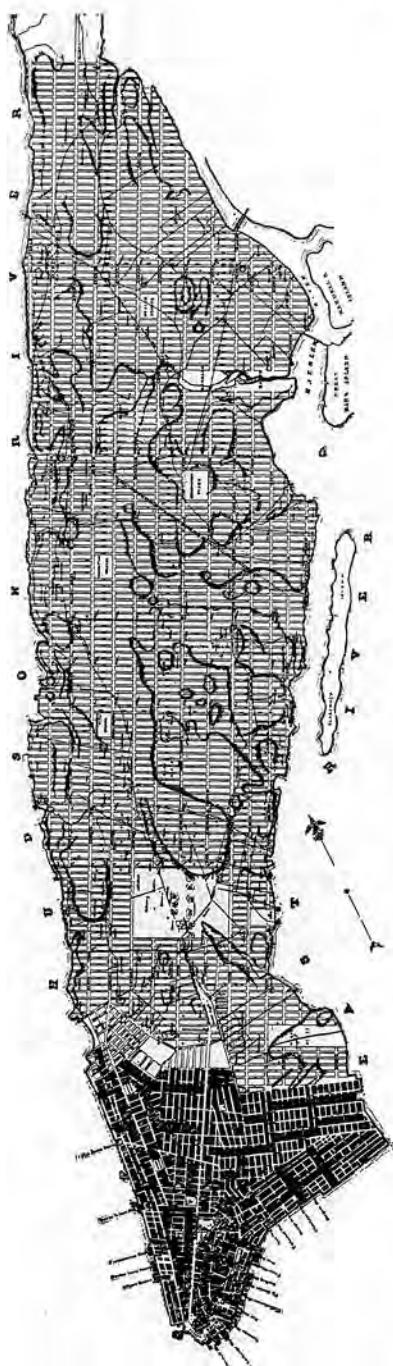


FIG. 7
MANHATTAN PLAN OF 1811
As laid out by the commissioners appointed in 1807.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

The planning of a street system is something like the planning of a large scale drainage system. A primary requirement of both is regard for the levels of the land. Another is that the capacities of both systems have to be designed to deal with an estimated volume and velocity of traffic in vehicles or liquid respectively. Too many street patterns are adopted without regard to these primary needs. As stated in the previous chapter, the plan of Manhattan of 1811 was not prepared with proper regard to natural conditions. It has also proved to be inadequate to meet the maximum needs of modern building densities, but the fault for this was not with the original designers, but with those who subsequently overloaded the land with building bulks.

It is curiously interesting to note the similarity of this plan with a drainage plan of Haarlem Lake Polder in Holland (Fig. 8). Here was a flat area for which an elaborate drainage system had to be provided and which in its shape recalls part of Manhattan. It will be noted that the main canals in their arrangement are not unlike the main avenues and 100 foot cross streets of Manhattan, with the ditches corresponding to the 60 foot streets between. In this respect the Manhattan plan was based on the same logical principles as the drainage plan. But the application of a rectangular pattern of streets to an area as uneven as Manhattan Island in its original condition is as illogical as would be an attempt to apply a rectangular drainage plan to such an area, while the erection of buildings out of conformity with the capacity of a given street system is like creating facilities for increasing the volume of liquid that enters a drainage system beyond what it can be made to carry.

Whether or not a city is architecturally planned or merely surveyed as streets and blocks without regard to topography or prospective building, its structural development will be influenced by the type of its street pat-

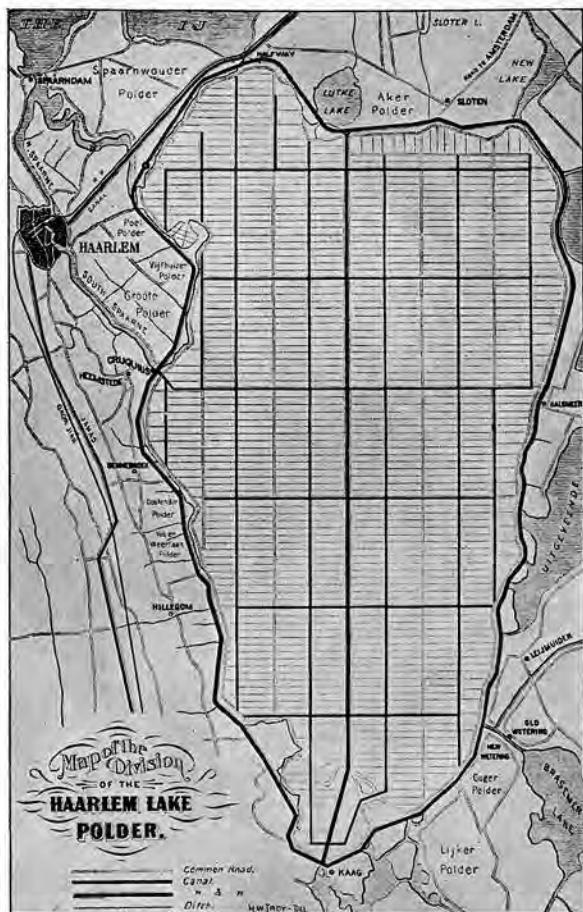


FIG. 8
DRAINAGE PLAN FOR HAARLEM LAKE POLDER, HOLLAND
Curiously like the street plan of Manhattan.

THE MAKING OF THE CITY

tern. It will be of interest to glance at examples of the three chief types, rectangular, irregular and radial.

The plan of Peking, made in 1262 A.D., is a good example of earlier and later right-angled planning. Carcassonne has an irregular plan of the thirteenth century,

and the extent of its preservation makes it of special interest as a mediæval fortress city. Karlsruhe (Fig. 12) is the most striking example of the radial or fan-shaped plan developed in the Renaissance period, possessing the picturesque irregularities in street alignment that characterized the cities of the middle ages. In these cities of different periods with different types of plan there appears to have been a conscious effort to coordinate the street system with the building developments and also with the requirements of defense as a major purpose. The system of streets, as well as the arrangement of buildings, is one element in the structure of the city that has to be related to all other elements. The

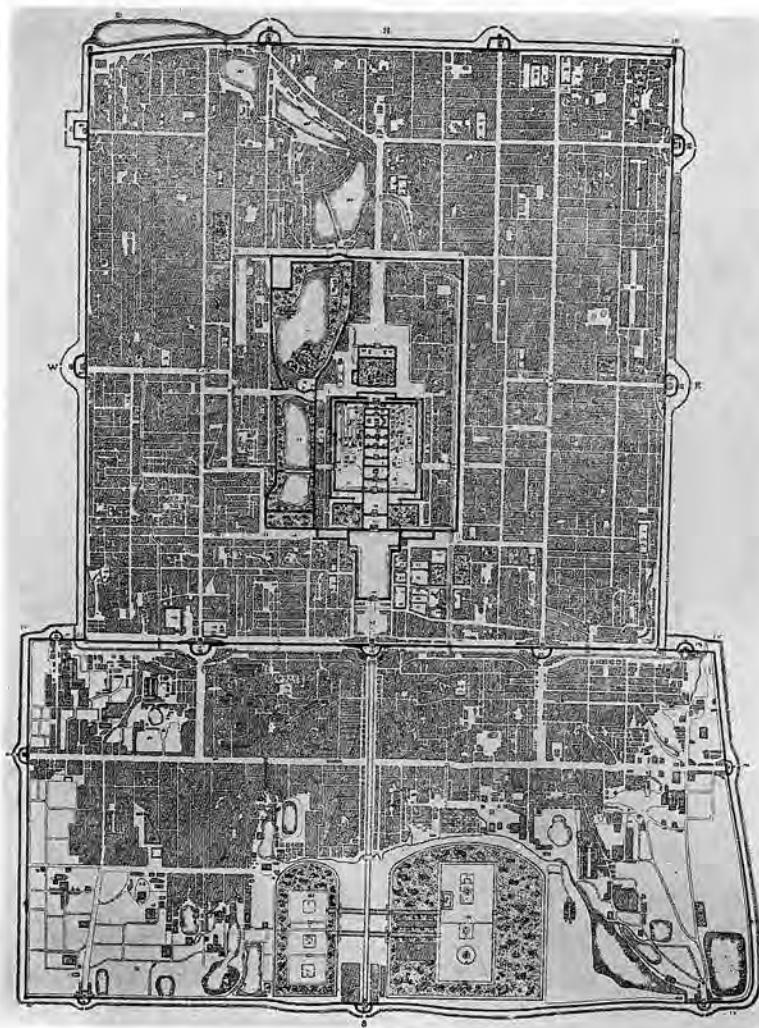


FIG. 9
PEKING (NOW PEIPING), CHINA—A RECTANGULAR PLAN

art we call city planning denotes intelligent design of all physical features or else it would have nothing to contribute to the improvement of the cities. Intelligent design must relate, among other things, to distribution of buildings so as to secure wholesome and spacious surroundings, together with an amplitude of open space for recreation; development of a street system in harmony with the needs of circulation;

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

orderly arrangement and architectural treatment of public and private buildings; efficiency of transportation and transit services; and regard for natural conditions. Right-angled, radial, curvilinear, and even jogging lines may all be used to fit in with the needs of a well conceived design.

As the average citizen looks on the buildings of the city he does not think of them in terms of their relation to the street and block system or plan until the time comes when the clogging of the streets as a result of areas being overbuilt causes him to see dimly that the building development has something to do with it. In any case, as a rule, most buildings are designed individually or in small groups and the art of architecture as practiced today is related to the design of separate buildings, or a few adjacent buildings.



VIEW OF CARCASSONNE

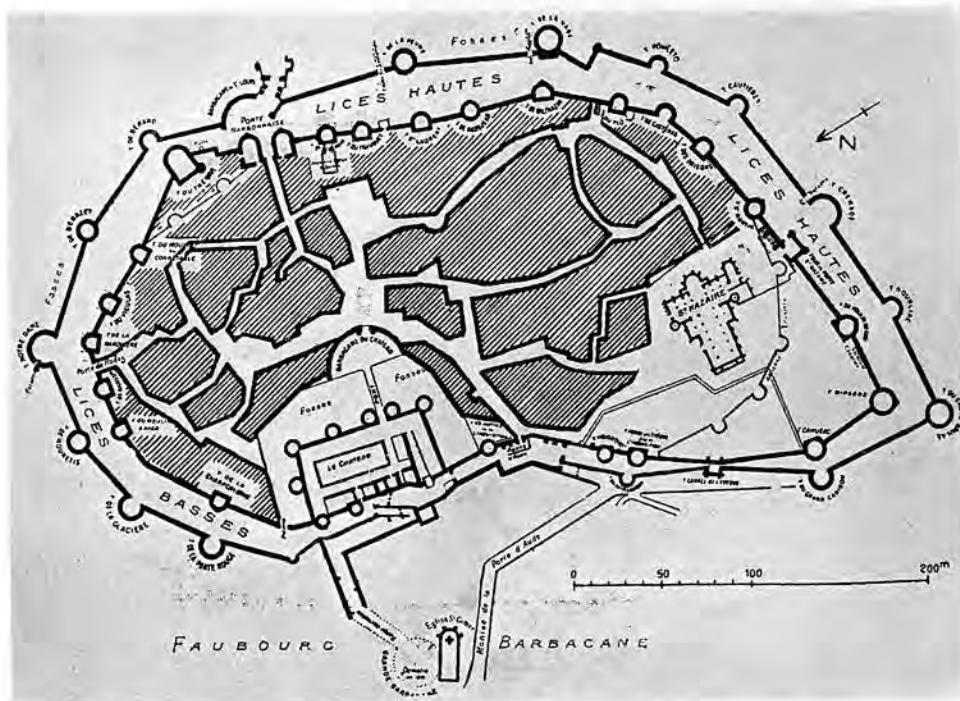


FIG. 10
CARCASSONNE—AN IRREGULAR PLAN OF THE MIDDLE AGES

THE MAKING OF THE CITY

In few cases in history has the architect or engineer been given the opportunity to design complete cities, although, as already stated, royal and ecclesiastical princes in olden times exercised such control through their architects that considerable unity of design in the building of cities was attained even when comprehensive plans were



FIG. 11
NORTHERN PART OF ROME—DIAGONAL TREATMENT OF MAIN ARTERIES CONVERGING ON PIAZZA DEL POPOLO

absent. To some extent this control is still exercised in countries where there is a high degree of state or municipal domination.

PLANNING AND GROWTH IN THE NINETEENTH CENTURY

The nineteenth century has been referred to as a period of decadence in city planning, particularly in its relation to the art of building. Excessive utilitarianism

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

of the period during which steam power was first developed led to a cheapening of both man and art. It was this cheapening process in England that inspired Carlyle and Ruskin to make reproaches against the mechanical spirit of their time. Its concurrence with the first beginning of railroads marks the time of retrogression in civic art, as demonstrated, for example, in the breakdown of the plan of Edinburgh after 1820. On the whole, however, what happened in the nineteenth century was change of the structure of society rather than decadence. A similar change is going on now; and the same social factors recur in different form in widely separated periods. For example, the decay of farming, shifting of population centers, and ab-

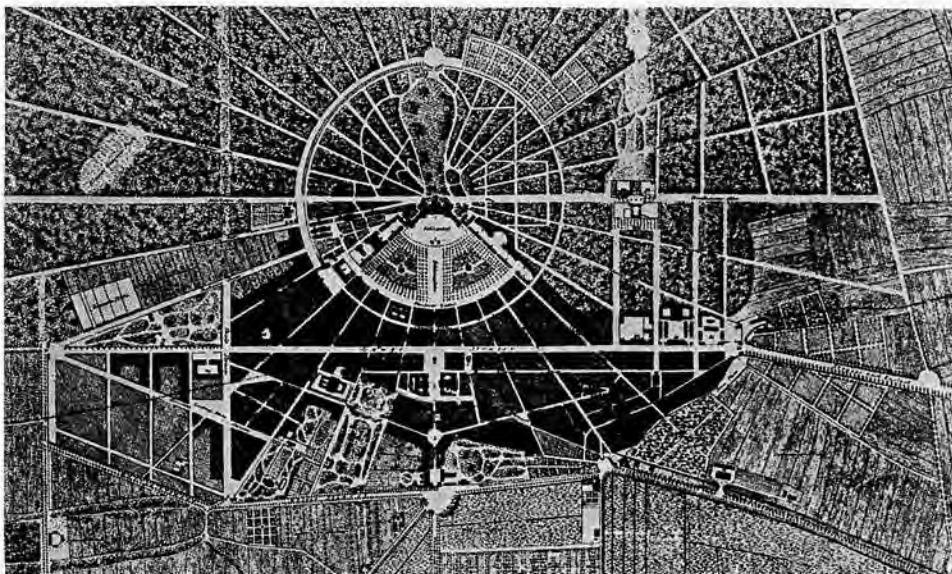


FIG. 12
KARLSRUHE—A FAN SHAPED OR RADIAL PLAN

sence of measures to secure proper distribution of population which we now deplore, were also deplored by Sir Thomas More as early as 1516.¹ Writing of social injustices in England he said, "While people talk of a commonwealth every man seeks his own wealth."

Sanitary conditions in New York City in the eighteenth century were probably worse than those that prevailed during the first fifty years of the "machine age" and greatly worse than those of the subsequent fifty years. In Volume I² of the *ICONOGRAPHY OF MANHATTAN ISLAND* it is pointed out that dangerous epidemics were frequent, streets were in an unsanitary condition, and that the Burlings, Beekmans and Fly slips were in an intolerable condition. Hatters and others poured dye into the street gutters. Even up to 1785 Bowling Green was "in a dilapidated condition and

¹ More, Sir Thomas, *UTOPIA*.

² Page 197.

THE MAKING OF THE CITY

hogs roamed over it." Yet those were the days of small towns, slow growth, and no factories. Manhattan had 11,717 people in 1746 and had increased by only 1,053 in the previous nine years.

After the invention of steam, a period of transition took place during which its bearing upon the social structure and upon the physical development of cities, in particular, was but little understood. Consequently the spirit of reform did not begin to make itself felt on the rapidly increasing urban growth in Europe and America till the early seventies of the nineteenth century.

The nineteenth century was a period of birth and revolution in industry and transport, and the extreme utilitarianism for which it has been noted appears to have been merely coincident with, instead of being part of, that revolution. The servitude of the factory workers in English cities was no worse than that of the farm laborers. The haphazard development and deplorable sanitary conditions which prevailed in the middle of the last century were not new conditions starting with industrial development. Indeed it may be claimed with some truth that the improved sanitary conditions of today have been the result of the much abused age of machinery. It was natural that improvements were slow at first and began to yield effective results only after 1870.

The extensive improvements in sanitary engineering and highway construction which were made from 1875 onwards increased the duties and responsibilities of the engineer as a city planner. City planning then entered two parallel but distinct fields. Engineering, as distinct from building design, became essential to the development of civic design. Naturally, this has resulted in retrogression in art, for the municipal engineer has not yet found, and in such a short time could not be expected to find, his true place as a collaborator in the art of city building. Concentration on science and defects in education have perhaps stultified his imaginative approach. What is needed in the future is more collaboration between the architect and the engineer, and not the suppression of the one by the other. Architectural engineering has become a necessity, and the new processes of construction have strengthened the liaison which is connoted by this term. Harmonious coordination of architec-



Photo by Brown Bros.

NEW YORK, FROM BROOKLYN (1876)
When the harbor, rather than the buildings, was the dominant feature.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE



Photo by H. N. Tiemann

BEGINNINGS OF BAD HOUSING—UPPER MANHATTAN IN 1894

tural and engineering design is the basis of civic art in connection with the building of the modern city.

The phase of the revolution which was introduced with the nineteenth century is not disconnected with the growth of democracy in both Europe and America. The growth of democratic government and institutions meant the growth of engineering science and art in connection with both transport and sanitation. Railroads, transit lines, roads, streets, disposal of wastes, water supply and lighting obtained a significance, in character and universality of application, which they did not have in less democratic days. In the continental cities of Europe the ramparts began to give way to boulevards and circular lines of communication. Thus the nineteenth century was a pioneering period. It laid foundations on which the twentieth century has to build. It is responsible for improved standards of sanitation and municipal administration, both of which have a deep significance in the proper building of cities for health and safety.

The modern city is something new, and therefore we may set aside comparisons that are made between the compact walled cities of the past and the ever expanding city monster of today. The artist who grieves at the loss of orderly formality in the older as compared to the newer cities, or at the changes which have made it impossible to repeat the artistic qualities of the medieval city, is merely showing impatience at the inevitable slowness which characterizes all great changes. He overlooks the fact that the social foundations of health and of freedom which are present in true democracies are the right foundations for civic art, despite the fact that change in the direction of more orderly development of building must be especially slow on such foundations.

THE MAKING OF THE CITY

The Example of Paris

The effect of political changes in the direction of more democratic government in producing at least temporary disorder and unhealthy conditions during the early stages of change, as well as the failure of despotic governments to give permanence to standards of civic art, are well illustrated by what has happened in Paris in the last seventy years.

Paris is the Mecca of hundreds of thousands of Americans because of its beauty. In its central parts it has been built with a grace of architecture, a control of scale in building heights, and a spaciousness of public way and place that give it high standing among the cities of the world as an example of art in city building. But Paris was not all planned with orderly formality. Its medieval parts have a charm that goes only with informality, and what was done by Haussmann would not be so attractive if it stood alone.

One distinction between Paris and New York will be referred to later in this chapter,¹ namely, the advantage which the former possesses in being a national center, with all that this means in obtaining the aid of the government toward the beauty of its building and the spaciousness of its parks.

There is also the distinction which Paris enjoys in having a tradition of beauty and restraint in building to maintain, and in maintaining it. The control of its architecture has not passed with the passing of the autocrats who did so much to create it. Whatever may be said regarding the recent absence of control of new buildings in the areas surrounding Paris, control is still exercised over new building and preservation of architectural standards in the central areas. Thus the harmony of style and the integrity of skyline are being preserved as far as the law will permit. Land prices do not rise high enough, as in New York, to force the demolition of beautiful and historic buildings. There is enough room in both cities for new building without destroying what is already good, but the urge toward great concentration of building and the consequent soaring of land prices in New York forces much deplorable destruction.

While Paris seems to be preserving and adding to what it has in the way of beauty in building, this does not prove that a democratic France would have initiated and carried out the projects



THE BEAUTY OF THE SEINE WATERWAY AND BRIDGES

¹ See page 68ff.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE



FIG. 13

MAP OF PARIS AND ENVIRONS

The line of the fortifications, clearly shown here, separates the city and its surroundings.

population of 5,000,000 in the near future. According to one authority¹ a comparison of the urban population of the world shows the highest density in Paris, being over 9,000 per square kilometer. We will assume that parts are as high in density and no higher than in New York. It is pointed out, however, in an editorial in the *New York Times*,² that the population of Paris has increased by only 70 per cent in the last eighty years. Its traffic conditions, notwithstanding its great wide avenues and slow growth of population, do not appear to be better than in New York. They have led to proposals by Lieutenant Colonel Henri Carre for building subterranean roads and garages, for extension of arcading of buildings and for cutting down trees on the avenues. But it is in the developments that have taken place in the last thirty years in the suburbs of Paris that we see the real defects of its growth under democratic control. Before referring to these developments we will review briefly certain phases of the planning operations of last century that have done so much to make Paris famous in city planning literature. It should be noted that Paris has been replanned and reconstructed rather than planned.

¹ Daudet, Louis, President de L'Association François des Cites Jardin, in *Garden Cities and Town Planning*, July, 1927.

² Issue of December 10, 1929.

which have made Paris what it is. What we most admire in Paris is not a product of its present democracy, and any true comparison between it and New York must consist of comparing what has been done in Paris in post-revolutionary days. When that is done—and Paris is used here only as an example of what has happened in other cities—it becomes apparent that civic art as applied to building development probably has made greater advances in New York than in Paris.

The Department of the Seine, which includes Paris and may be called the Paris Region, is likely to have a



THE SEINE—OCCASIONAL COMMERCIAL USE OF A WATERFRONT NEED NOT DESTROY ITS BEAUTY

THE MAKING OF THE CITY



EXTENSION OF BOULEVARD HAUSSMANN
Planned in 1857—completed in 1928.

monumental features. Under his and previous rules there was no doubt an exercise of control of architecture that could not be exercised now over private property in Paris, and would not be tolerated in New York.

On the whole, the legal and administrative methods of administering the plan of Paris during the republican regime are little different from those employed during the reign of Napoleon III and the administration of Haussmann.¹ Compared however with the tremendous quantity of reconstruction carried out during the administration of Haussmann, from 1853 to 1870, the amount of reconstruction along the lines of Haussmann's plan since that time has been very slight. The opening of the Boulevard Haussmann is an outstanding example in recent times, but on the left bank of the Seine there are still many of Haussmann's proposals which have not yet been carried out.²

¹ Mr. J. B. Helme, of Pennsylvania University, has assisted in obtaining information regarding present conditions in Paris.

² A recent book entitled *L'AVENIR DE PARIS* by M. Albert Guérard, Professor at Leland Stanford University and a "Parisian of Los Angeles," describes Paris as on the eve of a transformation which, in its magnitude, will surpass the work of Haussmann. The author agrees that something must be done to provide control of the future growth of the city.

He issues a warning against any extreme re-planning of old Paris and decries the spirit of geometry in the planning of Le Corbusier. Baudelaire's acknowledgment of the "profound and complicated charm of a capital aged and out of date in the glories and tribulations of life" is the spirit that appeals to him. We agree with M. Guérard that the expression of a city's individuality and traditions are far more important than the geometry of its design.

His comment on American cities is that they are beginning "to see the light" as shown by their modified skyscrapers, their

THE RE-PLANNING OF PARIS

Louis XIV aided much in developing monumental treatment of buildings and providing them with spacious surroundings. Before Haussmann's day, indeed before the end of the eighteenth century, the Tuileries, the Place de la Concorde, the Ecole Militaire in Luxembourg, and Les Invalides were established. Napoleon I formed 60 new streets, including the Rue de la Paix and the western portion of the Rue de Rivoli, and erected many monuments.

Thus the ground was prepared for Haussmann, and some of the projects we most admire in Paris were in being before he began his great scheme of remodelling. His great boulevards opened up extensive areas, but his chief contribution appears to have been toward the circulation of a city already provided with a rich abundance of

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

Haussmann's plan has been adhered to in principle, although modifications in the light of new conditions have been made. There are no examples of failure to carry out parts of the plan; many things are still undone, but nothing has been "scrapped."

The planning vogue never broke down entirely, but it may be said to have become dormant during the first years of the third republic, due to financial difficulties in which Haussmann's intensive reconstruction had involved the city. During the fifteen years that Haussmann was Prefect of the Seine he is said to have spent \$20,000,-000 a year, equal to a much higher sum at present values. As a result the civic indebtedness became so great that after the displacement of Haussmann and the declaration of the third republic, little further reconstruction was undertaken. This has held true down to present times.

Patrick Geddes states that the town planning extravagance of Haussmann and all that followed it, the making of quick fortunes in building, the land speculation, the increase of luxury expenditures, were not disconnected from the debacle of 1870-71. "How it led," he says, "up to and through the Commune,

boulevards and public buildings and their departure from rectangular street systems. Social service is now the watchword. "The city is civilized. We have the right to hope."

Paris itself is described as primarily a city of proportions and of harmony. The verdure of its boulevards is a precious heritage almost indispensable to the classic styles of the 17th and 18th centuries. Any plan of extension should include ample provisions for wooded parks, tree-lined boulevards and parkways, and preservation of the beauty of the Seine.

Although M. Guérard describes skyscrapers as a plague he does not oppose their erection in the environs of Paris. But he says they should never be permitted in the old Paris, where seven stories is now the maximum. His ideal would be to limit private construction to four stories in height.

For the future he would establish housing regulations based strictly on health and aesthetics, requiring new buildings to conform at once to such regulations and giving the owners of old ones ten years to make them conform without indemnity; otherwise they would then be subject to a special tax. With the proceeds of this the city would condemn the worst areas and rebuild them. The remaining slums would gradually depreciate so that owners would rebuild them to avoid the tax.

The establishment of use zones similar to those provided in American zoning ordinances is proposed. A co-ordinated system of public transport and utilities is recommended and it is stated that Paris should proceed at once to reorganize its transportation system rather than to wait for future growth.

Professor Guérard believes that Paris is destined to become one of the industrial centers of a more active Europe and that provision should be made for industrial growth confined to its proper zones, and for the construction of a ship canal to tidewater.



LOUIS XIV COMMANDING THE BUILDING OF THE INVALIDES

Homage to a great town planner.

This despot conceived immense projects and realized them. Over all the country his noble works still fill us with admiration. He was capable of saying, "We wish it," or "Such is our pleasure."

From Le Corbusier's THE CITY OF TO-MORROW

THE MAKING OF THE CITY

and even helped to prepare the tragic disorder and ruthless repression with which it closed, are no less matters of historic reproach, and of lessons still far from exhausted."¹

We see only the ornate results of Haussmann's plan; we cannot see the extent to which it substituted wide boulevards and tenements for homes and gardens, and caused social discontent.

It is important to note in comparing Paris and New York that the reconstruction work in Paris has been and still is financed from the civic treasury. There have never been special assessments on abutting property. Difficulty in financing projects has been the main cause of the paucity of reconstruction during the past fifty years.

The Haussmann Boulevard was delayed as long as it was because other things were more urgently required. The automobile and the resulting need of facilitating

motor traffic were probably the prime reasons for the boulevard being cut through in 1928. Originally planned as a means of access to and service from the Gare St. Lazare, it was able to remain a dead end for sixty years or more until changed conditions of vehicular traffic demanded its opening. The demolition of existing buildings and the reconstruction of this street were let by tender to a concessionaire (a joint stock company) which paid a proportion of the indemnities and gave the ground for the new street to the



Photo by Brown Bros.
THE BOULEVARDS OF HAUSSMANN

city in return for the condemned land adjoining. In this way the Boulevard Haussmann was opened up at a minimum of expense to the city, and with immediate assurance of a unified architectural development along the new street. In 1927 consideration was given to ways and means of apportioning some of the cost on the owners of adjoining property in future cases of reconstruction.

In a pamphlet entitled "Lois sur l'Expropriation pour cause d'utilité publique,"² the method of compensation of owners whose property has been expropriated for purposes of reconstruction is explained. The community gets no return for benefits derived by owners from reconstruction works, except indirectly. Article 51, page 18, says: "If the execution of works should augment the immediate and special value of the remainder of the property this augmentation will be taken into consideration in the evaluation of the amount of the

¹ CITIES IN EVOLUTION, page 309.

² Imprimerie Chaix, 1919.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

indemnity," but in practice the benefits created by specific improvements have never been worked out.

On the whole, however, it appears that the degree of architectural control in Paris has varied little with the years. There are certain regulations about height of buildings and about style, the latter in connection with historic sites. For instance, reconstruction in the Place des Vosges is rigidly controlled to be in stylistic harmony with existing buildings. The city attempts to encourage good architecture by arranging competitions for all its civic work and awarding the commission to the winning architect.

There is no direct aesthetic control, but rather encouragement to build good things. However, much of the recent architecture in Paris would be considered bad by American architects.

When Haussmann made his plan for Paris, present intensity of traffic was not foreseen, and on that account alone many modifications are now being made. For example, the widening of the Pont de la Tournelle and of the Rue de Deux Ponts on the Isle St. Louis is a change necessitated by modern traffic conditions and is one not planned by Haussmann.

The wide boulevards of Haussmann have made easy the movement of motor traffic in certain local areas, but the scheme of focal points where many streets cross has, on the other hand, led to intense congestion at these points; for example, at the Place de l'Opera, and in front of the Gare St. Lazare. Hundreds of projects for relieving traffic conditions are under consideration. The idea of one way streets has been put into effect.

DEFECTS OF SUBURBAN GROWTH IN THE ENVIRONS OF PARIS

Since Haussmann's time until 1919, no other extension plan was made for Paris. The character of the growth outside the city proper since the war has tended more than ever before to resemble that of London and New York; i. e., the tendency to suburbanization, not strong in Paris until the beginning of the century, has become more and more pronounced. In Paris itself, the apartment situation has become more acute. As in New York, more people live in one or more rooms in hotels now than before the war. On the other hand, in the environs of Paris most of the 500,000 newcomers are living in detached houses scattered in hodge-podge fashion in *lotissements* laid out endlessly without the slightest relation to one another and without proper roads, transportation or sanitation.



RUE DE RIVOLI

THE MAKING OF THE CITY

The only way to improve conditions in suburban Paris would be by the annexation of neighboring communes, but the difficulties of doing this are apparently the same in France as in America. Local feeling and the desire to escape taxation are perhaps the chief hindrances.

The problem of Paris, as of London and New York, is expressed by a publicist as that of outgrowing the scale by which its requirements have hitherto been measured. Manhattan has been hemmed in by rivers and Paris by fortifications. Outside the Paris ramparts a ragged fringe of poor development exists. Factories, billboards and small dwellings line the highways. In addition to the barrier of fortifications there is that of the *octroi*, the toll levied on traffic. One result of the haphazard suburban growth is that the wealthy people prefer to stay in the city. New York has overcome the barriers to its outward growth by building bridges and great highways. Paris still has inadequate means of communication with its environs. Subways and buses stop at the fortifications. Suburban growth is largely in the hands of the speculative subdivider, known as the *lotisseur*. Lots are sold cheap and mean houses are erected. Until 1924 roads, drainage or water supply were not provided, but the law now requires this provision to be made by the *lotisseurs*. The city tenements are more healthful than some of the suburban villages.

Since 1924 an attempt has been made to correlate new growth in the environs with existing conditions in accordance with a general plan. Since the growth in the environs from 1918 to 1924 was extensive and without organization, it will take time and vast sums of money to remove the bad conditions.

The "Loi du 19 Juillet 1924, modifiant la loi du 14 Mars 1919" relating to planning and developing of new areas, is now being put into effect. The law of 1919 did not apply to many of the communes surrounding Paris and, since there were no penalties for non-observance, it was generally ignored.

The ramparts and fortifications are still being razed and the areas they occupied are as yet very slightly developed. The expense of buying the land and of razing has been so great the city has little money for development on any comprehensive scale over large areas. The "squatters," of whom there are over 100,000 living in the "zone," refuse to be dispossessed without compensation. Some typical views of shacks in this zone are shown on the opposite page. The Cité Universitaire near the Porte d'Orleans, built to provide dormitory, social and recreation accommodation for the students of the University of Paris, is probably the most ambitious project yet constructed on the site of the fortifications. This project has been carried out with the aid of American contributions.

The areas of the first ring of forts outside the ramparts, which have been condemned, are being well planned, the emplacement of the fort itself usually being reserved for park purposes and the rest divided up into *lotissements* for building.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

The Office Public des Habitations à Bon Marché du Département de la Seine has financed a number of garden suburb and housing developments outside Paris, but, although better than the private developments, they are drab and commonplace. The entire suburban area of Paris is now being zoned, but no zoning law is yet in force.

In Paris as in New York City expansion follows the transit lines. Since the electrification of the State Railway from the Gare St. Lazare a couple of years ago, for example, St. Germain, on this system, now 24 minutes from Paris instead of 45 as heretofore, has experienced a tremendous and embarrassing growth. Almost every commune in the suburban area feels the need of more adequate means of transit and communication with the city.

The development of the waterfront of the Seine in the environs is only partially and in isolated spots being carried out as well as has been done in the city. Some 590 acres have been purchased at Seaux, of which a fine park of 560 acres is to be maintained as a public space. Between St. Denis and Le Bourget 2,000 acres of land have been acquired to build a model town. Little building is allowed to abut the river, and river roads have been reserved along the major part of the way.

The office of the Direction de l'Expansion de Paris correlates and superintends the planning and extension of practically the entire suburban area of Paris, duties formerly discharged by Haussmann, and for the first time since his day an authority is at work to make a comprehensive plan. But plans are kept secret because of the fear of land speculators using the knowledge to their advantage.



RAGGED EDGES AROUND PARIS

Above—Uncontrolled camping beyond the ramparts.

THE MAKING OF THE CITY



Delano and Aldrich, Architects

DESIGN FOR THE NEW AMERICAN EMBASSY IN PARIS
(From an architect's drawing)

The continuous ramparts around the city have been partly taken over and are being demolished. Gardens and recreation grounds are to be laid out on the condemned zones, and a fine ring of open spaces will eventually be created. When the work of levelling is completed the *octroi* may disappear and Paris will have thrown off the manacles that have hampered its freedom to grow and to extend its means of communications.

Permanence in City Building

What is apparently true of Paris is true of every city in modern democracies, that the creation of permanent forms of art in its building depends on guidance and inspiration being given to the citizens. When beauty and order are the results of dictation from above they may help in giving this guidance, but, as a rule, permanent improvements will be achieved only through education and persuasion of the people. It is to the latter that we must look for orderly development of cities in the democracies of today and tomorrow. In New York, when the results of free action in building the city, with all its defects, are spread over a long enough time, improvement in intelligence and leadership will evolve a city which will express higher individual ideals and standards. It will be a picture of free citizenship, and to the extent, and to no greater extent, that the inhabitants are awakened to apply true art, they will build an orderly and well balanced city.

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

We have referred at length to the example of Paris, because it reveals in a special degree the change which modern conditions of growth and government have produced. Perhaps it presents the greatest contrast between the good and bad in civic art and, therefore, is the most telling illustration to use. But Paris as a whole remains beautiful and its defects will be easily remedied, because it has not yet become the victim of the intensity of concentration that is erecting a barrier against improvement in American cities.

Paris, as an object lesson to New York, is not such in regard to its control of building or to the pomposity of Haussmann's avenues, but to the care it shows for preserving past traditions in art and historic buildings. These are the things that attract visitors to Gothic Nuremberg as well as to classic Paris. They are the qualities that the American city has been apt to destroy at home and so drive its citizens to spend large sums to visit and admire abroad.

But this has been part of the gradual process of evolution through which a new civilization, based on a strong individualism, has to pass. Patrick Geddes thus hopefully pictures the evolutionary process through which the American city is passing:¹

"In many respects the evolution process of American cities is plainly upon the very greatest scale no longer merely in output of wealth, in increase of population, but also in quality of civilization as well . . . But as she (America) ruefully admits, her citizenship has in the past suffered even more from arrest and decay than our own, under the influence of the extreme economic individualism of her still too largely paleotechnic industry, her too individualistic commerce and finance. Yet, happily, there is also in progress a great uplift of citizenship, a daily arousal of responsibility which bids fair soon to place her cities in the very van."

What is needed to achieve a foremost place for the American city in the twentieth century is not the substitution of autocratic control for democratic freedom, but intelligent leadership. Evils of congestion have accompanied standardization in industry and skyscraper building in New York, but that is not due to inherent defects in either, but to failure to arrest the abuses that are bound to grow up with such great changes in methods of production, building and transportation as have taken place in the last generation. What has to be done is to plan toward higher efficiency in use of these new methods. This means not only preventive planning for the future but courageous removal of the defects created by absence of planning in the past. Referring recently to the need of planning in New York City, Mr. George McAneny said:²

"All about us are horrible examples of the ugliness that almost inevitably develops where there has been no systematic and intelligent planning. Within the crowded centers of New York City we find slaughter houses and refuse dumps marring the city's waterfronts which might easily have been made beautiful recreation grounds for the city's population without material loss. We find dirty streets which, because of the lack of proper planning, the sunlight never touches. Indeed it is a sad

¹ CITIES IN EVOLUTION, page 171.

² Bulletin of the Municipal Art Society of New York, January, 1930.

THE MAKING OF THE CITY

fact that there are vast areas within the city where the ugliness is scarcely relieved by a single spot of beauty.

"In some of the less crowded and more recently developed sections of New York where the efforts of planners might have been invoked, we find, instead of beautiful park areas, street after street and row after row of monotonous, ugly houses all exactly alike except perhaps in color."

So long as these things are true, New York will find it difficult to show why it should take its place in the van of cities as an exemplar of the employment of civic art in its building. But New York is still in the making and what matters most is not what has been but what the future may bring forth.

Differences between New York and Capital Cities

In considering the degree to which New York has failed or succeeded in achieving any distinction in the art of city building, we have to bear in mind certain differences between it and capital cities like Washington, Paris and London. A comparison between the street plan of Manhattan and the street plan of Washington does not help us to understand the differences in their architectural development.

As already stated,¹ the plan made for Washington by L'Enfant was a good foundation for the building of the city, but the building itself has been the result of innumerable contributions by architects for well over a hundred years. Without the opportunities for display of buildings which was made possible by the arrangement of streets and places, Washington could never have been made as beautiful as it is merely as the result of good architectural design of individual buildings. But it is because it is a capital city that it has been able to take advantage of its plan. As the center of the national government a great part of its buildings have to be of a monumental character.

When again we compare great commercial centers such as London, Paris and Berlin with New York, from the point of view of their architectural development, we find that the latter has a distinct disadvantage in not being a capital. Were all the buildings which have been erected in the great national capitals for purposes related to national government to be destroyed, the effect on the architectural quality of these cities would be disastrous. Even their great monuments and parks are incidental features in the architectural quality given to them as a result of their being government centers.

In London the group of parks which connects the Houses of Parliament and the government center of Whitehall with Buckingham Palace and Kensington Palace is part of the heritage which the city has obtained through its position as a center of national life and government. We have seen that Paris would never have had its fine public buildings had it not been for Louis XIV and other kings, nor its magnifi-

¹ See pages 26-31.



Post Office



Metropolitan Museum of Art



Customs House



County Court House



City Hall



Photos by Brown Bros.
Public Library

PUBLIC BUILDINGS IN NEW YORK



New York Central Building



Bush Terminal Building



Graybar Building



American Radiator Building



Standard Oil Building



Bankers Trust Building (Center)



40 Wall Street



Photos by Brown Bros.
Stock Exchange

NEW YORK OFFICE BUILDINGS

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

cent avenues had it not been the capital in which Napoleon and Baron Haussmann spent such vast sums in re-planning and developing the city as a national center. The Champs Elysees, Place de la Concorde and the Place de L'Etoile are parts of the processional way which connects the central areas of Paris with the government buildings and the great national monument of the Arc de Triomphe as dominant features. In Nancy the group of government buildings designed by Emanuel Heré still remains one of the monumental examples of civic art.

If we were to visit Vienna today and look at a map of the city of 100 years ago (see Fig. 14) we would observe how much it owed to being the seat of government for the use that has been made of inner belts of land outside its old ramparts. There



Joseph H. Freedlander, Architect

MUSEUM OF THE CITY OF NEW YORK

the combination of open space with monumental building gives the city a distinction which no lessening in its political importance can take away.

We see then that where a great commercial city rises to dignity and beauty in its structural growth it must do so against enormous difficulties compared to the cities that are centers of government. This is so not only because capitals are the places in which buildings are erected under public control for public purposes and at the general expense of the country, but also because residences of the rich, national museums, centers of education, spacious parks that are necessary properly to display public buildings, monuments of historic figures, cathedrals and other cultural features, grow up around the seat of government to a greater degree than in other cities. Moreover, these public and semi-public structures are more enduring than private structures because they are less susceptible to the influences that promote change.

THE MAKING OF THE CITY

New York is the capital of a region with the wealth but without the unity of a small nation. The beauty of its building has to be obtained from the art it uses in creating civic centers, and in developing its own public buildings, its cultural institutions, its trade and commercial structures, and its residences. It is fortunate for New York that, in an important sense, it is a cultural as well as a commercial metropolis. It has a leadership in education, in art and in ministering to fashion. That it

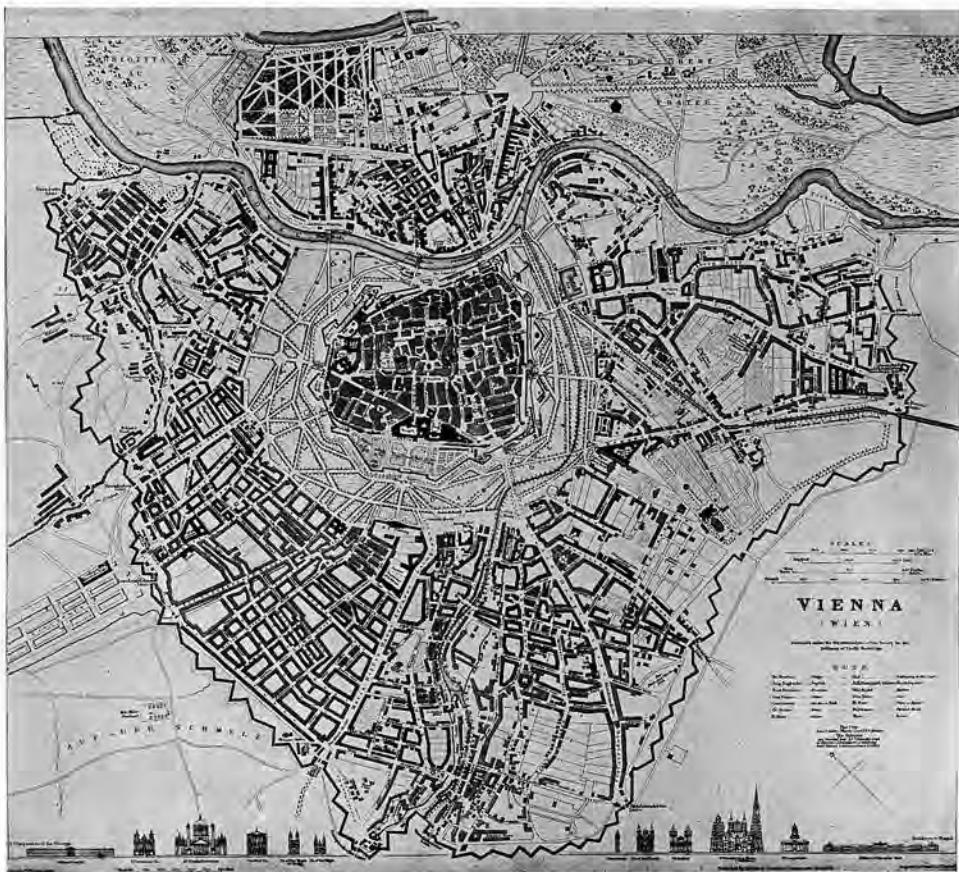


FIG. 14
MAP OF VIENNA (1833)
Note especially the belt of open space outside the old ramparts.

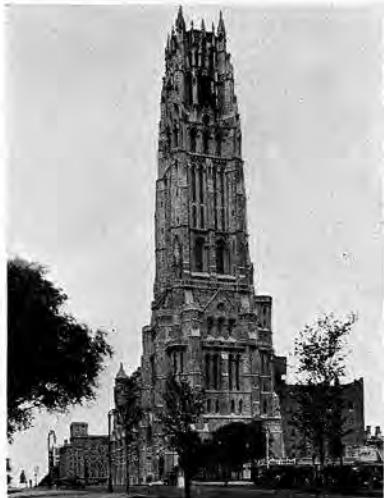
possesses many noble buildings is shown by the illustrations we give of some of its finest examples of architecture. (See pages 69 to 77.) These include buildings used for the administration of law, municipal government and public utilities; for museums, hospitals, and art, scientific and social institutions; for universities, colleges, schools and churches; for railroad and harbor terminals; and for great offices, hotels, theatres and residences. The business of the city is on such a scale that many



Cram and Ferguson, Architects
Architect's Drawing of the Completed Cathedral of St. John the Divine



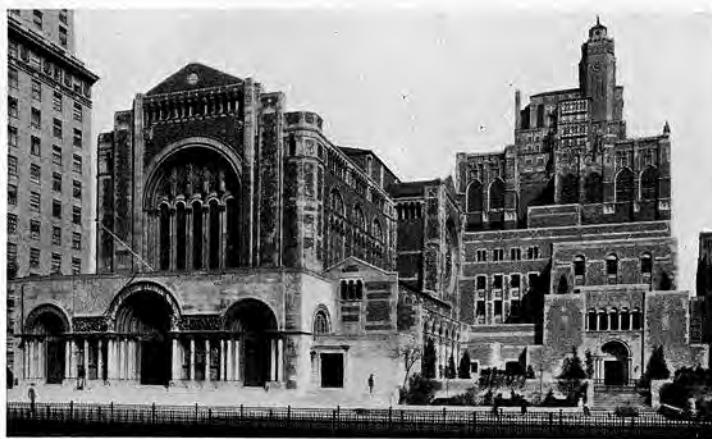
St. Patrick's Cathedral



The Riverside Church



St. Thomas'



St. Bartholomew's

Photos by Brown Bros.

NOTABLE CHURCH BUILDINGS IN NEW YORK



Plaza Hotel



Hotel Pennsylvania



Hotel Shelton



Century Theatre (recently demolished)



Morgan Library



New York Athletic Club



Heckscher Building
NEW YORK BUILDINGS



Photos by Brown Bros.
Roerich Museum

CIVIC ART IN STREET PLANNING AND ARCHITECTURE



Photo by Brown Bros.

PENNSYLVANIA STATION

of its private buildings are monumental in size. Some of its private buildings have a higher architectural quality than its public buildings. But in the majority of cases this quality is hidden because of crowded and incongruous surroundings.

SPACE ABOUT BUILDINGS IN NEW YORK

What New York lacks is not so much beauty in individual buildings as lack of that harmonious treatment and spaciousness in surroundings of buildings which is a characteristic of great capital cities. New York when compared to Washington, Paris and London suffers more from want of space in its central areas than from deficiency in monumental buildings. Its most striking architectural feature is its mass of high buildings as seen from the surrounding areas of open water, which give it the benefit of open space from which its buildings can be seen. It is



Photo by William Frange

New York Telephone Building and Woolworth Building

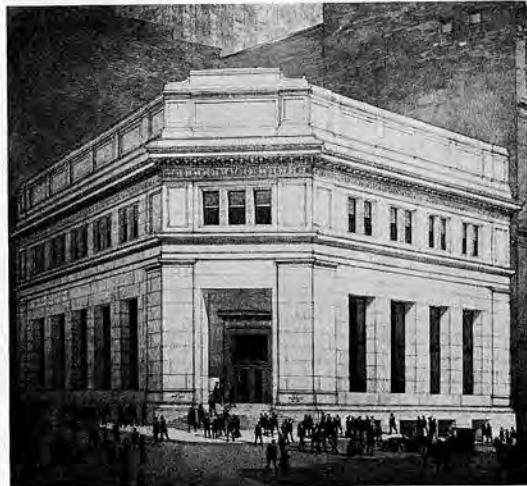


Photo by Brown Bros.

Morgan Building

NEW YORK BUILDINGS

THE MAKING OF THE CITY



Hall of Fame, New York University



College of the City of New York



Library, Columbia University



A pageant, City College

HIGHER EDUCATIONAL BUILDINGS

Photos by Brown Bros.

on the frontage of these water areas that its greatest opportunity lies for creating beauty of building.

In one respect New York City surpasses, in its opportunities, the largest capital cities. The fine natural features in the environs of the city, the great rivers which break up the city and its adjacent territory into island and peninsula, the magnificent palisades and wooded hills of the Hudson Valley, give it a natural setting which affords unequalled scope for combining nature and art in a great city. The development of civic art in New York depends in a high degree on making the most of these natural advantages, for it is mainly through their preservation and improvement that it can secure order and dignity in its physical development as a whole. Unfortunately, because of their very profusion many of these features have been treated with carelessness and sometimes with contempt. An example of this is the careless treatment

CIVIC ART IN STREET PLANNING AND ARCHITECTURE

of parts of the waterfront of Manhattan, as a result of which some of the finest sites in the city are wastefully used and disfigured.

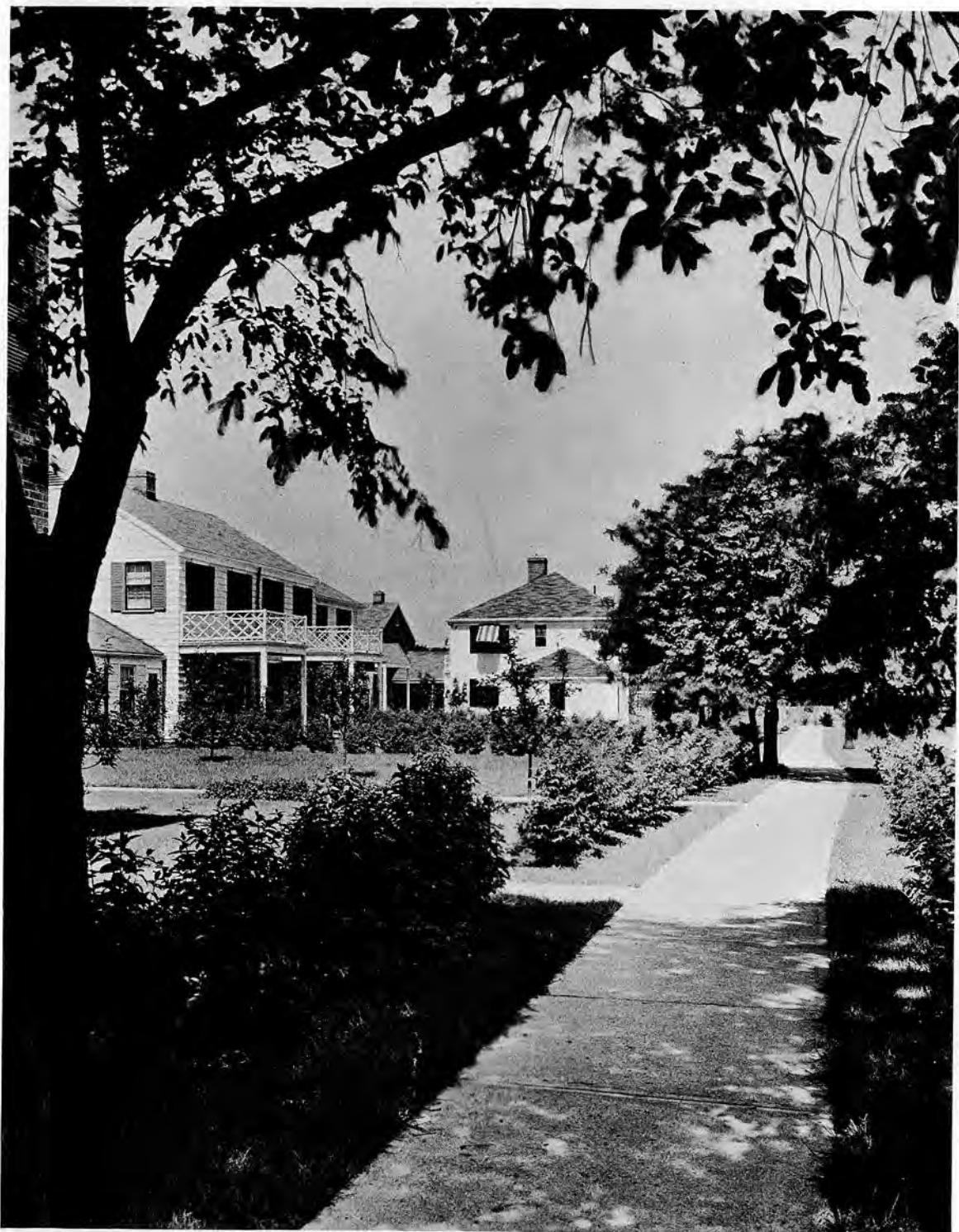
A certain amount of spaciousness and unity in arrangement of groups of public buildings and institutions has been and always will be attained.

Much the greater part of the building development of the city, however, is and will continue to be private building. The liberty of the individual owner to erect his buildings as he chooses, subject to compliance with the laws of health and safety, will continue to operate as a powerful influence in building the city. The permanent provision of more ample space about these private buildings is the greatest need in New York, not only to give room for the attainment of order and beauty in building, but for all purely utilitarian purposes.



Photo by William Frane

VIEW ACROSS MADISON SQUARE TOWARD THE NEW YORK LIFE
BUILDING AND THE METROPOLITAN TOWER



Courtesy of the City Housing Corporation

RADBURN, NEW JERSEY, WHERE ART AND NATURE COMBINE TO MAKE GOOD LIVING CONDITIONS



Courtesy of W. H. Ham

A GROUP OF HOMES IN BRIDGEPORT

III. CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

Art and Economics

THE chief purpose of a city is to give satisfaction to human wants. The first of these wants is means of livelihood and the second an agreeable environment. In proportion as it serves these wants a city approaches the limited degree of perfection, in respect to living conditions, that the art of man can attain.

ART IN WORK

Perhaps one of the best statements ever made as to the meaning of art is the following, taken from a lecture delivered by Dr. L. P. Jacks, Principal of Manchester College, Oxford:¹

"Art is simply the name we give to the wisest way of doing whatever needs to be done. Do anything as wisely as it can be done, and you stand at the growing point where all the fine arts begin. There are some people who seem to think that in order to promote the fine arts you must turn your back on the common work of the world, as it goes on, for example, in a great city, and betake yourself

¹ "Adult Education and the Arts," May 15, 1925.

THE MAKING OF THE CITY

to another sort of society where the mysteries of art can be studied without disturbance by the toil and din and turmoil of industrial civilization. I suggest another method of looking at the matter. I would suggest that we take the toil of the world as it stands, the toil of business, the toil of industry, the toil of the professions; that we find out the wisest way of doing all that—that we accept it and close with it and make the best of it; lifting it all to the highest level of excellence it is capable of reaching—and I venture to say we shall have taken the most effective steps we could take towards a revival of the fine arts, not excepting the finest of them all. Art has always grown out of the common work of the world, out of the effort to clothe that work with all the excellence it can bear."

It is because so many think of art as something above and independent of common work instead of recognizing it as inherent in all creative effort that they are pessimistic about its attainment in the city. It is thought of as an indulgence of an elect few instead of being regarded as inherent in all production and distribution. That is why the average man is depressed by the ugliness, disorder and inefficiency he sees around him in the city.

He cannot see, or at least understand, their origins and causes. Aristotle tells us that from his youth up every free citizen of Athens was a critic of art. The Athenian was so trained by tradition and custom that art entered into all he did. To get sound and true art into the "common work of the world" now, as in ancient Greece, is the first step in the building of cities whose greatness commands the respect of their citizens.

THE ECONOMIC FOUNDATIONS OF THE CITY

We are told that the three beneficent artisans of the isle of Great Britain were:¹

"Corvinwr, who made the first ship mast and helm, for the nation of Cymry; Morddal, the mason who first taught the nation of the Cymry to work with stone and lime . . . and Coel, who first made a mill with wheels for the nation of the Cymry. And they were all bards."

New York has been built by the same three classes of artisans, those who have made shipping and the rail, have worked in stone, lime and steel, and have created the mills and wheels of industry. In modern times, with our more complex civilization, these three classes have been divided into those who work with the brain and those who work with the hand. Other classes have established themselves in great strength, namely the immense army of people engaged in the arts of exchange and in those arts that minister to social protection and our cultural satisfactions. The latter include the arts of architecture and engineering as applied to the fields of transportation, of building, of industry, of commerce and of education.

The degree of art that enters into the common modes of work in all these fields is the foundation of civic art, which includes the coordination or rather the organization of all the distinctive arts, in establishing the quality of the city as a place of

¹ Triad 91, Series III.

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

work. Whatever adds to or subtracts from the efficiency of this organization strengthens or weakens the forces that have made and that sustain the city.

In manufacture and in means of transportation no country in the world has so effectively harnessed invention and the methods of standardization as the United States; but much of the benefit it derives from these sources is dissipated from day to day owing to the defects in city organization that are revealed in the Regional Survey. No satisfaction is to be gained from the fact that cities on this continent share these defects in common with all manufacturing countries. The defects are due mainly to the failure to plan and organize cities so that industry may have room to expand, to obtain freedom of movement by road and rail for its products, and to have healthful living conditions for its workers.

The benefits of concentration, great as they may be, are regarded so highly that the injuries of excessive concentration are ignored. High land prices are accepted without question as to their possible effect in creating a burden on industry, or in lessening the real values of land for purposes of production. Yet every excess in the price of land over what it is worth for economic and healthful use is a tax on industry, including all forms of productive enterprise. In the final analysis all land prices, all waste due to congestion and its concomitant evils, and all taxation are paid out of production and the surplus wealth derived from production, which are the aggregate results of a people's skill, energy and community organization.

Changes that, if made, would give added efficiency to the industries of the city in regard to movement are resisted because of possible effects in lessening the profits to be derived from property. The main motive of resistance has been described by Belloc as a "blunder in the science of economics."¹ He disputes "the idea that the destruction of a number of imaginary economic values ('imaginary' because they form no part of the total real wealth of the state), to wit, the urban site values, is in some way an expenditure of real wealth." "So far is this from being the case," he says, "that there is perhaps no example in all history of a congested street system being reformed without the wealth of the city increasing after the change."

The instances of the enormous values created by improvements in New York² support this view. But the inference to be drawn from the above statement is that land values are a symptom and not a form of wealth, and the greater blunder in economics is in destroying those things that produce efficiency in industry or conserve the health of the inhabitants of the city in the interest of imaginary values of real estate.

It will be noted from the discussion of ways of communication and land uses in Plan Volume I that one of the primary objects of the Regional Plan is to provide the facilities necessary for efficiency in all branches of industry. If the distribution of buildings is such as to create congestion in one place and too much scattering of

¹ Belloc, *Hilaire, THE ROAD*, pages 59-60.

² See *Regional Survey*, Volume II.

THE MAKING OF THE CITY

buildings in another place, to cause the workers to travel daily to and from distant suburbs on congested transit lines, and to lessen the opportunities for workers and their families to obtain healthful housing accommodations and ample space for outdoor recreation, it is the industries of the city that have to pay the cost. If buildings are so crowded together that rapid vehicular movement is impossible, that factories and business premises cannot be expanded at reasonable cost, and that all the benefits of concentration are counterbalanced by destruction of accessibility, every industry must suffer under the strain of the congested conditions.

These and other economic facts and considerations lie at the root of the matter in connection with city building. There can be no true art applied to the planning and making of cities that ignores them, or that subordinates them to some purely aesthetic objective.

THE ENDURANCE OF BUILDING

In an important sense architecture, or the art of building, has the deepest significance and the most durable results in influencing the growth of the city and the education of its citizens. Through forms of building, through the interpretation of distinguished architects of a given time, we express not only uses in relation to purpose and economy, but feelings and ideals of leading citizens, their sympathy or lack of sympathy with tradition, and the influences that dominate their spiritual and material life. We speak in stone or steel to future generations and show what we are and where we stand.

The products of the factory in furniture and appliances, and the objects of fine art we buy for our homes reflect our aesthetic taste at a given time. But they are temporary things that either are not handed on to new generations or may be rejected by them. Buildings, on the other hand, have a greater permanence, even in rapidly changing New York. If they reflect the bad taste or low ideals of one period they none the less have to be suffered by succeeding generations, who either despise them or are debased into acceptance of them.

We have to reflect also that an enormous amount of capital is sunk in buildings, based on a comparatively lengthy period of depreciation. Perhaps 99 per cent of the buildings have been made ugly at such great cost, not because of economy, but because of lack of art in construction.

In a statement made in 1925 by Mr. W. C. Clark, Economist of S. W. Straus and Company, it was pointed out that building construction employed 5½ per cent of those engaged in gainful occupations, supported 10 per cent of the nation's families, required 250,000 freight cars for transportation of its raw materials, and involved an annual expenditure of six billion dollars. Residential building is increasing, as Mr. Clark predicted, not only because of the demand for accommodation, but also because of a rising standard of living, demands for new types

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

of facilities and better environment, resulting in population shifts from crowded centers to suburban areas.

In planning the city the industry of building itself is therefore of vital importance, and whatever can be done to improve the true art of building, to make buildings more durable, to prevent wasteful changes and to promote those changes that are essential for more freedom of movement and health, will contribute to the economic stability of the city. Too often, however, as in Manhattan, buildings that



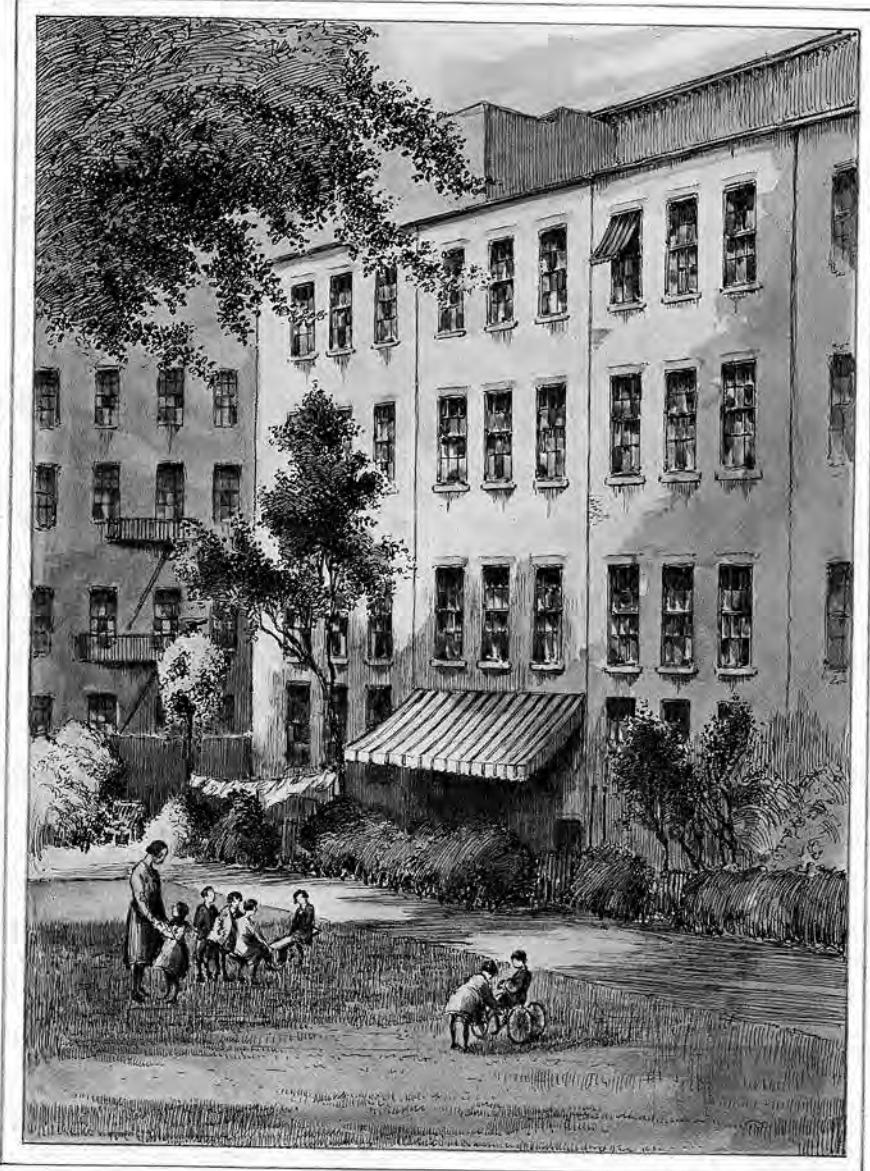
Francis S. Swales, Architect

AN APARTMENT NEIGHBORHOOD PROPOSED TO FRONT ON THE BRONX RIVER PARKWAY AT FLEETWOOD

should be preserved are destroyed and those that should be destroyed are preserved. This is unavoidable to some extent, but most of it appears to be due to the haphazard growth of building that necessarily occurs in the absence of a well conceived city plan designed to control overbuilding on land and to regulate changes in the interest of industry, business and investment of capital.

Much the greater volume of building and of money invested in building in the city is concerned with the construction of dwellings,¹ and it is this class of building

¹ See Regional Survey, Volume VI, page 55.



Drawn by Louis Weirter

INTERIOR OPEN SPACE IN THE BLOCK BOUNDED BY BLEEKER, SULLIVAN, HOUSTON
AND MCDOUGAL STREETS

Showing advantages obtained by adjacent buildings, in respect to light, air and outlook.



Drawn by Louis Weirter

TENEMENT BACKYARDS IN THE SAME NEIGHBORHOOD

Contrast these with the view opposite and with that on page 87.

THE MAKING OF THE CITY

that has the greatest influence on the efficiency of industry. The volume of work done in a city is proportionate to the skill and energy of its workers, and this skill and energy are dependent on the quality of the city as a home.

The City as a Home

There is a sense in which it is more true to say that a man's city is his castle than that his house is his castle. For those great defensive structures of feudal times and places that were real castles were, in their scope and amplitude of provision for varied interests, nothing less than cities. There is little to distinguish the great castle from the walled-in city of the middle ages, with their defenses, varied and unified interests, and monumental approaches. In a literal sense cities have grown away from being castles, but figuratively the city as the real home of man remains his castle.

There is a certain crudity about the way the term "home town" is used, but it would have a real significance if it were meant to convey that we looked on the city as our home. The city is not so much a collection of family units as a unified family structure, hanging together in strength or weakness, in order or disorder, in health or sickness, in free-moving efficiency of circulation or in congestion. Its means of communication, its general environment, its sanitation, its recreation areas, its universities, schools and other cultural centers, its business and industry, and its neighborhood and community life are necessities in making each city a complete home.

The ancient Greeks and Romans loved their cities. This love of the home-states stood apart as a symbol of their greatness amidst all their weaknesses. In detail their regard for their dwellings was under-emphasized and partly in consequence their regard for the temples of their Gods was over-emphasized; but the severity of their private life and the sacrifices they made to enrich their community life were, up to a point, among the finer elements in their civilization. While in the Roman Empire the nobles made the city their home, later in England the nobles made the country their home, although they had houses in the city. In more modern times the leading citizens of the most prosperous countries look upon the city as a place of business. They camp in its apartments when they must, but it is in the distant suburb, or the country, that they really live. To a large part of the population the modern city is a place in which to spend only the working hours of the day, a place to and from which they have to travel by tiring means of transportation. It is not flattering to the common intelligence of this day that cities are rapidly losing the quality of home.

CIVIC ART AND LIVING CONDITIONS

In the building of the city-state that has assembled itself in great and small urban units around the Port of New York, it matters little whether we build beauti-

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS



Springsteen and Goldhammer, Architects

A MODERN GROUP OF TENEMENTS ERECTED IN THE LOWER EAST SIDE OF MANHATTAN, UNDER THE AUSPICES
OF THE STATE BOARD OF HOUSING

fully, or manufacture efficiently, if the health, safety and economic stability of the citizen is not obtained; for there is no art or invention applied to building, to movement or to industry, valuable as these may be in themselves, that can replace the human forces that an unhealthy home-city may destroy.

In ancient Rome as in modern New York there was genius for organization, public and private munificence, and a desire for the beautiful in architecture. H. V. Lanchester quotes the late Samuel Dill regarding the munificence of Pliny and other great Roman citizens. Pliny gave \$45,000 for the foundation of a public library in his native town, and an annual endowment of \$4,000 to maintain it, also offering one-third of the expense of the high school.

Money was given by Roman citizens to encourage boys to be kept under the protection of home influence, and to stimulate the interest of parents in education. One of the ways suggested to do this was to make them lovers of their mother city. Civic ardor was a religion in Rome, as well as Athens, and men gave themselves unstintedly without pay to the service of the city as their home. Much of the beauty of these cities was attained by private munificence and not by public expenditures.

We are told that in the rebuilding of the Great Hall in Pompeii in 3 B.C., Holconius Rufus and Holconius Celer defrayed the expense of the crypt, the tribunals and the whole space for the spectators. Altogether it is calculated that Pliny must have given a sum of more than \$400,000 to libraries, school endowments and

THE MAKING OF THE CITY

children's aid. Herodes Atticus gave even more liberally to temples, theatres, bridges, markets and other public improvements.¹

As cities become less attractive and citizens less inspired with the civic life, civilization seems to make less progress. Thus with the break-up of the Roman Empire and the expansion of the Teutonic peoples, city life became less popular and agricultural development the chief interest of the people. But through all these periods, whether in the days of imperial Rome or in the Middle Ages, there was the same lack of care for the quarters of the poor that finally became an element in the decay of ancient and medieval civilizations.

In ancient times the poorer citizens had less access to wealth than they have in modern times. They did not possess the same equality of opportunity. Yet there was probably no ancient city so depressing as the industrial community of the nineteenth century of which Charles Dickens wrote in *HARD TIMES*. Here is his description of Coketown:

"A town of machinery and tall chimneys, out of which interminable serpents of smoke trailed themselves for ever and ever, and never got uncoiled. It had a black canal in it, and a river that ran purple with ill-smelling dye, and vast piles of building full of windows where there was a rattling and a trembling all day long, and where the piston of the steam engine worked monotonously up and down, like the head of an elephant in a state of melancholy madness. It contained several large streets all very like one another, inhabited by people equally like one another, who all went in and out at the same hours, with the same sound upon the same pavements to do the same work, and to whom every day was the same as yesterday and tomorrow, and every year the counterpart of the last and the next."

Coketown was the product of the age of steam power. It still survives in some degree in every great manufacturing country. It may have grown less depressing and it certainly has become more sanitary in the twentieth century. But it has also grown larger and its ugliness and congestion have become less tolerable because of this. As its factories and chimneys and pavements and monotonous rows of buildings have spread themselves over wider areas, its central areas have become more crowded, its inhabitants have been more and more cut off from access to nature, and the wastes that flow into its rivers have grown in volume. As Coketowns grow bigger their greater size counteracts the benefits of improvements in sanitation, in lighting, in paving of streets, and in substitution of electricity for steam power.

Although cities in the New York region have thrown off the worst characteristics of Coketown, it is unfortunately true that the most distressing things about them are not the congestion of their streets and means of transit, nor the crowding of their business areas, but their lack of command over the living conditions of their citizens. The crowding of subways in New York City, for example, is a superficial and can be made a transient thing, but the presence and increase of its slum districts,

¹ Lanchester, H. V., *ART OF TOWN PLANNING*, Chapman and Hall, London, 1925.

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

and the pollution of its water areas are fundamental errors in its organization which, if persisted in, will permanently blight its prosperity. What is spent by the community on improving facilities for transit, apart from what is spent by private enterprise, should be the surplus wealth that is left after providing for more cleanliness, im-



Courtesy of the American City

TUDOR CITY, FORTY-SECOND STREET, NEW YORK
Showing large open space preserved by the developers.

proved home environment and better facilities for education, whereas the first consideration is given to the good of municipal transit, partly as a means of maintaining congestion. Conditions are improving and standards are rising. Remarkable improvements have been made in the living conditions of New York and its environs

THE MAKING OF THE CITY

in the last fifty years. But the fact that New York is becoming larger and larger makes these improvements necessary merely to prevent deterioration to a lower general standard of living conditions.

What may be endured in small may be unendurable in large measure. Karel Capek has said the horrible thing in East London was not what could be seen and smelt, but "its unbounded and unredeemable extent." As he says, where poverty and ugliness exist as a rubbish heap between two houses or in small areas, it is merely an incident, but as cities grow and cover large regions like New York and London, the distressing thing is that "there is too much of it; and it cannot be reshaped."

One great need for regional planning today arises from the fact that as urban regions expand we have, not small intensive areas of bad growth, but widely extended areas suffering congestion and unhealthy social conditions. That is one reason why the need of regional planning has become of pressing importance in these days of great urban aggregations. Until public health is secured against the menace which defects in public sanitation and overcrowding of buildings involve, New York will have an unstable foundation for its future growth, in spite of the vast changes being made towards betterment.

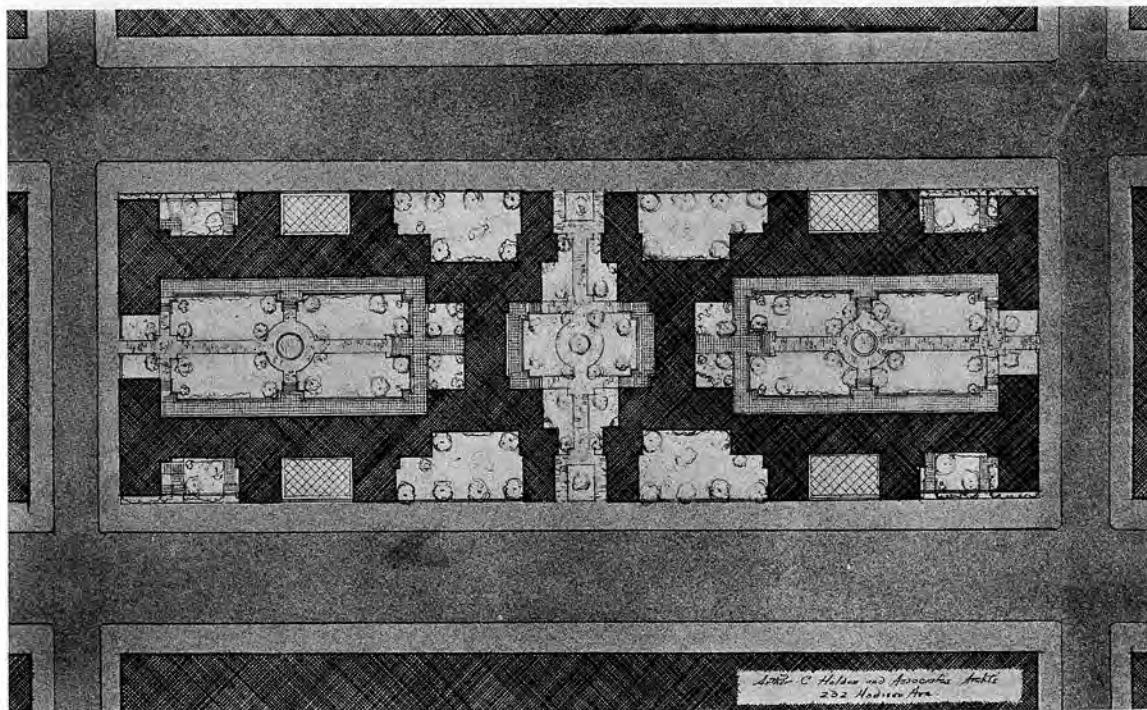
The task of the city planner is, in part, to show both what should be done and what should be undone in regard to the development of the physical, social and economic foundations and in regard to the art of building. Owing to existing conditions in many parts, an ideal structure is unattainable. Our task in these parts may be confined to fitting the ideal to the existing situation. But the task in another part is to show what should be done in areas where it is still possible to fit the situation to the ideal. A major objective in this combined task must be the improvement of living and working conditions by promoting a wholesome, health-giving environment, and safe and convenient conditions of life for the inhabitants of the region or city.

To achieve this purpose we have to think of the city as a home, wherein the citizens may obtain not only shelter, but means of livelihood as well as opportunity to produce and to obtain recreation and culture. Thus, whatever suggestions these volumes may contain for a more orderly development and a higher art of building in the city-region, we have to remember that the latter are effects, before they become causes, of a sane and well ordered community life.

Assuming that the basic outline plan of communications and land uses presented in the Graphic Regional Plan is followed, in principle at least, we can visualize the spreading of urban growth outwards over the great open spaces in the environs rather than the adding in an unhealthy degree to its intensity in a few centers. That will be an important part of the process towards more natural living and working conditions and the general satisfaction of human wants. We believe that the city in time not



A.—PERSPECTIVE



Arthur C. Holden and Associates, Architects

B.—PLAN, SHOWING INTERIOR OPEN SPACES

A CONCEPTION OF A GREAT APARTMENT HOUSE GROUP ON THE MANHATTAN WATERFRONT

THE MAKING OF THE CITY

very far distant, will find its salvation as a place of residence as well as of business in doing more to lessen its congestion by expansion outwards and less in providing facilities for greater congestion by building upwards. It is this belief that has enabled the Regional Plan to accept with equanimity the erection of some tower buildings of unlimited height, on very limited areas of land, so long as adequate steps are taken to secure as much space as is practicable about all buildings for light, ventilation and movement.

It will be unfortunate for the cities in the Region, however, and particularly for New York City, if, to get rid of congestion, they wait for any driving force that may come from economic necessity. If they do wait, it will be because they do not realize: *first*, that there is no need for overcrowded building and deficiency of space for light and recreation because of lack of space for expansion in the Region; *second*, that whether this expansion takes place in one part of the Region or another, say New York City in preference to Hudson County, New Jersey, it will not cause any injury, in the long run, to the prosperity of any of the parts so long as the expansion is economically sound and healthful; and *third*, that it is a fallacy to assume that high prices or assessed values of land, based on overcrowded building and unhealthful conditions, are sound or desirable.

As stated in Plan Volume I, there is plenty of vacant land to permit a well balanced distribution of building and population. The art of transportation can be developed so as to promote it; real land values can be made greater in the aggregate with well balanced growth than where parts of the areas are congested and parts are too widely scattered with buildings to permit of good, economically sound, development. This stands to reason, for in the latter case property has to bear enormous burdens for losses due to congestion in the center, and over-sparse development in the suburban areas. These can be reduced in proportion as growth is more evenly distributed.

What is said here is partly a repetition, for the sake of emphasis, of what has already been said. It is not intended to refer to Manhattan or New York City in particular. Every city and village in the Region is pursuing the same policies as New York in not applying adequate public control over land development and sufficient restriction of bulks of buildings to prevent blighting the city as a home. There are great differences in conditions, in degrees of intensities of growth, and in scale of problem, between New York City and adjacent communities, and still more between the centrally located cities and the distant towns and villages. But in essence there has been the same indifference towards overbuilding on land for some purposes, towards prevention of injurious building development, particularly at its inception, and towards a false conception of what land values really mean in relation to land prices on the one hand and human values on the other.

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

ARCHITECTURE AND AMENITIES IN THE SUBURBS

From an artistic point of view, many new workingmen's dwellings in the suburbs that are being built to serve modern tastes are more vulgar than the tenements in lower Manhattan. It is in these homes that artistic perception is developed or destroyed. People leave the slums in search of a better environment, and when they find the suburb as depressing as the crowded central area they lose the hope which has made the slums bearable. Beautiful public and commercial buildings will not compensate for mean looking homes in developing civic life. Today the architect has given us more beauty in public and commercial buildings, while the homes of the people have actually deteriorated in regard to the simple qualities of art that enter into their design.

We can see indications of this great distinction when we compare the single family neighborhoods of Queens with the old New England towns to which reference has already been made on page 31. The opposite extreme to a New York suburb in the simple art of living may be found in the town of Nantucket, Massachusetts. Nearly everyone in this town of about three thousand inhabitants, according to "The Nomad" in the *Boston Evening Transcript*, lives in a quaint colonial home with every modern equipment. It is a perfectly ordered community without the ugliness, restlessness and congestion that prevail in New York. But the elements we admire in Nantucket can be had in the environs of New York, with other advantages that no small city can possess. The most essential of these elements in housing the people are based on simple things, on economy, and above all on permitting nature to fill its true function as the mistress of art.

But there are in New York itself communities as well ordered as in any part of America. The best of them had their inception in the very traditions that are still preserved in places like Nantucket. Others have grown up without respect for any tradition or good social objective, and their form and character are largely the results of the importation of habits and conditions of life that are foreign to American traditions. It is this foreign character that has been



Andrew J. Thomas, Architect Courtesy of the City Housing Corporation
APARTMENTS AT RADBURN, NEW JERSEY

THE MAKING OF THE CITY

responsible for many of the disorderly qualities to be found in industrial communities of America.

Writing of a trip to Easthampton, Long Island, St. John Ervine said:¹

"The singular fact about this lovely village lying placidly under its elms and close to the Atlantic Ocean, is that, although it was founded by Englishmen and made beautiful by trees that were born in the Kentish Weald, it does not suggest England. It seemed to me to be intensely American. Easthampton is native; New York is foreign. Easthampton is American; New York is cosmopolitan. Easthampton is a Western village; New York increasingly becomes an Oriental town."

To overcome those forces in great cities that seem to deaden or suppress certain qualities in the citizen that are necessary to build better cities, we have to rely on education. To give each citizen a sense of his place and power in making or unmaking the city is one of the highest functions of education. Millions of dollars have been or are being spent by the great foundations established by the Carnegies, Rockefellers, Sages, and Fords of commerce in developing this function. Perhaps it is not untrue that what the great captains of industry are doing is in some degree a restoration to society of something which they have taken from it, for in actual business, as a rule, "practical" men regard culture as detached from instead of a part of their work.

We can visualize the future of New York only if we interpret changes in culture and tradition as well as in physical things. Up to yesterday New York was a foreign city, as Mr. Ervine says, but contrary to this statement it is becoming less so every day. Tomorrow it will be predominantly a city of the native born, with all that this means in the making of a patriotic citizenship. Christopher Wren gave the finest tribute that was ever given to architecture when he said it made "the people love their native country, which passion is the great original of all great actions in a commonwealth." Those who conceive of New York of the future must think of it as a place that will be dominated more by the ideals and stability of an educated and well rooted native population.

¹*The London Observer*, October 30, 1928.



Courtesy of the American City

PLAYFIELDS IN UNION COUNTY, NEW JERSEY

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

Then civic spirit and architecture will flourish on a true foundation, for the architecture of the future must, in the words of W. R. Lethaby,¹ "be founded on a love for the city, a worship of home and nation. No planting down of a few costly buildings, ruling some straight streets, provision of fountains, setting up a number of stone and bronze dolls, is enough without the enthusiasm for corporate life and common ceremonial. Every noble city has been a crystallization of the contentment, pride and order of the community." Probably the thing that affords some indication of what a city stands for and is, is whether it gives us the sense of what Lethaby calls contentment, pride and order, pride in regard to the character of its objectives and its growth.

Mere affection for a community may delude us into believing that we look upon



Courtesy of the Brooklyn Botanic Garden

BRINGING A TOUCH OF NATURE TO CITY CHILDREN

it with a satisfying pride. In the introduction to *THE SCARLET LETTER*, Nathaniel Hawthorne somewhat pathetically alludes to the unsatisfactory character of his native town of Salem. But we should bear in mind that his lack of appreciation of the physical quality of Salem was the result of comparison with his ideal community of Concord, where he lived after his marriage and during the final years of his life.

Declaring that Salem had a hold on his affections, he continues:

"Indeed, so far as its physical aspect is concerned, with its flat unvaried surface, covered chiefly with wooden houses, few or none of which pretend to artificial beauty, its irregularity, which is neither picturesque nor quaint, but only tame, its long and lazy street, lounging wearisomely through the whole extent of the peninsula, with Gallows Hill and New Guinea at one end, and a view of the alms-

¹ ARCHITECTURE, Home University Library.

THE MAKING OF THE CITY

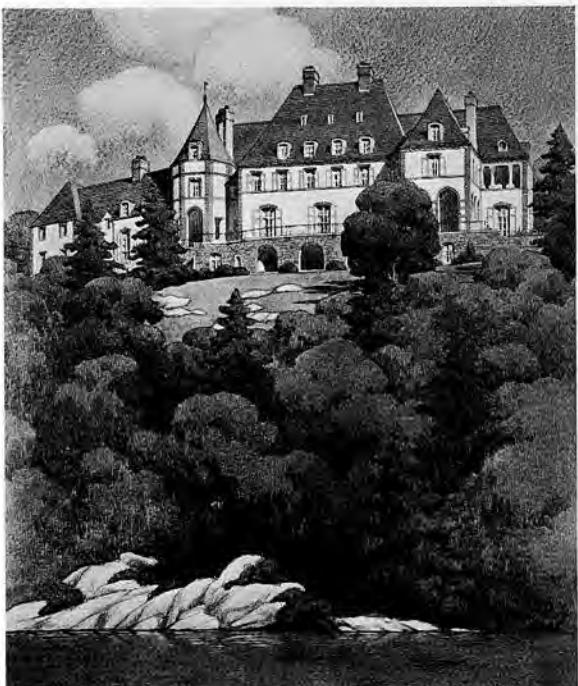


Photo by Mattie Edwards Hewitt

Delano and Aldrich, Architects

A SUMMER HOME, MT. KISCO, NEW YORK

be, like Hawthorne's, something to do with our nativity, or our memory of personalities, even if we have to admit that its natural setting is tame and its architecture is commonplace. If our attachment for a city is to be a living thing it must inspire us with pride in some, at least, of its physical forms and institutions.



McKim, Mead and White, Architects

DOMESTIC ARCHITECTURE IN THE ENVIRONS

house at the other, such being the features of my native town, it would be as reasonable to form a sentimental attachment to a disarranged checkerboard.

"And yet," he goes on, "though invariably happier elsewhere, there is within me a feeling for old Salem which, in lack of a better phrase, I must be content to call affection."

In some ways Salem is more alive and interesting than Concord. Efforts are now being made to revive some of the attractive features that were associated with its early days. But the point brought out in the above quotation is that our affection for a city may

Abraham Lincoln expresses it in these lines: "I like to see a man proud of the place in which he lives, I like to see a man live so that his place will be proud of him."

It is in the smaller cities that this double pride is usually most evident. We recall Scott and Stevenson, who were proud of Edinburgh and made it proud of them. They breathed their personal greatness into the spirit of their city, and have left it with this treasured possession. Emerson and Hawthorne still live in the spirit of the village community of Concord.

The modern industrial city is too new and crude in its structural form, and, notwithstanding great improvements in recent generations, in its sanitary conditions also, to inspire pride and affection. We may love our city in

CIVIC ART IN RELATION TO WORK AND LIVING CONDITIONS

parts, perhaps in units of building, or in some neighborhood quality, but its elements are on the whole so discordant and the processes of change so universal and constant, that it creates in us unrest rather than repose, and forced admiration for its power and practical qualities rather than love. We really do not accept it with contentment, but acquiesce in it with a sort of hopelessness of our ability to overcome its defects. We know that where it is leading is the really significant thing, not what it is, and yet we incline to avoid any responsibility for the path it is pursuing. Happily, what has been said as to the absence of the qualities that inspire pride of community is in large measure a criticism of what has been. There is ample evidence of an awakening to a better conception of what communities should be. Enormous strides have been made in the last generation and particularly in recent years in the development of an understanding public opinion as to the methods and practicability of achieving higher ideals in city building. Growing intelligence and increasing pride of citizenship will ultimately arouse New York and its sister communities in the Region to replace disorder with order, unnecessary ugliness with beauty, and exchange false for true economic standards in the building of the city.

To give strength and add beauty to the city, to give wholesome environment to the citizens in their homes and places of work, to lessen waste and inefficiency caused by congestion will not lessen, but will add to, the real values of property. But above all they will add also to the health and happiness of the citizens and to the sum of human efficiency that constitutes the foundation of wealth and of progress, bringing in their train that love of city which makes it a home.



Photo by Brown Bros.

A NEW YORK MANSION, RIVERSIDE DRIVE

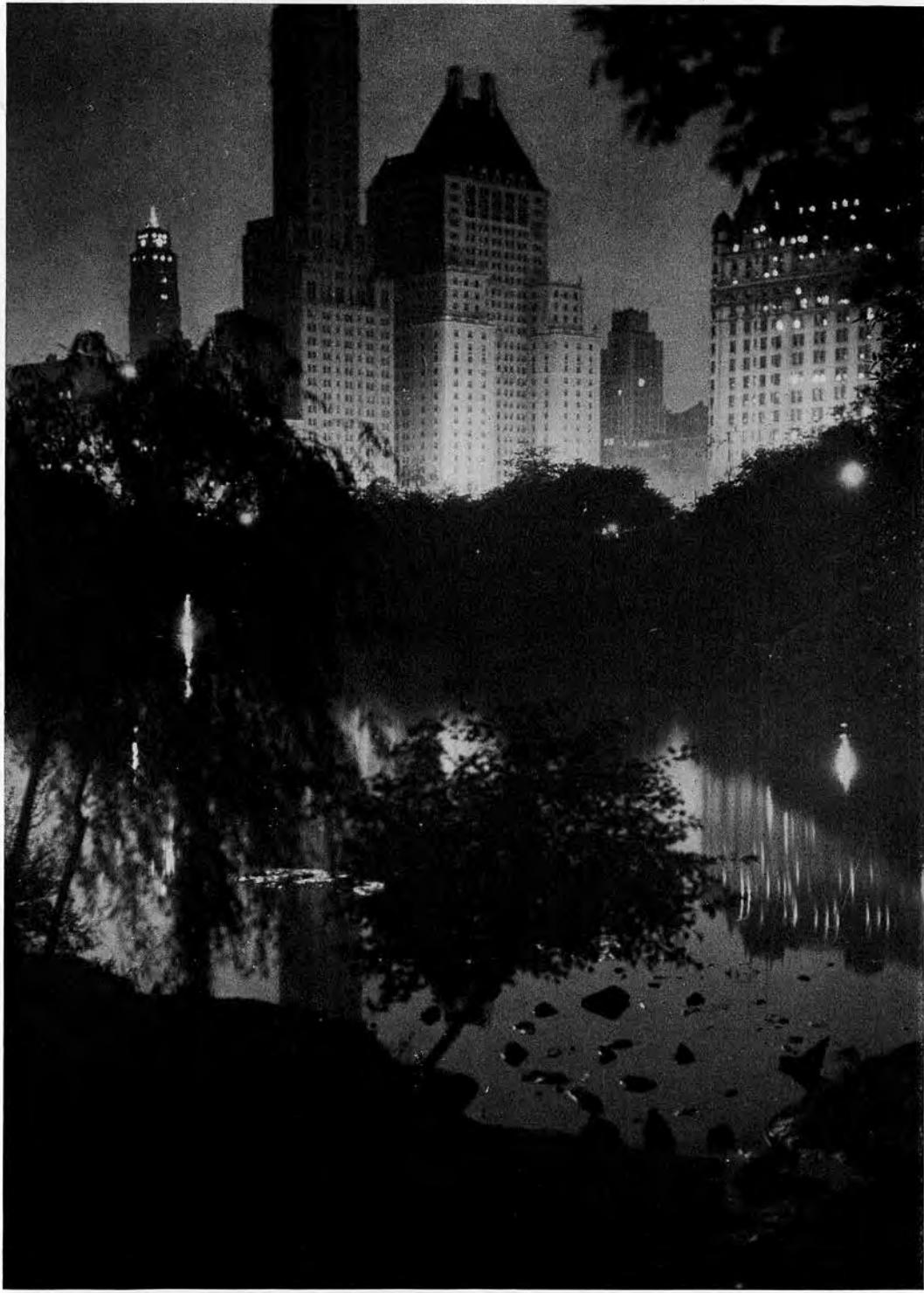


Photo by Schoenhals

THE HOTEL CENTER AT FIFTY-NINTH STREET, OVERLOOKING CENTRAL PARK

A striking illustration of the value of space about buildings.



Photo by William Frane

THE FOREWATERS OF LOWER MANHATTAN

IV. BEAUTY AND REALITY IN CIVIC ART

Beauty as an Objective

IN city planning the pursuit of the "city beautiful" as a sole or direct objective is to be deplored as much as the pursuit of the "city efficient." We cannot express ideals in beauty or efficiency by a mechanical process, even if we have the supreme wisdom to express them in perfect truth. Some proponents of city plans seem to consider that the building of a complete new city on logical and efficient lines would produce beauty. But logic and efficiency may lead them into creating a machine type of city and accepting a monotony of regularity that appears to others to produce ugliness. Logical unity may replace interesting irregularity with a severe and uninteresting formality.

ARCHITECTURE AND AMENITIES

In the Regional Survey we have dealt with the limitations of architectural control as a means of achieving beauty of architecture, and with the difficulties connected with the preservation of those natural features that give the quality of agreeableness to buildings and neighborhoods and are called "amenities."¹ It has to be emphasized that these limitations and difficulties are not only legal in character, but are primarily the consequence of the differences which exist between human emotions and experiences, and therefore between ideas as to what is or is not beautiful. These differences make control or even persuasion dependent on majority opinion at any given time.

In the field of amenities, for example, there is general agreement that a "hot dog" establishment next to a private home is undesirable, and as public opinion holds, so the courts will decide. But the legal objection to a hot dog stand is usually sustained on the ground that it interferes with money value rather than that it is aesthetically wrong. The owner of a well designed house may be threatened by

¹ See Regional Survey, Volume VI, pages 167-187.

THE MAKING OF THE CITY

proposals to erect a hot dog place of pleasing design on one side of his property and a wholly inartistic house on the other side. He may get the aid of the law to prevent the first but not the second. The relative artistic merits of the two places will not enter into the calculation of what should be condemned or controlled. Public opinion can be marshalled in favor of getting rid of undesirable uses, but not in getting rid of architectural monstrosities. Artistic design is so much a matter of taste that usually it is not recognized by governments or courts as a matter that can be controlled by law.

If, however, it can be proved that disorder and ugliness are injurious or are associated with conditions that are injurious to health, safety or money values, the aesthetic objective can be achieved indirectly.

The inherent difficulty will still remain, namely, that the beauty which has a health or money value to one person may have none to another. Down in Greenwich Village there is beauty that has such a value to artists, but a few blocks away in Fourteenth Street there are "beautiful" objects displayed in stores which appeal to the crowd but represent desolation to the soul of the artist.

In connection with the desirability of preserving natural beauty, regarding which there is a more certain public attitude, a new word is wanted to express what the law and the courts are vaguely and unconsciously approving in the name of public welfare. Some word like "amenity" will have to be adopted to give the courts and the public a definition for the quality of agreeableness in home and neighborhood they are now trying to preserve. Perhaps with such a word as a synonym of happy feeling in one's surroundings, a feeling that depends on simple tidiness and harmony, and not on different conceptions of "art" and "beauty," we may get the courts to acknowledge that the "pursuit of happiness" is legitimate as well as the preservation of property.

When all is said, the field of the artist is limited to creating object lessons as part of the educational process that is needed to improve the general perception of the distinction between true and false art. With his aid a substantial degree of real beauty can be achieved as the product of health and refinement of spirit, and regard for true economy, on the part of the community. It cannot be created by law or by any mechanical process. The mechanics of planning should grow out of and express good human qualities, and should be subordinate to them. The differences between cities in respect to their architectural and structural qualities are differences in degree of imperfection. A perfect physical form is no more possible than a perfect social condition, and the art which achieves most beauty and order in building must be the art of those who are able to penetrate beneath the physical structure to the social and economic foundations. Moreover a great deal of the beauty we admire in a city is the result of accident rather than deliberate planning, and most of the ugliness and disorder we deplore is the result of bad planning rather than no planning.

BEAUTY AND REALITY IN CIVIC ART

In a condition where natural evolution and illogical human nature enter so largely into the making of cities we cannot build them on the basis of logic, nor design their parts with the mechanical precision with which the architect or the engineer can design a factory or a bridge. The dynamic character of the city and its responsiveness to a wide variety and constant changefulness of human demands make it essential that plans be flexible and have a social objective rather than one which aims, primarily, at artistic perfection. But in the final analysis, when the health, safety, convenience and human welfare of the citizens are conserved in the city, both beauty and efficiency will



Photo by William Frange

THE COLUMBIA-PRESBYTERIAN MEDICAL CENTER
A mass of building dominating upper Riverside Drive.

be the result. Civic art should be directed to achieve the highest degree of social perfection that is practicable, with the knowledge that all else that is desirable will follow.

There is a sense in which what we have said of the city as a whole is untrue of the individual building or a distinct group of buildings, in the design of which the architect has been given free play to express his personality, or his own interpretation of beauty. In presenting certain designs for architectural treatment of specific projects the late Thomas Hastings expressed a view about the relation of beauty to economy and nature which helps us to understand the limits as well as the scope of art in building the city. Mr. Hastings said:

THE MAKING OF THE CITY

"Beauty is too frequently misunderstood in defining its attributes as though it were a mere appeal to the emotions, a pleasure-giving luxury or a refining influence. It is an organic vital provision manifestly a part of the order of the universe to promote economy and insure endurance. How is it that the survival of the fittest is expressed in beauty and only deformity is ugly? The practicing architect fully realizes that, in these greater municipal problems, beauty of design and line in construction and planning can result in greater economy and endurance than that which results from engineering alone. The practical and artistic are inseparable. There is beauty in nature because all nature is a problem well solved. The truly educated architect will never sacrifice the practical side of his problem.

"The greatest economic defects and architectural calamities to be found in New York have been performed by or under the leadership of so-called practical men with no knowledge of design or appreciation of aesthetic forms. We are told that the cell of the bee is built to give the most strength with the least wax so that the line of beauty is the result of perfect economy. Emerson realized the truth when he said it is a rule of largest application, true in a plant, true in a loaf of bread, that in the construction of any fabric or organism any increase of fitness to its end is an increase of beauty.

"The same general principles that obtain in planning a building apply equally to the planning of a park or to the guiding influence of design in the evolution and growth of a great city. We Americans too little realize that we really go to Europe in a large measure because of what man has done with art to beautify nature. As music is more beautiful than any mere natural sound, so nature is generally either greatly enhanced by the human interest when man has made his impress upon it, or it is unmercifully and unnecessarily sacrificed. Art and the artistic sense of the fitness of things complete the picture, otherwise destroyed. It is indeed well that true economy is expressed in beauty, for happiness is only to be found when we are surrounded with beauty; while sordid ugliness only breeds discontent in any community. There is beauty everywhere and there is no such thing as poverty if only we realize the universal ownership of nature in beauty and art, and know where to find it. You may have physical possession of a great picture or a building, but if they are really great, the man who truly owns it is the man who most appreciates its beauty. In the light of this truth, in the written word as in the printed canvas or chiselled stone, or in the harmonies and melodies of sound, and in the beauty of nature all around, the richest man in the world is he who best understands."

The root of the matter in connection with civic art is that it must harmonize and not conflict with nature and must be founded on true economy. Most people will accept this as an axiom, and differences of opinion are in the interpretation that is given to economy and not in regard to the need of it.

Unfortunately, to the majority economy is synonymous with immediate financial gain for the individual, without regard to ultimate consequences to the citizens either individually or as a community. Thus most of the evils and extravagances to be observed in a city are the result of the pursuit of what is really a false idea of economy.

Imagination is not a strong point in the mind of the average citizen. He will acquiesce in policies to restrain art because he can see the immediate financial gain of such policies and cannot see the losses and waste which they are bound to produce in time. He will resist improvements because he can see only the cost of making them, without visualizing the benefits to society that will accrue from them.

BEAUTY AND REALITY IN CIVIC ART

SOCIAL VALUE OF BEAUTY IN CITIES

We may assume, therefore, that beauty will have a social value in proportion as it is understood, and as its particular quality and origins appeal to our emotions or arouse our feelings of pleasure. It cannot be emphasized too often that the building up of this understanding is an essential preliminary to the building up of beauty in the city. We sometimes hear it said by the man who is anxious to speak in the language of "the man in the street" that beauty in his city has a selling value or is a commercial asset. His point is that it pays to make a city more beautiful by reason of the attention it attracts, which is advertising, or because it brings people to spend their money in its stores and hotels.

Thus Washington, Paris and Edinburgh, it is claimed, reap financial gains as a result of attracting tourists, thereby recouping their citizens for having spent money in beautifying their cities. No doubt it is true that a city finds that it pays to develop a certain degree of beauty and dignity. But it also pays to do many things that are ugly and purely commercial. The real value of beauty is not that it can be made to pay as a financial proposition but that it is both a cause and effect of the right kind of civic spirit.

It might be claimed that the strongest people in the world have developed their strength of character without giving any evidence of regard for beauty; and that Athens and Rome have decayed in spite of the beauty of their architecture. But the chief cause of decay in Athens and Rome was the neglect of social conditions. Probably the common people suffered in order that money might be spent on beautiful buildings. Living conditions in a city may be injuriously affected as a result of burdens imposed to obtain beauty.

An important part of the social value of beauty of physical structures consists in its effects on the children growing up in the city. It should be obtained without injury to living conditions; and if it creates "selling value," that is an added gain derived from the intelligence that creates and preserves it. Beauty which consists of the spacious display of buildings enables the citizens to enjoy the architectural qualities of their city, combined with an appreciation of natural beauty related to structural beauty. A building cannot be a complete thing in itself. Its surroundings may lessen or add to its aesthetic value. For example, in Washington and Edinburgh what we enjoy as distinctive are not merely beautiful buildings, but their display and their combination with nature. Among the social values obtained from this combination is more healthy environment for residential buildings and a refining influence on the citizens. Beautiful monuments express patriotism, as well as love of literature and of art. They educate the child in reverence for the great scientists and artists of the nation, a better educational influence than reverence for wealth. The city, then, that has beautiful buildings, including monuments to those who have created its literature and its political foundations, and has all these buildings well

THE MAKING OF THE CITY

displayed in an agreeable natural setting, has taken the best means to educate its citizens.

An environment that satisfies such natural craving as exists for beautiful things also engenders civic spirit. With the love of the city, to which we referred in the preceding chapter, comes a desire to improve the city and to devote oneself to its needs. With this desire comes the interest of the comparatively rich in the conditions of those who are poor. There can be no enduring beauty in a city that has slums and disorder in the residential districts of the greater part of its population. Beauty as the expression of wise leadership in a democracy connotes a regard, by those who lead, for true economy, good social conditions, and an orderly conception of civic action, and therefore is a powerful factor in creating stability. Vulgar ornamentation of buildings is extravagant and not beautiful. Grandiose public structures that the



Photo by Ewing Galloway, N. Y.

SKYLINE OF MONT ST. MICHEL

people cannot afford are an example of this extravagance. Fitness to purpose, truth, scale and simplicity are the things that reveal the employment of civic art in the design of buildings.

And yet it must be acknowledged that what is called beauty in cities does not appeal to all educated citizens, either because they lack imagination or because they have some prejudice against it as a result of experience of the kind of extravagances to which we have alluded. They see the evil consequences that result from present disorderly conditions in deadening the soul of the city and the citizen, but the only alternative seems to be some impossible Utopia. In other words, they assume that one abnormal condition can be replaced only by another, instead of by that combination of spiritual and material values in life that every experience shows to be normal, if we open our eyes to see.

Impossible Utopias

At one extreme we have the realist with dimmed vision, and at the other the abnormal idealist to whom realities have little meaning. In the latter connection some delightful incursions have recently been made into the land of the unattainable in city building. The world would be poorer without these pictures of Utopias, but every one has to be examined in the light of reality when we come to take it seriously. The trouble with these mental Utopias is that they are put forward as practical propositions to be considered as prophetic of the future. Fantastic conceptions of a future New York or Paris that have been put forward by clever artists and writers have proved to be entertaining as well as helpful in provoking thought and giving ideas. They have achieved a certain popularity, partly because of their artistic rendering and partly because of human appreciation of diverting caricatures. These visions, different as they are in many respects, have one feature in common. They are of cities so complete that, were they realized, nothing would be left for the citizens of the future to accomplish in height or in depth of structure or in the artificial quality of existence. They leave out of account that a city must always move forward as a living thing, as a condition of its progress. Finality in the city's growth must be the forerunner of decay. Neither as a work of art nor as an organization can it ever be really complete. In regard to size, a city may become stationary or recede in population and yet continue to develop in quality of structure and social organization. But growth, in terms of quantity, or quality, or both, must always go on in a living city.

To assume that an existing city could be re-created or a new city built in some perfect form or logical geometrical pattern is to acknowledge ignorance of the rudiments of city growth in any condition of society that has ever existed. Not Nero nor Caesar could make a complete city, and still less could a modern despot. But in a democracy the very thought of completeness and inflexibility is absurd. And yet these fantasies of the artist give pleasure none the less, because of their romantic qualities. They will be recalled as interesting anticipations long after they have proved to be prophetically unsound, and, on the other hand, more rational proposals now being made are likely to be forgotten as soon as they are carried into effect.



Photo by William Frange

SKYLINE OF MANHATTAN FROM GOVERNORS ISLAND



SKYLINE OF LOWER MANHATTAN

A mystical faith in the straight line as a symbol of sanity and self-mastery is one of the characteristics of these schemes. This faith is based on the assumption that we have to ignore nature instead of allying ourselves with it and using our art to improve it. As a writer in the *London Times* has pointed out,¹ the plain truth is that the straight line is the most unnatural thing in the world.

"We try to correct what is crooked in nature, and incline our hearts to keep some law. We make streets that are straighter than rivers and towers more upright than trees; we reduce our dialects to 'good' English, cut down the number of exceptions to our rules, cut off corners in country lanes, and level things up or down to conform with a conception which, far from being 'honest Nature's golden rule,' is an act of uniformity introduced and enforced by man."

The point is not that man should submit to nature when it serves his purpose to conquer it, but that truth is a relative thing in which nature cannot be ignored. It cannot exist in regard to a physical matter without placing it in relation to the moral, artistic and historical facts of life.

Another feature in these schemes is their reliance on massive bulks and heights of building, on the seeming assumption that all individuality will be suppressed in the building of the future city. In this respect these visions serve an excellent purpose, for they warn us against the danger of being persuaded to tolerate congestion because it is veneered with beauty of architecture. Whatever illusions their authors may entertain to the effect that enormously increased bulk of building can be accomplished simultaneously with enormously increased reservation of open space in the present crowded centers of cities, all human experience speaks to the contrary. Moreover, cities should be planned to preserve the good as well as abolish the bad. It would be a retrograde step to replace the interesting variety and historic traditions of an

¹"Bias in History," *The London Times*, Literary Supplement, April 18, 1927.



Photo by William Frane

MANHATTAN FROM BROOKLYN

existing city with a mechanical, highly planned city. The place for experimentation in creating a "logical" Utopia is on a new site.

As New York grows larger the population will grow in intelligence as well as in numbers. They will demand changes whose character and import we cannot foresee, but it seems unlikely that these changes will be toward greater uniformity of congested building. Every modern tendency makes it reasonable to guess that these changes will be toward a better science of living, and this means toward more natural and less artificial surroundings.

The future beauty of New York City will no doubt continue to be associated with great building height, but surely not with the abuses of high buildings which have accompanied the pioneer stage of steel frame construction and brought darkness into buildings in the very struggle to rise upward for more light. These abuses, in the form of overcrowded building, are not the product, but merely an accompaniment, of modern inventions in building construction.

High and dense as the buildings are in the central parts of Manhattan, they are not more out of scale with the surrounding streets than the buildings which once housed the nobility in the capital of Scotland,¹ and which are now relegated to the housing of the poor.

Perhaps, however, it is idle to recall past experience in other cities when we are speaking of New York, which is a product of a new civilization developing its own traditions. But to interpret properly this new civilization and to consider how it may lead to more beauty in city growth, we must take account of its human elements as well as of its structural forms. Is there any doubt that human desires will dominate more, rather than less, in the new than in older civilizations? Whatever change

¹ See Regional Survey, Volume VI, page 23.

THE MAKING OF THE CITY

may have taken place in the field of city building in America as a result of invention, whatever new directions have been given to engineering and architecture in molding the structure of the city, whatever grandeur may have come to the City of New York as a result of its mounting skyline, whatever new traditions may have been created in the proportion of things and in mass production, there is nothing in American enterprise and invention that has changed human nature. Individually man is the same in all ages in regard to satisfying his personal wants.

Of course, there have been changes in organization. Democratic constitutions and institutions—liberty of the subject under these—and strong assertion of individualism have a special meaning in the new civilization. But these things give greater rather than less scope to the individual to demand the qualities in the city that will satisfy himself. The satisfaction of these individual desires will always dominate in making the city, for the power of the artist or the engineer or the politician to mold the city's structure is at all times subordinate to the power of the people as expressed through its social and economic, rather than its political, demands.

The American city, then, will adhere to its present forms, will change these forms, or will become more or less beautiful according as the people desire; and present tendencies show that the desire of the great majority will be for more healthful, more spacious and more convenient conditions in homes, neighborhoods and places of business, and for the kind of beauty which can be developed under these conditions. It is probable, therefore, that the Utopia of the perfect "garden city" will influence future urban growth in the New York region at least as much as the Utopia of the perfect "skyscraper city" and that the expansion of the city-region will evolve along lines that will show an attempt, at least, to embrace the best features of both.

Beauty and Reality in the Skyscraper

From an aesthetic, as well as from a social or economic point of view, the skyscraper is dependent on the character of its surroundings, and on compliance with sound principles of design as much as its opposite—the cottage in the garden. Any individual concept of the aesthetic qualities of either will vary as opinions and tastes vary. All accept the skyscraper as something which serves human needs but judge it differently as to the value of this service. All know that it has become the dominant feature in the structural composition of large American cities. But is it also to be the dominant feature in the social organization of all urban life in America? If we were to attempt to answer this question we would have had to go deeper than we have dared to go in the Regional Survey and Plan. All we have attempted to do in the survey has been to indicate some of the problems created by the skyscraper in its short life, and later in this volume we shall put forward proposals to show how

BEAUTY AND REALITY IN CIVIC ART

some of these problems may be solved. In this place we are concerned only with certain broad aspects.

We know that the invention of the steel frame and the elevator has changed the character of building as the invention of steam changed the character of manufacturing and transportation. We know that, as a result of both these changes, there have come changes in distribution of population and land values, as well as improved standards of production and distribution.

In a special degree, however, the changes caused by skyscrapers have imposed new demands on cities and have given a new meaning to congestion. Skyscrapers are as much a result as a cause of centralization. They are so new that it is still impossible to estimate what is going to be the cost to cities of meeting their demands in proportion to the value of the services they perform. The still hidden factors in connection with centralization of high buildings make it as difficult to appraise their aesthetic qualities as their economic possibilities and limitations.

We have said that the invention of steam power changed the character of transportation. But the enormous power of steam had to be governed and restrained or it would have become a mere agent of destruction. The conditions being created by the skyscraper as described in the regional survey¹ show that the skyscraper, too, must be kept within proper limits that give the maximum of utility without the danger of destroying the very machinery of business whose operating efficiency it has been designed to increase. In a constructive sense it is restrained under the technical skill of the architect, engineer and builder who know the safety limits of building height. In a civic sense it is restrained by zoning, but not to the degree necessary to prevent dangerous congestion and to give proper display to buildings.

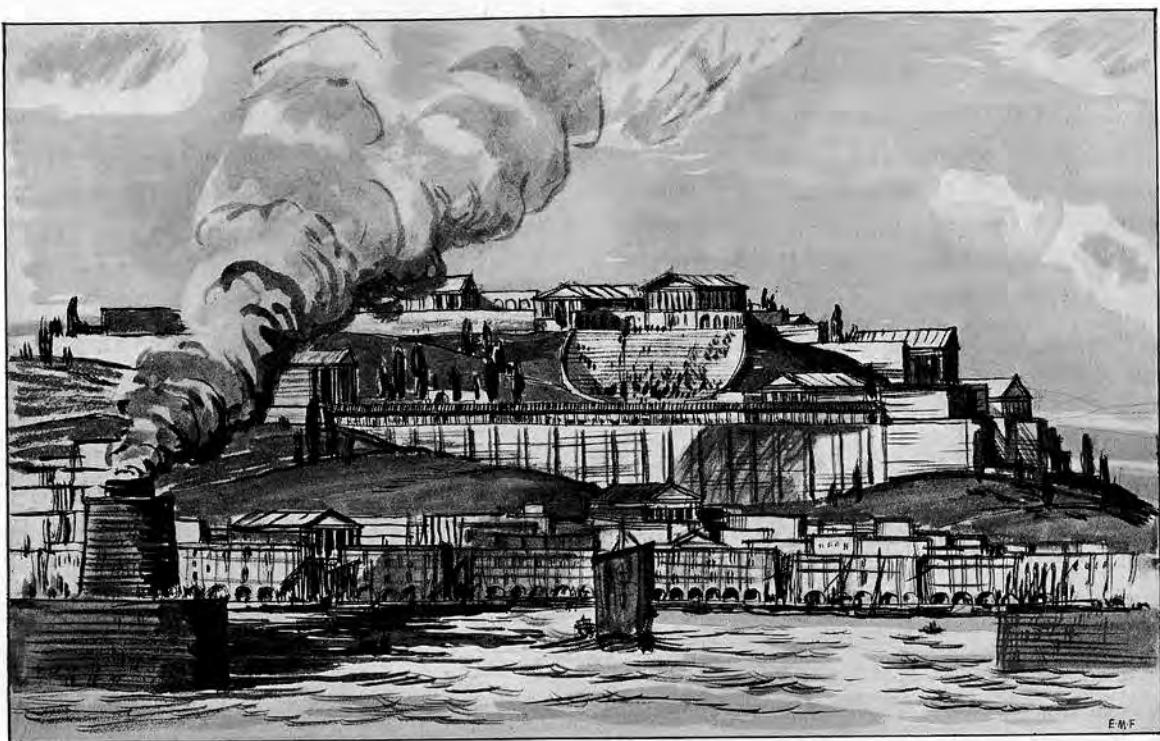
As an American invention it has proved to be an instrument of efficiency as well as noble in architecture. When, however, it is so crowded that it becomes part of a great mass of building that closes in and darkens streets, it is anti-American in spirit—for America was founded on those conceptions of spaciousness and liberty that are together part of the life of its people. John Stuart Mill might have been describing the American tradition when he said:²

"The mind of man naturally hates everything that looks like a restraint upon it and is apt to fancy itself under a sort of confinement when the sight is pent up in a narrow compass, and shortened on every side by the neighborhood of walls or mountains. On the contrary, a spacious horizon is an image of liberty where the eye has room to range abroad, to expatiate at large on the immensity of its views and to lose itself amidst the variety of objects that offer themselves to its observations."

What is most satisfying to the American mind in New York City—the darkened alley between the mountainous buildings, or the spacious horizon from the surrounding hilltops or from the deck of the ship that comes up the harbor and sees the magnificence of the city from a distance? What is most admired in skyscrapers? Not

¹ Regional Survey, Volume VI, page 104 ff.

² Essay on Liberty.



A.—THE ANCIENT CITY ON THE HILL



B.—MEDIEVAL ANTWERP AND ITS TOWERS
SKYLINES OF THE PAST



A.—NEW YORK'S ARTIFICIAL MOUNTAIN RANGE

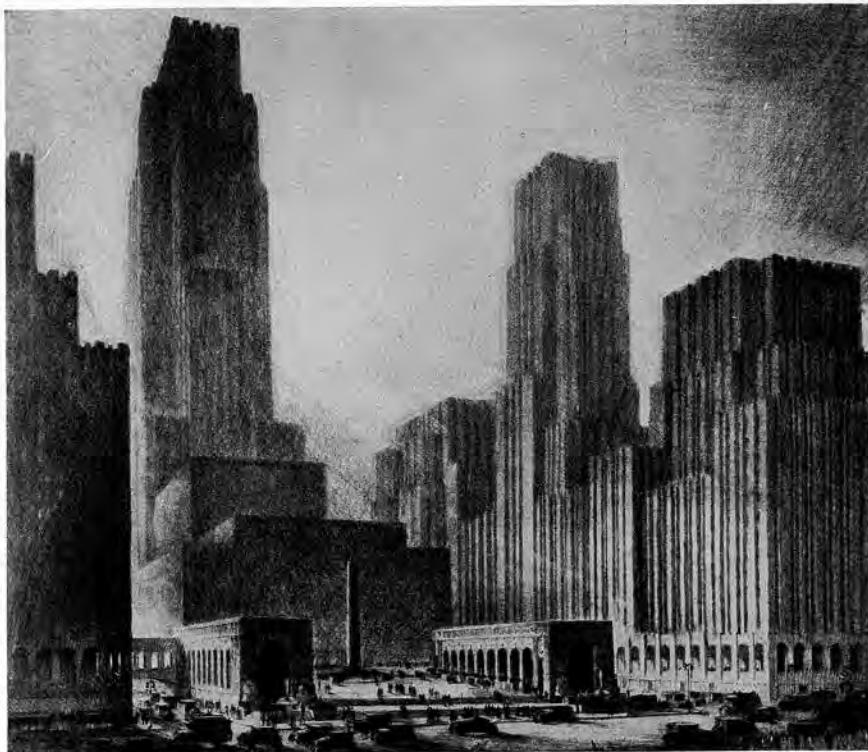


B.—THE FUTURE CITY OF TOWERS
SKYLINES OF THE PRESENT AND FUTURE

E. Maxwell Fry

THE MAKING OF THE CITY

the dinginess of the immediate environment where they are crowded together, but the isolated tower of the Woolworth Building facing City Hall Park, the dominance of the Telephone Building or the Medical Center, still comparatively isolated. A building should have room to breathe, and its occupants must have spacious places to look out upon; such places as are necessary in any case to give ample means of access to and from it.



Designed by Corbett, Harrison and MacMurray, Architects

Rendering by Hugh Ferris

THE NEW ARCHITECTURE
A proposed art center for Manhattan.

MAGNIFICENCE AND LIMITATIONS OF SKYSCRAPERS

When one contemplates Manhattan from the Upper Bay or from the New Jersey side of the Hudson River, its mountain ranges of buildings proclaim what Joseph Pennell once described as the "art atmosphere" of America; an atmosphere in which these mighty cliffs express boldness, individuality, enterprise and dominance. It is an art atmosphere as symbolic of America as the somber domestic architecture of Edinburgh and the charm of parts of Paris are symbolic in their places. As the writer has said on a previous occasion:¹

¹ "Some American Impressions," in *Town Planning Review*, July, 1911.

BEAUTY AND REALITY IN CIVIC ART

"All permanent forms of art are founded on utility and their expression in beautiful things are important elements in all social and civic betterment. The accidental grandeur of a combination of skyscrapers may give rise to artistic emotion; so also may the flaming furnaces round Pittsburgh and Birmingham in the black night that forms a shroud to the desolation around them. But the artist who knows of the unhealthy effects of the crowded tenements, who looks into the future and sees the twenty story block not as an isolated tower but as one of a legion that uniformly fills up all space over a large area, or who comes in daily contact with the squalor and ugliness of the surroundings of the steel mill, cannot limit his vision to the passing pictures of the moment. . . . It is only when



Designed by Corbett, Harrison and MacMurray, Architects

WITHIN THE FORECOURT OF THE PROPOSED ART CENTER

Rendering by Hngh Ferris

we realize these necessary relations between the economic and social and the artistic that we can look at the problem of New York and high buildings in the proper perspective.

"When we do this we will have to accept the skyscraper as inevitable and proceed to consider how it can be made healthy and beautiful. Conditions of health can only be secured by preserving ample open space round high buildings so that there shall be ample light, air, and sun penetrating every part; and that high buildings can be made beautiful needs no demonstration."

When these words were written, in 1911, two years before the appointment of the Heights of Buildings Commission, it was predicted at the same time that high buildings would end in overshadowing and darkening each other and that ultimately

THE MAKING OF THE CITY

the three level underground railroad would be necessary to provide effective means of transportation.

There are two aspects in which the bold magnificence of New York skyscrapers cannot be questioned. The great isolated tower that thrusts itself into the clouds and is surrounded by open spaces or very low buildings, so that its shadow does no injury to neighboring buildings, may in the hands of the artist be an ennobling feature in the city. Secondly, the mass effect of a mountain of building, such as is obtained by looking at lower Manhattan from the wide expanse of the Upper Bay, is recognized as one of the wonders of the world as an artificial creation. The pity of it is not that towers are springing upward beyond 800 feet, but that they are so near to each other; and not that Manhattan has its artificial mountain ranges, but that they are so compact that they keep out light and air from their separate units of building. The beauty of both features could have been retained, with more added beauty, as a result of greater display of individual buildings, had more open areas been reserved in proportion as greater heights were permitted. As it is, in an aesthetic sense, more is lost in the closing of the sky between them; in the consequent dinginess of street and building; in the destruction of many beautiful low buildings either by dwarfing them or superseding them; and in the want of display of individual skyscrapers and other buildings that are worthy to be seen, than is gained by magnificence of the great building masses.

Writing of the present appearance of Manhattan, an English architect says:¹

"One skyscraper makes a tower and a landmark, half a dozen make a latter day San Grinignano; a huddle of fifty makes an irregular table land intersected by shadowy canyons, and that is what one is already beginning to feel about New York."

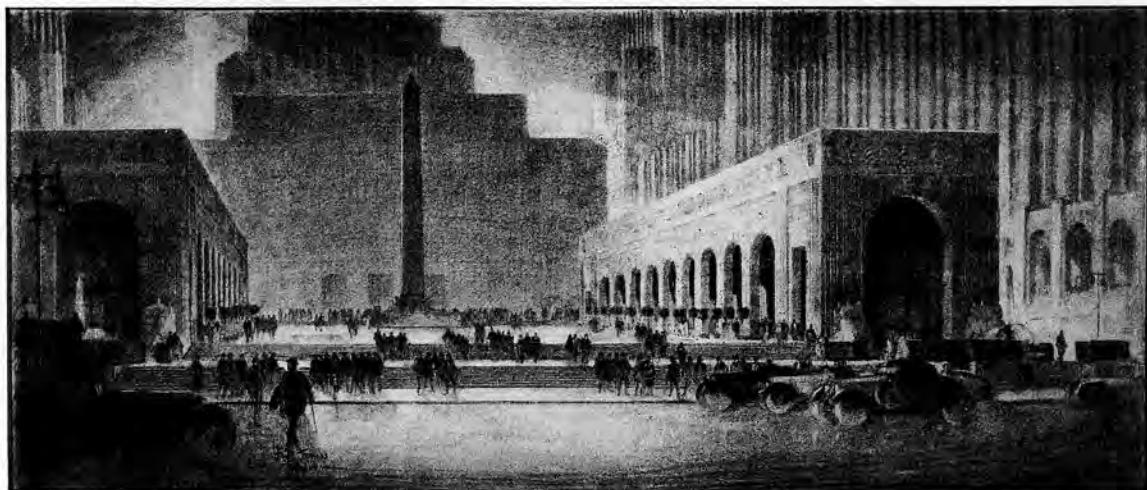
The fact that the chief aesthetic values of high building in Manhattan consist of the bold skyline of the mountain ranges of building and of the towers that stand free from other towers, and the further fact that groups of high buildings shut out light even in the widest avenues, remind us of the truth of Emerson's dictum in one of his essays on art, that nature is inseparable from the useful arts. Every building requires enough open space to give it the room essential for display of its form, but also to obtain for it the light and shade essential to exalt its artificial beauty. Emerson says:

"The pleasure that a noble temple gives us is only in part owing to the temple. It is exalted by the beauty of the sunlight, the play of the clouds, the landscape around it, its grouping with the houses, trees and towers in its vicinity."

Look on a picture of Durham Cathedral (page 116), which, with its foundations resting on a high palisade, rises like a great skyscraper above the river, and imagine the added beauty that is given to it by nature in its different moods. Watch any

¹ Williams-Ellis, Clough, *Country Life*, London, July 9, 1927.

BEAUTY AND REALITY IN CIVIC ART



Designed by Corbett, Harrison and MacMurray, Architects

Rendering by Hugh Ferris

PROPOSED ART CENTER
A more distant view of the forecourt.

great cathedral that stands in an open situation at different hours of the day and it will be seen that every change of atmospheric condition gives it a new form of life as a work of art. See also (page 117) how the effect of great height and dominance is obtained in the Chartres Cathedral because of the low buildings surrounding it.

The value of the isolated tower in Manhattan is that it enjoys in its upper parts, at least, this beauty that nature adds to a building as a work of art. Where a church stands apart, even if like Trinity Church it is in the midst of skyscrapers, it gathers some beauty from the sunlight.

Artists who depict future cities of skyscrapers show the sun penetrating into places that only wide spaciousness would make possible. But if spaces had to be increased about buildings to such an extent as is suggested by these pictures, it would be unlikely that very high buildings would be erected except in great terminal districts with abnormal facilities for concentration.

One indirect influence of the crowding of high buildings is in causing prices of land to rise so much above the value for buildings of average height that in certain districts low buildings of strikingly beautiful architecture have to be displaced. In this sense even the comparatively low apartment houses on upper Fifth Avenue have ruthlessly driven out beautiful residences and destroyed immensely valuable property.¹

This was one of the complaints about the skyscraper made by the late Thomas Hastings. Mr. Raymond Hood has expressed it in these words: "Buildings that were once pointed out as marvels are torn down—dissolve before our eyes to be replaced by lofty towers."

¹ See Regional Survey, Volume VI, pages 116-119.

THE MAKING OF THE CITY



Photo by Ewing Galloway, N. Y.

DURHAM CATHEDRAL
Rising like a great skyscraper above the river.

ture. In recent years great improvements have been made in the employment of the setback to give architectural distinction to buildings. The setback is not a new thing in architecture, but its application to the skyscraper as a new kind of colossus in city building has given it a new use and value.

Whatever its limitations, the skyscraper has made a remarkable contribution to the architecture of New York. It is likely to continue to do so. New mountain ranges of buildings will probably arise in a few places, wherever accessibility to them is provided on the scale necessary to make them economically sound; just as they have arisen in downtown Manhattan but ceased to extend widely beyond a small area, and as they have developed in recent years around the Grand Central and Pennsylvania terminals. These ranges will reach a point where congestion and excessive cost of providing new transit facilities will limit their extension. Lesser ranges of compact high building will occur wherever new terminals are created, or, as in Brooklyn, where an important civic and business center with elaborate transit facilities makes them possible. Outside of these peak areas there will be groups of

In some districts vertical aggregation prevents the horizontal expansion necessary to encourage reconstruction of blighted districts with low buildings. Hence the presence of blighted areas near to the areas of highest buildings and land values. Whereas in American industry a first principle is to scrap obsolete machinery and replace it with new, in building the tendency is not to scrap deteriorated structures but to replace good low buildings with buildings of greater bulk, often with a serious loss to the architecture of the city.

The defects of the crowding of skyscrapers from an aesthetic point of view have, however, been greatly mitigated as a result of zoning. With its aid there is being developed what is to a large extent a new archi-

BEAUTY AND REALITY IN CIVIC ART

buildings of lesser height massed along waterfronts or other areas of special attraction, while a large proportion of Manhattan and a still larger proportion of the other boroughs will continue to have a comparatively low level of building.

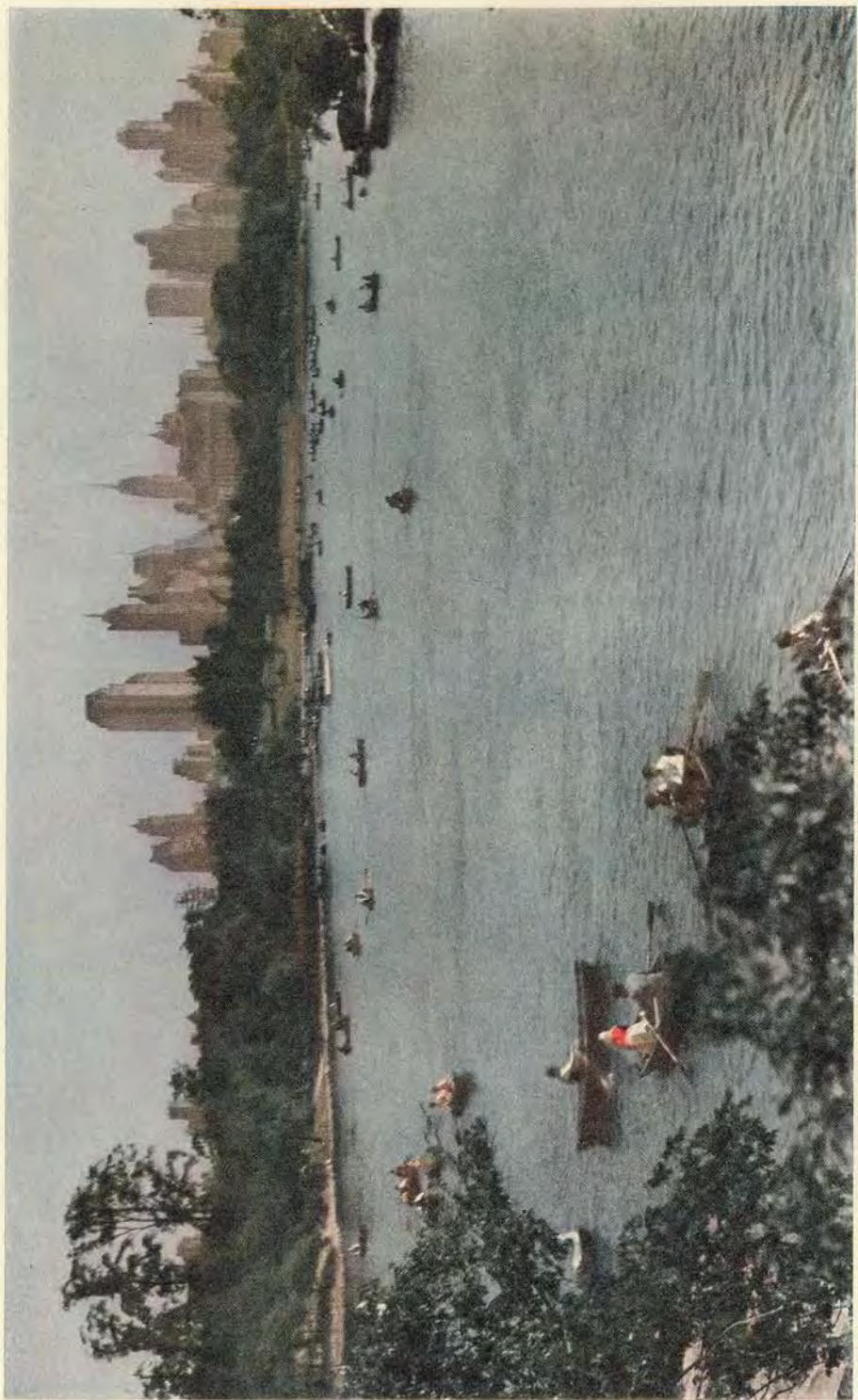
In the areas of the higher and lower mountain peaks there will be protruding towers as there are now, and throughout the city other towers of less height will occur, with sufficient regularity to make them landmarks. Perhaps further developments will give to the high building areas an accidental grandeur we cannot now foresee. But the general appearance of these areas cannot undergo much change toward a settled skyline in which elements of design have entered into the general composition.

As an individual building the skyscraper has still to be given the chance to show its greatest values, and its problems in an aesthetic, as well as in an economic, sense remain to be solved.



Cliche Aero-photo

CHARTRES—THE CATHEDRAL DOMINATING THE WHOLE CITY



Courtesy of the National Geographic Society

VIEW IN CENTRAL PARK, SHOWING THE NEW MIDTOWN SKYLINE TO THE SOUTH
Reproduced by special permission from the National Geographic Magazine



Publishers Photo Service

THE ACROPOLIS AT ATHENS
An ancient center of civilization maintaining its traditional features.

V. INDIVIDUALITY OF COMMUNITIES AND THEIR COMMON PROBLEMS

Traditions and Civic Character

A COMMUNITY expresses individuality when it has some characteristic that distinguishes it from other communities. This characteristic is revealed in what is vaguely termed "the spirit of the place," such as the enterprising spirit of younger or the romantic spirit of older communities. It may take one of many forms, based on situation, economic structure, social custom, cultural institutions, architecture or historical traditions.

Social custom is influenced by race and by historic tradition. The differences which exist between Boston and New Orleans are examples. Cultural institutions may express traditions in religion, or in science, or in literature and art. The spirit of Boston is still under the spell of Oliver Wendell Holmes, Emerson and others who have led in American literature.

Situation may have a great influence on the character of a community. Climate alone may invigorate or depress the public spirit of the citizens. The adaptability of a site as a port or industrial center, or as a pleasure resort, may affect the collective attitude toward civic problems. Every prominent physical feature of a city may play a part in creating individuality.

THE MAKING OF THE CITY

Allied with situation, the economic structure of a city or town, whether industrial, residential or cultural in its foundations, will influence the community spirit. Politically, the spirit of John Hancock still hovers over Massachusetts communities and both he and Governor John A. Andrew still influence public opinion and policies. Boston and other communities also show certain characteristics as a result of alliance between religious and political life. Penn and Franklin have left a traditional character with the City of Philadelphia. In modern times a Henry Ford or an Alfred E. Smith may be equally the creature and creator of a certain type of urban civilization.

Washington is distinctive as a government center, and also as a living museum of the best in American architecture. Innumerable personalities have impressed themselves on its civic life, but to some extent it labors under the handicap of being a national rather than a civic organism.

Ugliness and disorder may be the chief characteristics of a city instead of beauty and order. Its appeal to any one person will vary as individual taste and intelligence vary.

In older cities elements of romance or great traditions in art or philosophy show their influence on buildings. As a dominating feature in Athens the Acropolis reminds us of many elements in its wonderful civic life. Religion, eastern custom and peculiarity of civic spirit are seen in the oriental skyline of Constantinople. Paris, to most people, is a world center of architecture with a spacious and harmonious setting. Robert Louis Stevenson recalled that Venice was said to differ from all other cities in the sentiment she inspires. "The rest may have admirers; she only, a famous fair one, has lovers in her train." Critical of his native city as Hawthorne was, he said it was "not so much beautiful as interesting." It was romantic rather than architectural qualities in Edinburgh that appealed to Stevenson. In saying that "the character of a place is often most perfectly expressed in its associations," he meant in the legends that grew out of its historical events.

It is in the association of the formal patterns of Karlsruhe with the spirit of the Renaissance, or the beautiful street pictures of Rothenberg with the spirit built on medieval religion and craftsmanship, that we perceive something of the strength and weakness of the civic life of early periods. Palaces, government buildings and central parks in some cities, monumental cathedrals side by side with crowded living quarters in others, give us an idea of what have been the aspirations of their citizens.

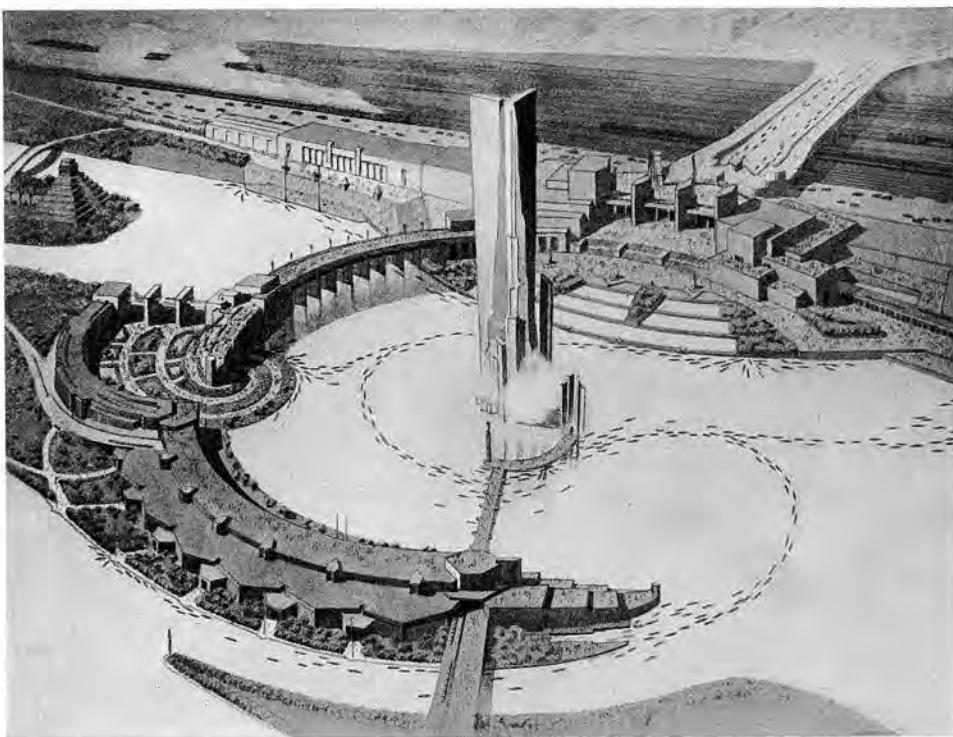
Changes in methods of manufacture bring about changes in civic spirit. Isolation of older cities and their smaller size gave them a special quality of civic solidarity. Mr. H. Van Buren Magonigle¹ refers to the isolation of Siena as helping to mold the character of its citizens.

In modern times a city may express its dominant feelings in the sacrifice it makes for commercial aggrandizement, or for cultural institutions like a great university.

¹ "The Renaissance" in *SIGNIFICANCE OF THE FINE ARTS*, Marshall Jones Co., Boston, 1923, page 133.

INDIVIDUALITY OF COMMUNITIES

It may have the instinct for complete civic liberty and yet have a weak spirit in presence of an industrial autocrat or a political boss. As Mr. Magonigle says, the physical factors in modern cities, as a result of scientific developments, have tended to destroy individuality of cities. Perhaps, however, any lack of civic spirit in complete cities has been largely replaced by greater neighborhood consciousness and increased pride in parts of cities. In any event, the cultivation of good neighborhood quality offers the greatest hope for improvement of living conditions in cities.¹



Ralph T. Walker, Architect

AN ARCHITECTURAL CONCEPTION FOR MODERN CHICAGO

Buildings designed for the 1933 Exposition.

The beautiful face of Chicago toward its waterfront, and the restless energy of its citizens in planning for the future, exist alongside a commonplace architecture in the homes of the majority of its citizens. Most small cities are standardizing themselves on the pattern of New York and Chicago, but many reveal distinctive civic character in spite of this conformity to a general standard of building and street pattern. The substance of individuality does not lie solely in the originality of structural forms but in the combination of these forms with the spiritual in civic art. The most striking element in the spiritual development of modern American

¹ Regional Survey, Volume VII, pages 123-126.

THE MAKING OF THE CITY

communities is shown in the sacrifices being made to develop great park systems and to educate the young.

Situation in the New York Region

COMMUNITY SPIRIT AND COMMON PROBLEMS

Community and neighborhood life in the New York region is so diverse as to provide illustrations of almost every kind and quality of civic spirit, and so bound together in one economic fabric as to give a certain individuality to the whole regional unit.

In recent years, mainly as a result of the organized effort to make a regional plan, a definite regional consciousness has grown up. This has brought together citizens of hundreds of separate communities with the common idea that the metropolitan center of New York and New Jersey is more than a political structure. It is something that is not a state, nor a county nor a city, that has no real structure in any sense, and yet invites, and indeed commands, a feeling of patriotism toward it. Its unity around the harbor of New York is strong enough to rise above separate state consciousness and to force cooperative treatment of certain of its regional problems. And yet its very size and diversity of political structure is the best safeguard against over-centralization of its activities and community life. It is, we repeat, a family of communities in which each member retains its individuality and yet shares in the common family life. Their joint drainage, water supply, lighting and power problems, and their dependence on state, county and extra-city parks are elements in this common life. New York City as a federation of five boroughs deals with the common problems of all, in spite of the separateness of the boroughs in important respects. As the chief metropolitan center it has vital inter-relations with New Jersey, with which it combines to solve problems of harbor development and freight distribution and to build bridges and tunnels.

The Regional Plan symbolizes this relationship and unity, but recognizes both the value of that degree of disunity in social and political organizations that is essential to a vigorous local community life, and the importance of preserving and developing the individual qualities of each urban or semi-rural unit. The whole is greater than the part, but it is the strength of each part that makes for the real greatness of the whole. We need the varied individual physical characteristics of communities, as well as the retention of their distinctive spiritual qualities, as the foundations for prosperity in an urban region. These are not weakened, but strengthened, by regional consciousness and unity of action.

UNITY THROUGH COOPERATION

It is too early to attempt any estimate of where this regional spirit will lead. That its tendencies are toward greater unity in the thought and feeling, as well as

INDIVIDUALITY OF COMMUNITIES

in methods of collaboration of its people, is evident. In making the Regional Plan we have not found the feelings of detachment and local jealousy so strong as they have seemed to be on the surface or in some isolated experiences. In any event, they are being weakened as a result of the enlightenment that is being gained from experience of cooperation.

The whole Regional Survey and Plan is a demonstration of the needs and advantages of this cooperation and of the character and scope of the problems that have to be solved separately or in common. It is, therefore, unnecessary to do more here than refer to the fact that these common problems exist and that they have to be solved in relation to each community as well as in relation to the whole Region.



Publishers Photo Service

RIO DE JANEIRO

A beautiful modern city with an individuality obtained from a new order of civilization.

It is not pretended that there can be the same depth of feeling towards a region as towards a city or neighborhood, nor that even the most intelligent citizens can grasp the meaning of a civic structure so vast as New York City itself—much less of the urban Region of which it is the predominant part. Nor can it be disputed either that the strength of public spirit in the metropolis is lessened by the fact that so many citizens have their homes and most of their social life beyond its borders; or that the degree of attachment to local community life in the satellite cities and villages in the environs is not overshadowed by their proximity to the metropolis.

Something is lost in local community life when the citizens work in one place and have their home life and recreation in another place. It is this loss that makes it

THE MAKING OF THE CITY

all the more important to develop patriotic feeling toward the Region as a whole. Whatever is done by joint action to solve those problems of communication, distribution of industry, sanitation and recreation that are common to all communities will help to make up for this loss. A large city-region need not be destructive of civic spirit. On the whole, the citizen probably gives as much by way of interest and personal sacrifice to public affairs in the large metropolitan area as he would do in the detached self-contained town, but it is spread more thinly in the former case by reason of the division of attachment to what is local and what is metropolitan.

Moreover, the greatness of a city gives a certain vitality to public spirit



A VIEW IN BATH, ENGLAND
Characteristic of medieval life and architecture in England.

which a small place does not command. "Evidently," says Charles A. Beard, "there is something in the vibrant memories that cluster around the name of a metropolis."¹ It cannot have grown to what it is without associations that spell romance to its sons.

The fact that New York has about 2,000,000 foreign-born white population—people of every race and culture—gives a romantic quality and interesting variety to its social and civic life, even if for a time this increases the native restlessness and lessens the unity of spirit in the city.

All communities in the Region share in varying degree the effects of the "phantasmagoria of change" which is associated with civic enterprise in America, espe-

¹ "New York, The Metropolis of Today," *American Review of Reviews*, June, 1924.

INDIVIDUALITY OF COMMUNITIES

cially where there is rapidity of growth. Public spirit is shown in restless energy to create rather than in striving after stability in what is created. In the past, communities have had natural resources in such abundance that they have destroyed them heedlessly, but in recent years much public effort has been directed toward their preservation.

In seeking to preserve natural amenities, counties like Westchester in New York and Union in New Jersey have developed a remarkable unity in their county life. Westchester has an unusual community consciousness, largely the result of planning for its future, and of its ideals in regard to preservation of open space for recreation. All the county centers that are detached from the metropolitan area have an individual quality which makes for pride of citizenship. The more distant industrial cities like Bridgeport, perhaps, have a stronger public spirit than those that lie closer to the shadow of the metropolis, but Newark has an invigorating quality of independence in spite of its proximity to New York.

In the more nearby cities of the Jersey counties there is less individuality. They stretch along the hillsides between the Hackensack and Newark Meadows and the Hudson and form what Partick Geddes would call a "coagulated conurbation." Such places as Morristown, Somerville and Freehold have their distinctive characteristics as market towns, as much influenced by their agricultural surroundings as communities that are remote from great cities.

Topography produces numerous varieties of community and indirectly affects civic character. Rocky hills make development costly for those who want cheap dwellings, but this very fact, coupled with the natural attractiveness of hilly neighborhoods, makes for high class residential neighborhoods. At Tuxedo, Wheatley Hills and parts of Westchester, the "spirit of the place" is that of preserving a certain social homogeneity and some degree of exclusiveness. The level land of Queens on the other hand makes it the Mecca of the small householder and gives its residential neighborhoods an individuality of a different type.

Of pleasure resorts there are also numerous varieties. Coney Island is an example of one type and Southampton, Long Island, of an entirely different type. To a large extent the individuality of the pleasure resort is of imported rather than local origin. Coney Island reflects the spirit of its itinerant visitors, while Southampton caters to the demands of a more wealthy and less transient class.

We can indicate only some broad distinctions. In some senses every community in the Region differs in respect to the spirit that animates its social and corporate life—but all of them are growing in civic consciousness on the basis of the animating forces of educational and recreational demands, which are just as characteristic of American life as the spirit of change.

The similarity of the street patterns of these communities does not create similarity of civic character. The differences in their natural setting, biological processes

THE MAKING OF THE CITY

and social qualities give to most of them a distinctive character. But as already said, these differences only emphasize their inter-relations and common problems.

The Spirit of New York

Whatever local affiliations a citizen may have he will not question that the cement that gives a structural unity to the diverse political and neighborhood elements of the Region is the power and influence which fortune and tradition have given to New York City. In referring, therefore, to the spirit of the metropolis we refer to the most powerful factor in creating civic spirit in the Region. Moreover, the character of New York is typical of the character of its neighbors.

While New York City is really a federation of about a hundred separate communities, it has developed in the last thirty years into one great community. Many of the original units still retain their local patriotism and the five boroughs of which the city consists have an individuality of their own which they endeavor to preserve.

Brooklyn has a consciousness of being greater in population and more self-contained than Manhattan. The potential importance of Queens influences its attitude to the boroughs of smaller size and less rapid growth. In structural growth the predominance of the single family home gives certain character to Brooklyn, Queens and Staten Island, while The Bronx follows Manhattan more closely in being dominated by the multi-family dwelling. Staten Island's isolation gives it more the quality of distant parts of New Jersey than of New York City. In the boroughs themselves neighborhood leadership is stronger than borough leadership, and there are stronger affiliations between the citizens and some definite local unit than between them and their borough or the city as a whole.

The existence of local patriotism, however, does not destroy patriotic feeling for the whole city. It is the whole city, combined with a large part of New Jersey, which has the distinction of an unsurpassed harbor with its teeming life and associations. It is the whole city that is approached by the harbor from which the towering mass of buildings in Manhattan and Brooklyn make the face of New York unique in the world. The scenery of the Hudson River with its boundary of high palisades forms a striking part of the natural setting which seems to indicate that nature anticipated the boldness and the high degree of vertical growth which has entered into the making of this city.

Is there a spirit of this place that can be defined? It is known to exist and to have found ear and voice in recent years. It has listened to the Regional Plan. It has been striving for ideals to achieve. It is revealed in a hundred ways in pride of citizenship. It is not supported by old traditions, but it is rich in traditions of its own time and has cultural facilities that are probably unequalled. But the community spirit of New York, as of every city, means something different to every

INDIVIDUALITY OF COMMUNITIES

citizen, and this makes definition impossible. The community spirit of a city to each person is its revelation of a community ideal that corresponds to an individual ideal. Whether that ideal be aggressiveness in moral reform, freedom, financial power, aesthetic satisfactions, or social standards, each may evoke a different degree of sympathy between the citizen individually and the city collectively. The "mental climate" is also variable in respect to time as well as to persons. What the greatest



Dietel & Wade and Sullivan W. Jones, Architects
MODEL OF THE NEW CITY HALL OF BUFFALO
A symbol of civic spirit now erected.

composite of individual ideals is today may be the subject of derision tomorrow. The city outlook, like the world, has its periodic variations.

The ideal which the Regional Plan believes should inspire the civic spirit of New York is that it should achieve the highest practical degree of excellence as a place to live in. This conception should have regard to public welfare in terms of health and safety as well as material values, to orderly and artistic unity as well as freedom of

THE MAKING OF THE CITY

the citizen, and to leadership and education as the motive power behind improvement, rather than control.

When, therefore, we speak of the Spirit of New York we are thinking of this ideal. When we express admiration for the power and aggressiveness of the city, we think of the opportunities these qualities give it to attain this ideal. When we think of beauty we think of it in relation to human aspirations and needs rather than certain abstract qualities attributed to it by the artist.

While no one can measure the quality or degree of community spirit in a city, each of us says at one time or another that a certain city shows public spirit when it does something that commends itself to us. But the public spirit of our own community will not really appeal to us until we are ready to make sacrifices for it. Real



Photo by Brown Bros.

WEST POINT EXPRESSES INDIVIDUALITY IN THE BEAUTY AND STRENGTH
IT DISPLAYS AS A MILITARY CENTER

greatness and beauty in a city can be achieved only through sacrifice of its citizens, and sacrifice will be made only by those who care.

When we witness the avoidable evils connected with slums, and the other disorderly features for whose existence corporate action or inaction is responsible; when we see the failure to limit density and arrest congestion, we wonder why such defects should exist in a city of the wealth of New York. Where is the spirit that should prevent these?

When, however, we see the evidences of enterprise in building and in developing communications; the new type of business city which General Smuts has characterized as a development of human genius; the defiance of tradition in establishing new heights of building; the youthful energy and power revealed by the ability of the city to surmount obstacles, we wonder at the greatness behind this enterprise in spite

INDIVIDUALITY OF COMMUNITIES

of the defects which accompany it. Where is there a more dauntless spirit than in New York?

We have said that each citizen has his own conception of the Spirit of New York, according to his ideals. For example, the politician has one, the artist has one, the engineer has one, the slum dweller, if he understands, has one.

It is seldom that expression is given to any one conception. Perhaps the best interpretation of the Spirit of New York as it appears to one of its leading citizens is contained in an address delivered to a Regional Plan meeting by Dr. John H. Finley in 1926. We quote his inspiring words in full:

"I could speak for hours about New York City and its environs, though I have what might be called a rural complex—I was born in the country. But I am devoted to this city, and have been under its spell since I dropped my first ticket in a Sixth Avenue Elevated chopping box thirty years ago.

"I have lived under the spires of St. Patrick's and in the topmost flat of the Ghetto tenement far down on the East Side. I have boarded in an English ship-caulker's home near Front Street, and in a German actors' boarding house near 14th Street. I have commuted with clerks from New Jersey, with workers from Harlem, and with Russell Sage from Long Island. I have lived for two years of nights upon the incomparable Riverside, with its Hoboken sunsets and its myriad columned lights reaching deep into the river. I have lived for several years of days on the St. Nicholas Heights, overlooking the city from the bridges to the glinting far light on the Sound, and have seen morning after morning the incense of urban worship arise from thousands of roofs. I have sung 'The Lord is My Shepherd' with the children in Essex Street, and played golf with Andrew Carnegie in the 'green pastures' of Westchester.

"I have more than once walked around Manhattan Island without stopping. I have known this wonderful city's surpassing charities, its solicitous care of the sick, its sacrificing concern for the right teaching of its children and youth, native and alien alike, even to the free tuition of its young men and women. I have witnessed the rise of the municipal 'expert' and the dawn of 'efficiency.' I have attended on their way to their graves hundreds of my own generation and of the generation ahead of me, including 'O. Henry', who has come nearer than anyone else to understanding the voice of this city built of the shards of all the altars and cities that have been since Cain built the first altar just outside Paradise and then fled to the Land of Nod and built the first city, which he is said to have named after his son.

"And out of these years of days and nights, in which the city has not ceased its vehement, clamorous labors for one moment, it has swept with dauntless power and a fierce freedom that has spurned even reformers, into the first place among the cities of the world in its cosmopolitan area, both in population, in its sea commerce and in the 'nobility of its enterprise'—not a New World city but an Old World city sitting on the shores of the new with its feet in the ocean.

"It is Babel reversed. When on the plains of Shinar men attempted to build such a sky-reaching structure as Manhattan Island now supports in considerable number, their labors were halted by a sudden confusion of tongues. In New York people have practically all the languages of the earth; at least thirty, besides numerous dialects spoken each by a considerable number. They have come together and though without coordinate purposes, are again building skyward with astounding architecture. They are beginning to make their own restrictions as to height of buildings, instead of awaiting the intervention of Providence.

THE MAKING OF THE CITY

"It has a more stupendous problem than any city on this 'terrestrial sphere' has ever had before. It has the largest and most varied 'agglomeration of mankind,' brought together not by ancestral predestination, but almost wholly by personal or parental choice; it has probably the most varied and considerable industries of hand and machine ever brought into one neighborhood since the sons of Lamech began to manufacture things; and it is the greatest port and center of communication, transportation, and exchange, by water, land and air, on the face of the planet.

"If, as O. Henry's Aurelia remarked, 'all cities say the same thing', New York says it first. It is the capital of what I have called the Televictorian Age—the age of the conquest of the Far. It is often called provincial, but what it really lacks is the correlating of all these far interests in a common civic purpose:—it needs a perivincial, that is, a near conquering, consciousness. We have cleared the face of the earth. I have sometimes wished that these islands might be loosed from their moorings and towed out to sea, in order that their inhabitants might gain this consciousness in the silence of the ocean. But it has to be achieved in the noise and hurry of day-by-day business, and in contact with the great nourishing continent.

"I have read a book recently which presents the view that Nature tried to achieve some great purpose by massing as many cells as possible in one being; and it finally evolved such a great beast as the dinosaur, the fossil remains of which have been found.

"So it seems Nature began again and tried to achieve this purpose through intercommunication of independent creatures, and it is in the cities that the experiment is being tried out. In the midst of this tumult and the bustle of business, it is necessary for some to be thinking of the future, to be planning for the larger city of tomorrow; for the great metropolitan area in which more than 20 million people, I understand, will be living in the near future. For the city will endure, that is, the generic city, so long as man has a social instinct, and there is every reason to expect that this city will exist for thousands of years to come. New York is still 'New.'

"Cities have sprung up on hillside, shore and plain, blossomed for a time, drooped, withered, died, slept in their own dust. Preachers since Jonah have cried against them. Jonah was the first municipal reformer. You remember he cried against Nineveh, and because the events did not come to pass that he prophesied, he sat down and complained. And the Lord said, 'Should I not save Nineveh in which there are so many score thousands who can not tell their right hand from their left?' It was the children who saved Nineveh for the time being.

"Poets since David have sung enticingly of the green pastures and the still waters. Reformers have come out of the wilderness since the days of John the Baptist, calling to repentance and to baptism in streams outside the city. Still the city has persisted, rising often from its own ashes, or climbing upon the ruins of its own towers, surviving rapine, famine, pestilence and every ill of human association, human passion, human ambition, and receiving into mansion and tenement those driven of some 'divine, if obscure' instinct, some 'irresistible urge', as it has been called by that noble American, one-time Mayor, who saved from devastation the capital city of the Belgium that was old when this new Belgium was but an uninhabited island. The city has persisted in making here new attempts to solve the time-old problem of civilization, the problem whose solution is 'the hope of democracy,' and the only 'hope of democracy.'

"Cities will live on, and the problem is to make them as comfortable and as happy places as such places may humanly be. Indeed, the vision of a place of ultimate happiness, of which you will read in the Book of Revelation, is not a Palm Beach in winter or a Bar Harbor in summer, or a country place, but a city, a city whose streets are as glass; well lighted, with a river of pure water in the midst of it, and trees whose leaves are for the healing of the nations; a city whose gates are open to the four corners of the earth, but into which nothing is permitted to enter that is unclean or works an abomination or makes a lie.

INDIVIDUALITY OF COMMUNITIES

"So I speak to you who belong to this great urban area, as the founders of the new city of cities. It is written in the Book of Ecclesiasticus that 'children and the building of a city establish a man's name.' Not only will your names as Mayors be established, as you plan for the future of your cities, but they will be carried at least into the third and fourth generations, if you see to it that the children have a place to play—I am quoting from the Book of Zachariah—in the midst of the streets of the city, for the children are our real salvation, the real salvation of a city as they were for the time being, at any rate, in Nineveh.

"I was last summer in the noblest city of the ancient world—the City of Athens. History tells us that when the youth entered upon the duties of citizenship in that city of the violet crown, he received his spear and his shield, but he also took this oath which I have had translated from the Greek, and adapted to our own city:

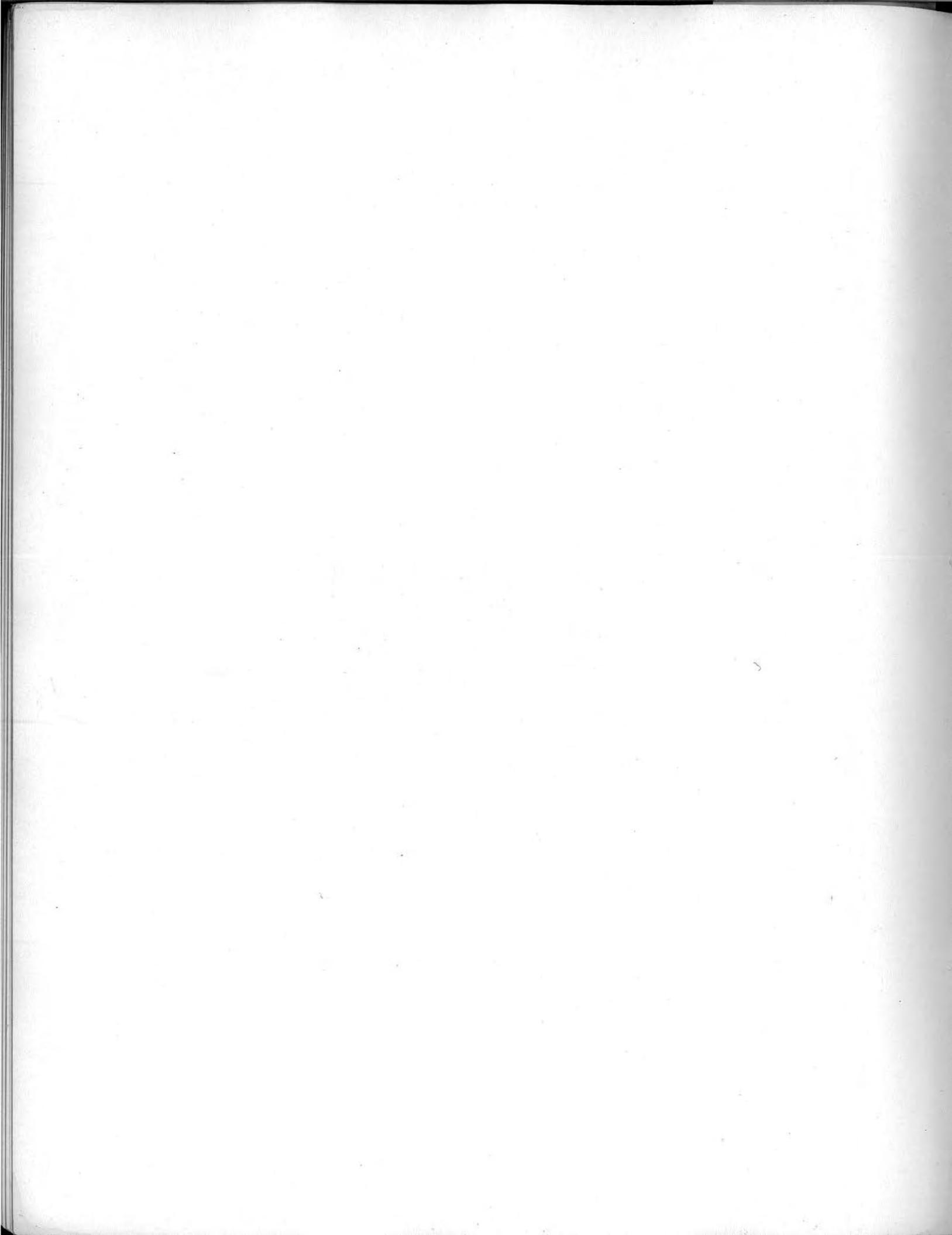
" 'I will not disgrace the name of my city, nor desert the comrade who is placed by my side or those who cared for me in childhood. I will fight for things sacred, things beautiful, and things economical. I will remember those who established this city. I will hearken to magistrates and obey existing laws and those established by the people. I will not consent unto any that destroys or disobeys the constitution, but will prevent him whether alone or with others. I will hand on my city, not only not less, but greater and better than I found it.'

"And we do not leave it better than we found it unless we make it a more livable, convenient, ennobling city for those who are to come after us."

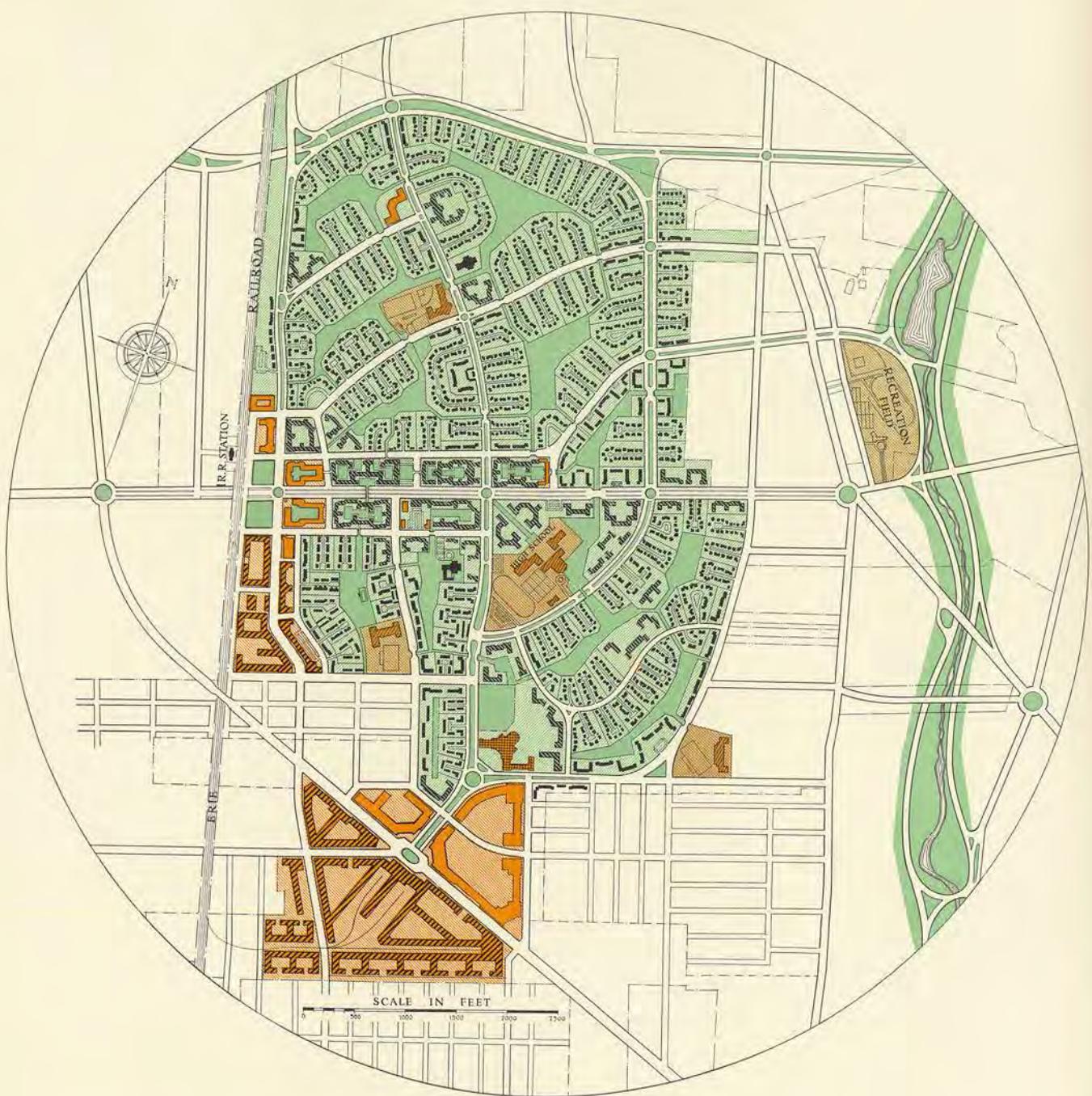


Photo by Brown Bros.

THE STATUE OF LIBERTY



PART II
GUIDANCE OF BUILDING



TOWN PLAN RADBURN, N.J.



FIG. 15

RADBURN, NEW JERSEY—PLAN OF MODEL COMMUNITY

VI. PLANNING LAND FOR BUILDING

Basic Realities in Planning

WHAT has been said in the first part of this volume shows that the fundamental problem in planning a city in a democratic country is to advance the intelligence and arouse the spirit of its citizens so that they will guide its development in those directions that will afford social satisfaction. The chief responsibility for guidance of development must come from those who have or assume power to lead—whether through political position or special knowledge.

In the Graphic Regional Plan we grouped our proposals under two divisions, consisting of Ways of Communication and Land Uses respectively. The proposals that are proper to make concerning buildings are also divisible into two classes, namely, those that are of the nature of guiding principles and standards for regulating building, and those that have the character of concrete building projects.

Proposals outlining the principles and standards of zoning in relation to such matters as height and bulk of buildings are typical of the former. These have to be specific in the sense of being applicable to definite, although widely varied, conditions and districts. In a regional plan they should be less definite and detailed than in a city plan, but in either case they do not involve the making of actual designs to suit particular sites. The making of such designs, as illustrations of definite proposals to apply standards or seize opportunities, is a distinct field of work in planning. In this Part of this volume we present an outline of the more general proposals, leaving for presentation in Part Three some suggestions for the design of buildings and streets in particular places.

REALITIES IN LAW

When we enter upon the consideration of what principles and standards should guide us in building, our first thought must be to fit them to the occasion and to limit them to what can be achieved. The occasion, however, is not today only, but tomorrow also; and what can be achieved relates to the future rather than to the present. We repeat what we have said before, that while the value of a city plan is in proportion as it is capable of being carried into effect by law, the value of a regional plan is in proportion as the proposals it contains reflect anticipation of what public opinion will demand and what the law will permit in the future. The principles and proposals set forth in the Regional Plan are not limited to those that are now considered as legally or financially practicable, but to those that are considered

GUIDANCE OF BUILDING

likely to be practicable in future in the face of probable demands of a more intelligent public opinion and of the prospect of diversion of funds from improper to proper uses. Part of the object of a regional plan is to help to create this greater public intelligence and propriety of expenditures.

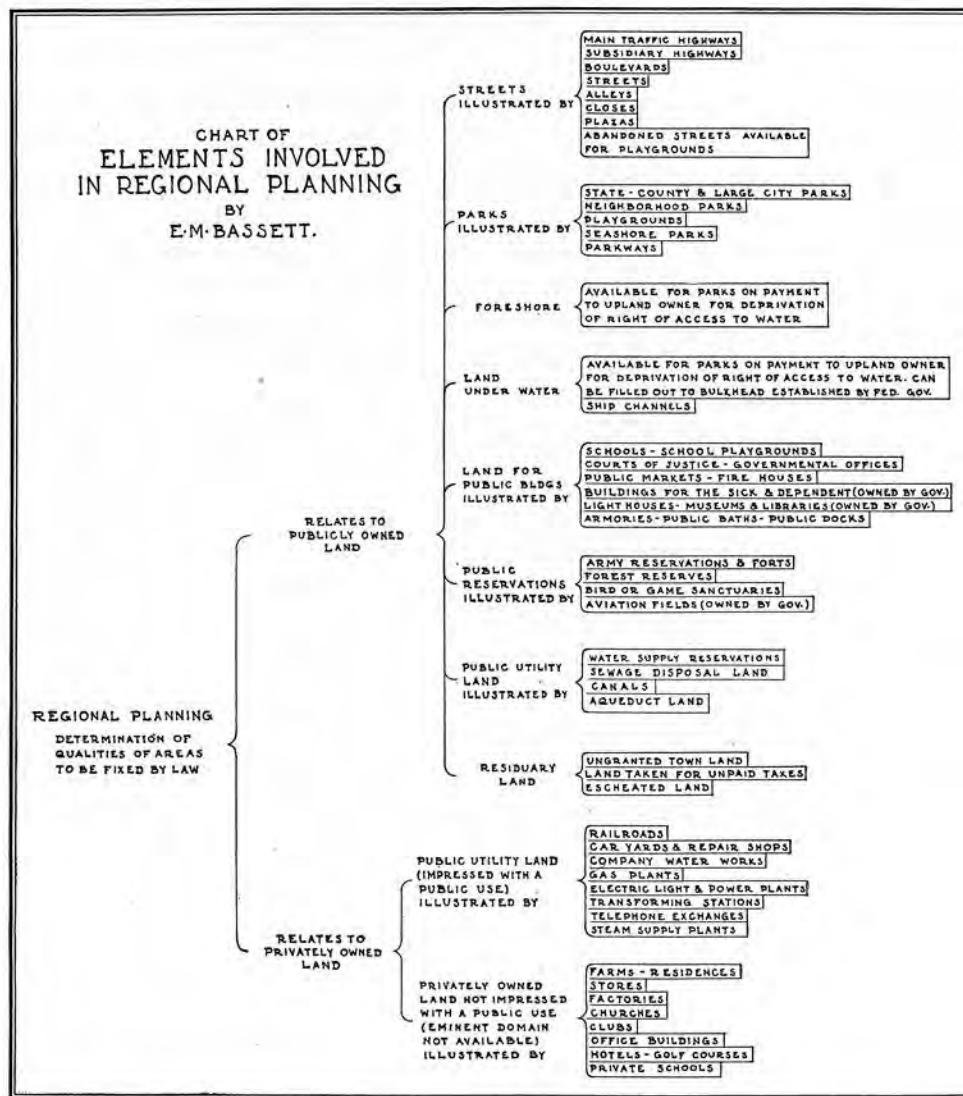


FIG. 16

Accordingly proposals and standards put forward have to do with those things that are desirable, and likely to become practicable. All of them indicate, however, in what direction efforts should be made to take advantage of present opportunities. Whatever future changes in law may be, they will gradually evolve on the basis of

PLANNING LAND FOR BUILDING

existing law. No change will alter the condition that every building in an American city and every process of law in connection with planning and zoning must be based on the principles and facts of law governing the uses of land.¹

Determination of Qualities of Land.—These uses of land may be interpreted as legal qualities of land. The importance, extent, and wide ramifications of the problems connected with the determination of the legal quality of land areas have to be appreciated in comparison with other fundamental factors. Figure 16 presents a tabulated summary of these qualities prepared by Mr. Edward M. Bassett. This summary shows the place occupied by the different proposals contained in the Regional Plan in a legal classification of areas of different types and quality.

It distinguishes between: (a) the areas which are publicly owned and capable of public use; (b) those that are privately owned and impressed with a public use; and (c) those that are privately owned and not impressed with a public use. The relation of each of these different areas to one another, and of each open use to certain building uses, is evident from a cursory examination of the summary.

Perhaps its most impressive feature is its evidence of the multitude and complex relationship of problems involved in planning a region, when it is considered that each subsidiary heading in the tabulated list involves a further sub-classification of headings.

REALITIES IN SOCIAL AND ECONOMIC CONDITIONS AND TENDENCIES

In the social and economic field, as well as in the field of law, it is the combination of knowledge of the facts about us with a true perception of tendencies that gives us the basis for reality in planning. Although in presenting proposals we shall be driven to make some distinction between social and economic elements, yet in a real sense the economic is part of the social. Both elements, including features which are defined as aesthetic, are parts of the social structure. What is sound from a social point of view should be sound from an economic point of view, and *vice versa*.

The late Dr. Allyn A. Young, formerly Professor of Political Economy in the University of London, says² of the science of economics that it is better defined as "a science which is concerned with the communal problems of economic life." He adds:

"The attention which economics gives to the general or social aspects of the interplay of economic activities is born of its central interest in the wisdom or unwisdom of measures which governments take, or which conceivably they might take, with a view to regulating, controlling or participating in them or to directing them into one channel rather than another. The older name 'political economy' still gives a right impression of the kinds of problems with which economics is mostly concerned."

The rational social objective which has in view the solution of the communal problems of economic life is necessarily one which has regard to and, indeed,

¹ For discussion of proposals for improving the law of city planning and zoning, see *Regional Survey*, Volumes VI and VII.

² Article on Economics, *ENCYCLOPÆDIA BRITANNICA*, Volume 7, page 925.

GUIDANCE OF BUILDING

embraces sound economy. The differences that exist between men on the subject of what is or is not economy are due frequently either to the narrow conception of economy as being simply the opposite of extravagance, or to erroneous ideas in determining what is best for social welfare.

What the Regional Plan seeks are not separate social and economic objectives, but a social-economic objective. This objective can be attained only by: first, a well balanced distribution of land uses in relation to transportation, industry and residence, as proposed in the Graphic Plan; and second, a well balanced distribution of bulks of building in relation to open areas, so as to secure health, safety and general welfare, including freedom of movement for all forms of locomotion, as suggested in this volume.

In trying to achieve our objective in areas already built upon we must have in view the conservation of what is good as well as the correction of what is bad. There are, of course, degrees of the good and of the bad from a social point of view which have a bearing on the question of whether or not something is worth conserving and something else worth correcting, because of the cost that either involves. Generally speaking, every city has physical features that should not be destroyed or impaired, and others that it is best to scrap. There are still others that may be passably good and that should be interfered with only when something better can be substituted. Again, some building developments that are bad may be improved with slight reconstruction, while others are incapable of improvement. There can be no fixed principle for guidance of re-planning operations where there is so much variety of condition.

The greater part of the Regional Survey represents an effort to obtain knowledge of social and economic realities in the New York region, on the basis of investigation and study of facts. Such study and investigation lie in the field of science rather than art; but art may communicate knowledge of realities as well as science. We have to comprehend the values inherent in art as well as the facts revealed by science to arrive at a true perception of social-economic needs. Until we have attained that perception we are unable to distinguish between realities and fallacies. One common fallacy which has been illustrated by our studies is the idea that building should be adjusted to land values instead of land values to building. Another fallacy, in the field of design, is that architecture is solely an art and engineering a science. There has to be science in architectural design and art in engineering design, and both forms of design need to be comprehended as one in the designing of the city structure.

HUMAN AND MECHANICAL POWER

Constant changes are taking place in the processes of life in nations and communities as a result of the combination of science and art. This combination is

PLANNING LAND FOR BUILDING

now operating in making enormous changes in increasing mechanical power; and among the facts and portents that are concerned with the development of cities none are more important than those connected with this increased production of energy. It is probable that the future as compared with the past prosperity of nations, and of cities within them, will be in proportion to the energy they have at their disposal. Scientists have pointed out that coal, oil and water power will continue to be the three fundamentals for developing both production and distribution through manufacture and transportation. It is where these forms of energy exist and can be conveniently assembled that great cities will be maintained and grow, or perhaps, with more scientific organization in the future, that new cities and urban regions will be developed. An eminent thinker, Mr. J. B. S. Haldane, states the problem by saying that the "prerequisites of all progress in transportation" are continuous "supplies of human and mechanical power."

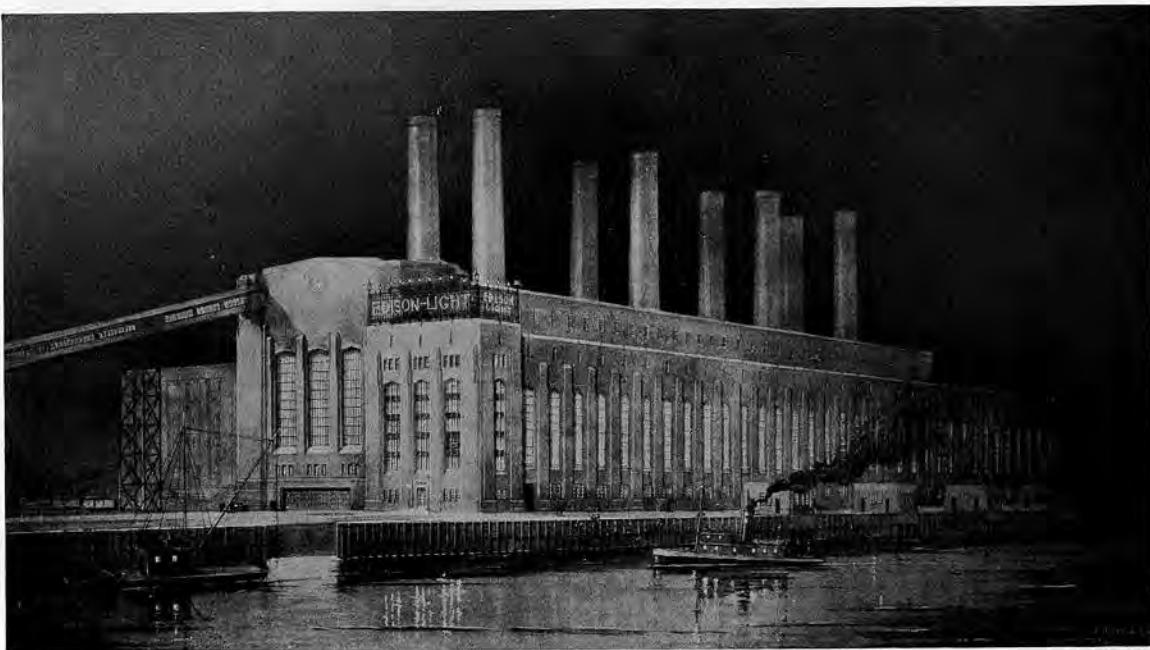
The supply of human power is dependent in the main for its quality and quantity on the conservation of health, which, in turn, is largely dependent on good social organization. The provision of good living and working conditions and wholesome environment, or more specifically the regulation of the building and surroundings of homes and places of work are practical opportunities, available to every community, to increase the supply of human power. One outcome of this increase is the greater efficiency it affords in utilizing and developing the mechanical power which still offers new worlds to be conquered by man's genius. We are credibly informed that mechanical power will not be diminished by exhaustion of existing materials, such as oil, for new forces will be discovered and utilized. Water power may become a more important factor than it is and may shift the centers of industrial gravity.

New York now occupies an exceptionally favorable position in regard to the ability to assemble the raw materials of energy. Its future growth depends on the artificial improvement of its natural position as a transportation center and on the economy of assembling the materials for producing energy. In the future, however, it may have to find sources of hydro-electric energy or suffer in competition with new centers. For example, the development of electric energy on the Columbia River in the Pacific Coast region may result in adding enormously to the movement of industry from the eastern seaboard toward the great river valleys of the West. Similarly, possibilities in the regions adjacent to the Great Lakes and the St. Law-



POWER PLANT FACING THE EAST RIVER

GUIDANCE OF BUILDING



Stone & Webster Engineering Corp., Engineers and Constructors Bigelow & Wadsworth, Consulting Architects Courtesy of the Architectural Forum
DESIGN FOR A MODERN POWER PLANT

rence River still remain to be explored in important directions that may affect the distribution of industry and population.

These things will mean the continued growth and development of city-regions, and the continued depletion of the countryside. The query, "Why not live in the city?" will have a stronger appeal than ever. However, this movement need not lead to evils resulting from unsatisfactory distribution of population, such as the lowering of human energy and the increase of tendencies towards materialism.

So far as city growth results in response to the scientific spirit it can be, if we wish it, both a healthy and an orderly aesthetic growth. The true scientific spirit is as disinterested in what Kenyon Cox calls "the search for perfection" and in stimulating the imagination as the classic spirit which is associated with art. In respect to their "love of permanence and of continuity" both are in allegiance against the spirit of expediency, which dominates so much political life. The city of the future will increasingly reflect this love and, to quote Kenyon Cox again, will seek "not merely to promote individuality or emotion, but disciplined emotion and individuality restrained by law." This should be the keynote of the art of city planning in the democratic city of the future. In proportion as popular education leads to more disciplined action in democratic countries, the defects of unrestrained individualism and tendencies to revert to autocratic control will be avoided. We need classic feeling and scientific method as handmaidens of democracy in order to

PLANNING LAND FOR BUILDING

educate and preserve democracy and make it produce art as noble and beautiful as that which has been created in the past by dictation of the few.

In the New York region the potentialities for developing and concentrating energy, and for economic distribution, depend on the maintenance of its preeminence as a center of transportation. This has been the secret of its marvellous growth in the past and will be a dominant factor in its growth in the future. It has been a misfortune that more orderly building has not accompanied the increased reliance on mechanical forces that has occurred in recent decades. But disorderly building is not an essential outcome of mechanical forces, as such, but rather of the elements of transition in community growth which had to accompany the recent expansion of these forces. As time goes on, the modern city with all the new engineering devices that have changed its structure in comparison with cities of the past may, and should, develop a new beauty and nobility of building. Such beauty and nobility, however, will have to be a part of, and expressive of, the new character of the city as a product of scientific invention and as a political entity in a democracy.

What we have just said as to the realities to be considered may be summarized as follows:

(1) The development and prosperous growth of a city-region depends mainly on the maintenance and expansion of its human and mechanical power.

(2) The supply of human power may be increased by good or diminished by bad social organization; the test of the good being the extent to which social policies promote the most healthful conditions of life that are practicable, and of the bad, the extent to which these policies permit unnecessary impairment of these conditions.

(3) Desirable expansion of mechanical power in relation to means of transportation, to manufacture, and to all forms of commerce will continue and will increase the size of cities, but it need not in itself lessen the healthfulness or orderly development of cities.

These are the same conclusions which we deduced as a result of our fact-finding surveys. We are led as a result to repeat that the primary need of all planning and building development is to secure the health, safety and general welfare of the citizens, including the efficiency of their industries and of all facilities for movement.

Planning New Developments

The dependence of effective control of building on good planning of land from the beginning has already been clearly shown.¹ It has been made apparent that defects in building the city have had their origin either in permitting mis-planning of land at the beginning of development or in permitting misuse of the land as and when redevelopment takes place; and that the greatest opportunity in any city that is growing is to prevent the recurrence of defective conditions in areas now

¹ See Regional Survey, Volume VII, and Regional Plan, Volume I.

GUIDANCE OF BUILDING

undeveloped. This means that the greatest opportunity confronting the Region is to plan the open areas so as to secure the highest attainable degree of human welfare for the 10,000,000 increase of population expected by 1965. The foregoing is true not only because preventive measures are best and most practicable, but also because it is difficult to realize what is needed to improve the areas already built upon, including the reconstruction of blighted areas, without the object lessons obtained from enforcing proper standards in newly developed areas.

RECENTRALIZATION

In considering the need for planning new areas it is well to recall the opportunity which is given in fulfilling this need to promote recentralization and wider diffusion of industry and population. In general this recentralization and wider diffusion can be promoted by both a push outward from the existing centers and a pull outward from the environs. The push may be given by combining adequate zoning control, to prevent excessive bulk of building in the central districts, with proper measures to extend transit facilities into undeveloped districts. The pull outward depends on the proper planning of undeveloped areas so as to increase their attractiveness and accessibility and to give the opportunities that industries want in respect to suitable sites, facilities for traffic, and housing.

Three things that bear upon this question are: the fact that there is ample space to permit wider distribution of building than at present; the desirability of spreading transit facilities over wider areas; and the desirability of developing more terminal centers. We will refer briefly to these before summarizing our suggestions for improving methods of preparing official maps and subdivision plans.

Amplitude of Space.—There is ample land available in the New York region within reasonable distance from centers to permit of dispersal of industry and population in accordance with any system of distribution of building bulks and any degree of spaciousness that is conceived to be best for health, safety and general welfare. In support of this statement we have shown that if the unbuilt area within the city were developed at the low density of 10 houses to the acre it could accommodate another 3,000,000 people, and there is enough space within a 25 mile commuting radius to provide for the prospective population of the Region for a hundred years to come at the same density.

New Transit Facilities.—That there is plenty of land within a convenient distance of centers does not mean that it is within a convenient time-distance. The most important thing in connection with transit is that it should provide service to these areas without discomfort and loss of time. Much land that is now inaccessible in time-distance can be made conveniently accessible by proper planning of the transit system. Artificial overcrowding of the most accessible areas is a result of transit services not being planned and extended to serve wider areas. If it is once accepted

PLANNING LAND FOR BUILDING

that it is socially desirable to encourage more widespread and better balanced growth, the system of transit can be extended on economic lines to encourage this growth.

Mr. Daniel L. Turner, Consulting Engineer to the New York Transit Commission, said in 1926:¹

"Practically all the territory traversed by the existing subway lines in Manhattan, The Bronx and Brooklyn was developed to such an extent as to saturate such facilities . . . Instead of creating such decentralizing transit facilities in order to take advantage of the fact that *the population always follows rapid transit* and thus utilize the new line to diffuse the population and relieve congestion, we did the wrong thing . . . we located most of our new lines through already overdeveloped territories both in outlying sections and through business Manhattan. . . . Some of the new lines parallel existing facilities and one new trunk line in Manhattan traverses the most congested business areas."

Thus, Mr. Turner argues, a vicious circle is created because in the first place the potential possibilities of using land in the already congested areas are almost unlimited on account of insufficient restrictions, and in the second place this potential use always will be developed to the utmost extent that the transit facilities will permit. He advocated the restriction of building densities and heights in congested areas and the change of the transit policy so as to secure the building of transit lines through outlying and unpopulated areas and to encourage decentralization of city activities.

Mr. Ernest P. Goodrich agreed with both propositions of limiting overcrowded building in central areas and of constructing rapid transit lines through undeveloped areas. He estimated that in the next fifty years the population, average building height, and total transit facilities and traffic would not more than double, and that the best relief could be obtained from proper planning of the increase of transit facilities to serve a better balanced distribution of both population and building bulk.

In order to develop a well rounded transit system that will serve the less developed areas, it may be necessary to continue to contribute to the cost out of general taxes. But rapid transit should be made as self-supporting as possible and when public aid is given it should be limited to assisting the outward expansion rather than the closer contraction of the city. Part of the cost of providing transit lines in undeveloped areas should be met out of special assessments on the land that is made more accessible and therefore more valuable as a result of the extension of the lines, but care should be taken to keep such taxation from having the effect of confiscation of property values.

New Terminal Centers.—Public authorities should cooperate with the railroads in creating new terminal centers outside the Island of Manhattan as one of the means of encouraging dispersal of industry. In this connection such proposals as are set forth later for the development of the Hackensack Meadows and the Jamaica Bay

¹ Paper read to the Snag Club, New York, April, 1926. See also Plan Volume I, page 170.

GUIDANCE OF BUILDING

section and for creating new terminal centers outside the central areas will provide opportunities for encouraging a sound degree and character of recentralization.

Passenger and freight traffic destined for places outside of Manhattan should be by-passed around Manhattan. For this purpose new bridges and tunnels should be located where they will assist the wider dispersal of traffic and not add to congestion in the center. The building of the 178th Street Bridge over the Hudson River and the Tri-borough Bridge over the East River are outstanding examples of good locations for new bridges.

OFFICIAL MAPS

Official street maps need to be more scientifically prepared in harmony with comprehensive city plans dealing with the transportation system, the street pattern and zoning. In unbuilt areas the official map should not include the minor street system. It should leave the planning of the intervening areas to be carried out separately but subject to regulations as to the width and character of minor streets as well as to zoning and other matters of detail. It should be subject also to the submission of subdivision plans for approval by a planning commission or board.

Unfortunately there is little opportunity left in those parts of New York City where an official street map has been adopted to change the street pattern fixed in the map. What can be done lies chiefly in two directions, namely: (a) the improvement of zoning in the districts already zoned and the adoption of a zoning plan for all other districts; (b) the revision, where practicable, of the official map in such a way as to secure greater harmony between the street and zoning plans. This would involve giving more emphasis than at present to the main highway system and to the enforcement of a law to prevent building in the bed of mapped streets. It would lead to more economical arrangement and development of minor streets. The fact that a street has been officially fixed in its width on a map does not mean that the opportunity is lost to construct the paving in accordance with the building uses and densities which the zoning rules prescribe and therefore which the street has to serve.

PLANNING OF SUBDIVISIONS

Proper standards, based on the Regional Plan and on comprehensive city plans, should be embodied in subdivision regulations and zoning ordinances prepared in compliance with state planning laws.

The most important requirements in connection with development of land in the first instance are:

- (1) Approval of plats of land for building purposes should be postponed until there is made or guaranteed some reasonable provision of street paving and of essential utilities such as water supply, sewers and lighting, up to a standard specified by the municipal authority.

PLANNING LAND FOR BUILDING

(2) No building should be permitted on rear lots except that which is accessory to the main building, and does not interfere with the proper standards for light and ventilation.

(3) Larger park and playground areas should be provided coincident with the subdivision of land and in harmony with the plan of development. Public playgrounds, forming a reasonable percentage of any subdivision, should be reserved in accordance with standards to be specified in the master plan of the city in the same manner as street spaces have to be reserved. The principle in determining what is a reasonable standard from the point of view of the developer would be that the space should not exceed what is necessary for health, safety and general welfare.

(4) To suit modern conditions it is desirable that land be divided into blocks of large acreage between the main roads, with narrow interior streets, including closed-end streets, so designed as to discourage through traffic. (An example of one such system of subdivision is that which is being carried out at Radburn, New Jersey, Fig. 15, page 134.)

(5) As far as practicable zoning should be given a permanent character so that the streets may be adjusted to the type of building in each district. If land is laid out with narrow streets in an area zoned for single family dwellings, no change in zoning permitting a higher density should be made unless and until the streets are widened sufficiently for such density.

Local Improvement Finance

All forms of municipal finance and taxation have a more or less direct bearing on methods of land development. Perhaps, however, no form has a more direct influence on development than that which results from the methods of financing local improvements. We have suggested that those who subdivide land for building purposes should make themselves responsible for the cost of constructing such improvements. If this were done it would have far-reaching effects in preventing much wasteful speculation in land, and in reducing the heavy burdens which are imposed on cities because of having to finance certain improvements after the land is built upon.

Most of the local improvements which are financed by the city are of a character which are proper for the city to organize and finance. The task of the city in doing those things that are most appropriate for a government body to undertake makes it important that it should avoid doing what can well be done by private enterprise. The work of constructing main highways, main sewers and carrying out large reconstruction projects, as well as performing all the essential social services of the community, is so great that the municipality should assume as little responsibility as possible for minor local improvements that have limited benefit to a few owners of property or for undertaking service that can be made self-supporting.

While it is true that much the greater part of the cost of large scale improvements is paid for by property owners indirectly, even when financed by the municipal authorities, great savings could be effected if the owners were made directly responsible for a larger share of the cost of these improvements where it is clear that they derive the major benefit from their construction.

GUIDANCE OF BUILDING

The problem of financing such improvements in New York City by local, borough and city-wide assessments has become of serious importance in relation both to the future financial stability of the city and to the practicability or otherwise of carrying out major reconstruction projects.

A significant report on this subject was submitted to the city authorities by Comptroller Charles W. Berry in May, 1930.¹ The data contained in this report and the conclusions drawn from it by Comptroller Berry show the need of reform and indicate some important principles which should underlie changes in the interest of economic development of the city. The report states that there has been an enormous increase in the demand for local improvements. These include those large scale improvements which affect areas that are already highly developed and have an influence on reconstruction projects in such areas. Examples of such improvements are the widening of Church Street, and the building of the West Side Elevated Highway which is estimated to cost the sum of \$15,585,600.

The report is significant as a statement of the principles that should be followed in regard to an economic phase of the city law and administration which has an important bearing on the problem of building development in the city. It appears that the present practice has the effect of mortgaging the future taxes of the city in the sum of 75 to 100 million dollars. The methods followed make it impossible to estimate in advance what an improvement will eventually cost. The growing liability of the city for subways and local improvements is indicated by the fact that, whereas in 1923 cash expended for these purposes was \$6,355,970 for subways and \$15,596,592 for local improvements, the respective figures for 1929 were \$83,991,753 and \$60,959,149.

These are enormous liabilities incidental to the present methods of building expansion in the city. They are partly the result of the excessive density of building, regarding which proposals will be submitted later. To keep city expenditures within proper limits, thereby avoiding excessive taxation, and at the same time maintain the many social services that cannot pay for themselves, such as the building of schools and acquisition of parks, is the supreme financial task of city government. To carry out this task without creating excessive burdens on the taxpayers it is essential, among other things, that the public authorities should take effective preventive measures. In addition to giving more encouragement to spreading the transit system over wider areas, they should:

- (1) Prevent excessive densities of building.
- (2) Avoid levying assessments by haphazard methods, which confiscates some property and yields excessive profit to other property.²

¹ Report to the Board of Estimate and Apportionment on a study of the city's assessment procedure, May, 1930.

² Comptroller Berry's report indicates that one of the results of the present procedure is to cause confiscation of property of citizens, especially those with small homes. This is one of the reasons for the unpopularity of home ownership.

PLANNING LAND FOR BUILDING

(3) Promote more efficient methods of determining values and more efficient condemnation procedure.

(4) Prepare a comprehensive city plan as a guiding plan for all local improvements, showing their necessity and order of importance, in order to secure that all such improvements shall be economically carried out and their cost equitably distributed.

Proportions of Building and Open Land

The methods of laying out and developing land for building, to which we have just referred, and the standards which should be followed in controlling building densities and heights, which we deal with later, should both be determined, in part, on the basis of a reasonable general standard of open area in relation to building area. In other words, a governing principle of both planning and zoning is that there should be understanding, in regard to both, as to the proportions of land area that can be actually covered with buildings and that should be reserved for some form of open space.

For purposes of suggesting a ratio between these we consider that large country parks and private open spaces, such as golf courses, should not be included in any calculation. Such open spaces should be provided for all communities in addition to those we will suggest as essential for urban areas.

The ratio of open land to that which may be built upon should be as uniform as possible throughout the city, although the variety of uses of land and of the character of buildings will involve similar variations in the size and manner of development of open areas.

RATIO BETWEEN PUBLIC AND PRIVATE AREAS

The first broad consideration in fixing standards of density for districts is how to determine the proper or normal ratio of public vacant area to private buildable area and the relation between this ratio and the restrictions on height and bulk. Investigation shows that public open space should comprise 50 per cent of an urban area; that is, for every acre in building lots there should be an acre in streets and local parks. We have seen¹ that this is a proper proportion in the most intensive areas. The land occupied by buildings in the area below Fulton Street, Manhattan, is 48.1 per cent, leaving 51.9 per cent in public open space. This is an unusual area in three respects. It is the point of an island (see Fig. 17) adjacent to New York harbor and has become the great financial and maritime center. The surrounding water areas that seem to have cramped its outward growth provide wide open areas that give it a high quality of spaciousness on its outer edges. The fact that it is a dead-end area means that it has little through traffic. Consequently in these three respects it can bear a higher density than the average district.

¹ Regional Survey, Volume VI, page 61.

GUIDANCE OF BUILDING



FIG. 17
MANHATTAN BELOW FULTON STREET

lots. Indeed, it is accepted that at least the first stories of business buildings must continue to occupy 100 per cent of lots. This makes the restriction of heights in order to obtain overground space all the more important in these districts, and particularly in the districts north of Fulton Street. We consider, however, that the ratio of public open area to building area in the financial district should be regarded as a reasonable, practical basis for determining minimum standards in all other areas.

OPEN SPACES ON PRIVATE LAND

The next question is what proportion of the 50 per cent of private land allotted for building purposes should be reserved in courts, yards or other open areas. Here we must make an assumption, because conditions vary to such an extent that even in compact business areas it is difficult to say what is a satisfactory general standard for open ground space. Our assumption, however, is that an average of 20 per cent of the private land or 10 per cent of the gross area should be left free of building in the most central areas. (See Fig. 18) Thus on a lot 50 feet by 100 feet the area

Unfortunately the conditions in regard to public open space south of Fulton Street do not pertain to the area to the north. Between Fulton and 59th streets the building land occupies over 60 per cent and the street and park area only 40 per cent. Some increase of the public open area will be possible in future by street widenings and creation of the small parks and playgrounds, but not enough to change greatly the existing percentage. Moreover, both south and north of Fulton Street it is no longer possible, owing to established conditions, to insist on only 80 per cent coverage of

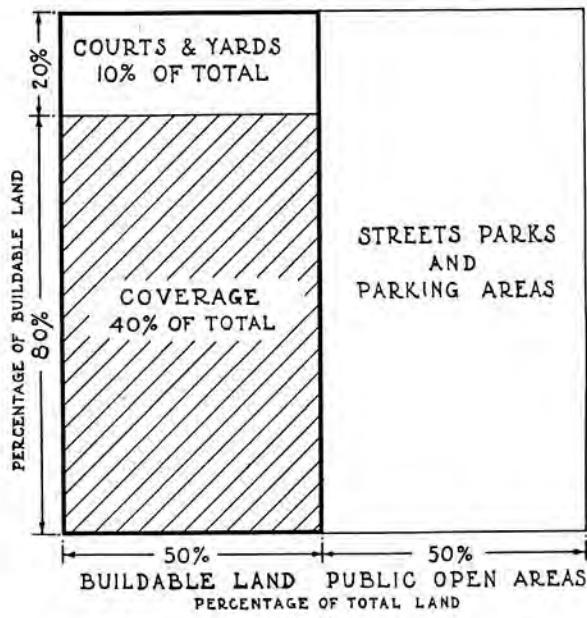


FIG. 18
DIAGRAM ILLUSTRATING PROPOSED MAXIMUM COVERAGE OF LAND BY BUILDINGS

PLANNING LAND FOR BUILDING

available for building would be 4,000 square feet (50×80) and the court space 1,000 square feet (50×20). The 1,000 square feet would be 20 per cent of the total lot and 10 per cent of the gross area, which would include a proper allotment of streets and parks.

GENERAL STANDARDS AND THEIR APPLICATION

Our conclusion is, therefore, that there should be at least 60 per cent of combined public and private open area to 40 per cent or less actually occupied by buildings. So long as this ratio of combined public and private open area can be obtained it is not essential and may not be desirable to make plans to secure the respective proportions that should be public and private. In the central business areas the proportion of street and other traffic space will be much greater than in residential districts, but, on the other hand, the latter will require a much greater proportion of parks, playgrounds and private yards than the former.

Taking two cases at opposite extremes for illustration, the following would be satisfactory allocations of the 60 per cent of gross area which should be allotted as a minimum for open spaces:

Type of district	Type of open space	Minimum per cent of gross area
Central business district	Streets and main highways..... Parks and parking areas..... Unbuilt portions of private lots in yards and courts	40 10 10 (equal to 20 per cent of lots)
Total.....		<u>60</u>
Suburban residential district	Streets and proportion of main highways .. Local parks and playgrounds .. Unbuilt portions of private lots	30 ¹ 10 20 (equal to 40 per cent of lots)
Total.....		<u>60</u>

¹ The local streets in small subdivisions need not take up more than 20 to 25 per cent of the land in the subdivided area.

The ratio of 30 per cent for streets (including a proportion of main highways) in residential areas should be capable of expansion to 40 per cent if and when such areas are converted to business use. This can be accomplished by contracting the 20 per cent for yards and courts (which forms 40 per cent of the lots) to 10 per cent of the gross area (or 20 per cent of the lots). For instance, in some cases front yards along residential streets might be converted into street area or (and) back lanes might be provided at the rear of lots if and when the change from residential to business use occurs. Normally these would be reasonable requirements to meet the needs which arise when the change of use occurs, and it will become increasingly important in the future to overcome the legal difficulties of imposing such requirements.

When business areas are planned from the beginning the 40 per cent of street area should be provided.

GUIDANCE OF BUILDING



Photo by John Wallace Gillies, Inc.

COURT OF THE DAILY NEWS BUILDING, CHICAGO

Architectural treatment of private open area.

business, part of the open space is still required for recreation and the remainder for parking and loading space.

In good residential neighborhoods it would also be desirable to increase the open area on lots above 20 per cent of gross area to 25 or perhaps 30 per cent. For example, in our proposals for suburban areas we suggest that from 50 to 60 per cent, instead of the above 40 per cent, of dwelling or apartment lots should be in open space.¹ Such increases of open space on lots, plus increased allotments for parks, would have the effect of greatly increasing the ratio of open space to gross area above 60 per cent in parts of districts. The 40 and 60 ratio, however, is suggested as the minimum for health and movement in any district, and not as a standard for areas where more open conditions are desirable for economic or aesthetic reasons.

Were it practicable to make the above ratios uniform we could greatly simplify all problems of planning and zoning. The suggested ratios could not be obtained under one specific regulation. They are a concept of reasonable proportions between building areas and open areas that should give direction to all city planning, official mapping, and zoning. The effect desired could be obtained only as a result of numerous regulations under different laws. Zoning, for example, would be the means of regulating coverage of lots with building, including space in front, rear, and side

The only areas where real difficulty will occur in obtaining the 40 per cent for streets will be in business districts which are already built up with a lower percentage, and where there is no open area available on private lots to add to the streets and small parks.

The 10 per cent for park, playground and parking space should be constant as a minimum in all districts of whatever character. It should be increased to 15 per cent in good residential neighborhoods, to be secured at least in part by a reduction in the percentage devoted to streets. When the district is residential this space is required for pleasure parks, athletic fields and playgrounds, and when the district is or becomes used for busi-

¹ See paragraph (4), page 168.

PLANNING LAND FOR BUILDING

yards; but it could not deal with the proportion of gross area laid out in streets and parks, which would be a matter for determination under city planning laws.

We have said repeatedly that one of the objects of all planning and zoning is to obtain a proper relation between building bulks and open areas. The coverage of too large a percentage of land with buildings is one of the chief causes of congestion and leads to the necessary but injurious restriction of traffic and building heights. In some areas failure to reserve enough land in open space takes the form of too narrow streets. In other areas, wide streets do not prevent congestion, largely because adjacent land is too densely built upon. The greatest defect of the modern city is the want of proper balance between its building bulks and open spaces because of failure to comply with some such ratio as we have suggested.





E. Maxwell Fry

THE FUTURE TOWER CITY

An impression of tendencies in building in central areas, where reduction in densities in any substantial degree may be impracticable.
(See page 179)



Photo by William Frange

THE TOWERS OF MIDTOWN MANHATTAN

VII. ZONING: PRINCIPLES AND PROPOSALS

Scope and Methods of Zoning

WE HAVE now to consider the specific problems that come under the designation of zoning.¹ The part of zoning which relates to uses of land has been dealt with in Plan Volume I. The suggestions which will be made as to what should be the guiding principles in controlling densities and heights of building have to be considered in relation to such uses and to the planning of the land.

We have to remind ourselves that the word control, under democratic government, should be applied so as to secure the expansion rather than the contraction of liberty. In all government control of private enterprise in building, as in other things, the aim should be toward preservation of liberty in the broadest social sense, which means liberty for reasonable enjoyment of life as well as to obtain reasonable protection of interest in property. Zoning control is effective in proportion as it contributes to this broadest form of liberty, but to do so it must be based on comprehensive city planning.

VARIETY AND UNIFORMITY OF REGULATION

As zoning applies different regulations to different uses, it follows as a corollary that it permits different degrees of density and height in connection with different uses. Subject to making the distinctions that are essential and proper, the highest utility and greatest permanence of zoning can be obtained by making it conform to those general principles that can be uniformly applied.

¹See Regional Survey, Volume VI, Monograph Three.

GUIDANCE OF BUILDING

One such principle might be the fixing of a minimum open area on lots or of requirements for light and air in living and working places; and when such a standard can be adopted it should form a common basis for all regulations. Departures from this basic standard by different regulations to suit different conditions should be in the direction of raising the requirements and not lowering them.

Whatever uniformity can be achieved between zoning and housing regulations that are based on good standards for obtaining light and air in buildings will be of advantage in giving permanence to zoning and consequent stability to neighborhoods.



FIG. 19

COLOGNE, GERMANY, SHOWING ZONES INFLUENCED BY LOCATION OF FORTIFICATIONS
The term "Zoning" originated with the German method of controlling development in belts surrounding cities.

hoods. Complex and easily changed zoning regulations are a cause of blighting of neighborhoods.

Apart from the general uniformity in regard to certain basic factors that should underlie zoning, there should be the highest degree of uniformity that is practicable in the special regulations that apply to all districts of the same character.

Thus, in brief, we have two kinds of uniformity that are desirable, namely:

(1) The minimum standards in respect to such matters as coverage of land with buildings or of angle of light to buildings, that should apply to all districts together.

(2) The standards that should be applied to any group of districts of the same character.

ZONING: PRINCIPLES AND PROPOSALS

LIMITED SCOPE OF REGIONAL ZONING

In connection with all zoning proposals there are a variety of important considerations of detail that can be investigated and dealt with only in each community. These detailed considerations are outside the scope of a Regional Plan, and include the determination of the harmful features of different industries, the local land values in relation to different types of building and open uses, the influence of natural conditions on values, the extent and limit of non-conforming development, and what provision must be made for fire protection. They include also the complicated details involved in connection with the distinctions that need to be made between light manufacturing and business in Manhattan, and between the many varieties of residential buildings.

RELATED CHARACTER OF DIFFERENT RESTRICTIONS

As we allocate the street and park areas we assist in determining the ratio between total open area and total built-up area, and as we follow this allocation by zoning restrictions we may finally achieve the ratio of 60 per cent, or more, of total open area to 40 per cent, or less, actually occupied by buildings. We should aim to obtain this minimum restriction of coverage by combined planning and zoning, as it probably cannot be accomplished by direct regulation.

There are several ways by which we may limit the bulk of building. These are indicated by the summary of customary types of requirement which follows.

Coverage.—The first requirements have to do with ground space about buildings, which is obtained by coverage and yard restrictions. The methods are to limit the percentage of area of a lot which may be occupied by the building and to fix the depth or width of the space to be allotted for front, side and rear yards. In the case of residential buildings further provisions may be made to secure limitation of density of population by fixing the minimum sizes of lots; or requiring space about a building proportional to the number of families housed in the building or to the gross floor area or bulk of building.

Coverage restrictions are essential in all cases in order to obtain adequate limitation of the area of land to be occupied by building, for purposes of light, ventilation and means of access. They fix the ratio of built area to unbuilt open area. To determine the proper ratio between the bulk of a building and the open space that abuts on it means the settlement of the most vital question in zoning.¹

The determination of front, side and rear yard requirements is directly related to determination of coverage. They have to do with determining how parts of the uncovered portion of a lot shall be distributed so as to obtain the most healthful and safe conditions.

¹ See report of Sub-Committee on Housing of the City Committee on Plan and Survey, New York, 1928, page 47.

GUIDANCE OF BUILDING

The question of limiting the density of families in a given area by requiring lots of a specified size or by requiring that the number of families shall not exceed a certain number per acre (elsewhere described as area-per-family requirements) is dealt with in the succeeding chapter, on housing.¹

Height.—The second type of requirement has to do with the limitation of height, for the purpose of seeing that buildings shall not be so high in proportion to the surrounding spaces as to prevent them from having adequate light and air. The method is to prevent buildings exceeding a specified height or series of heights, measured either in stories or feet, fixing this height or series of heights by relation



Photo by Ewing Galloway, Inc.

PALACE AT BENARES, INDIA

An ancient example of setbacks.

to street widths or depth of yards, as well as by setbacks of the upper parts of buildings. In business areas a greater height is desired and is practicable than should be permitted in residential areas. Since it is impracticable to reserve sufficient ground space to insure satisfactory light and air in the most central areas, setbacks that will provide sufficient overground space to meet satisfactory standards should be required in these areas.

As far as practicable, buildings should be required to be set back from all lot lines, as this assures much better light to all portions of the buildings. Although the loss of cubage resulting from this requirement, as compared to that of setting back

¹See pages 205-214.

ZONING: PRINCIPLES AND PROPOSALS

the buildings from the street line only, is very considerable, this loss to an individual property is likely to be more than offset by the gain to property in general.

Cubage.—As a means of supplementing both coverage and height restrictions it is desirable to restrict the cubic contents of a building in relation to the size of the lot. The method is to specify the cubic capacity that may be permitted per square foot or other unit of ground area.

Height and cubage restrictions may be alternative to each other in whole or in part; that is, bulk may be entirely restricted by height and coverage restrictions, or separately by cubage and coverage restrictions. The former combination can be more effective than the latter. When cubage restrictions are used they should be complementary to height restrictions rather than a substitute for them.

As the cubic contents of a building has a direct relation to the volume of traffic that the building creates on abutting streets, the restriction of cubage will help to prevent congestion. Methods employed in restricting cubage should give the maximum freedom in building design. The angle of light is fairly well preserved by substituting cubage for height restrictions, as normally the greater height of one portion of a building is offset by the reduced height of other portions.

Mr. Robert Whitten points out that the chief weakness of cubage restrictions when applied without height restrictions is that they leave the most essential thing, namely the access of light to neighboring buildings, to the caprice of the individual builder. In order to secure a specified angle of light it is necessary to establish a definite height limit at the street line and a definite angle of setback. But if this is done the restriction of cubage will probably be found to be of little importance in controlling the height or bulk of the building, except in the case where towers are permitted on a portion of the site. If it is desired to limit the cubic contents of the tower as well as the percentage of the area of a lot it may cover, the cubage restriction may be applied with advantage. This is done in Chicago.

The cubage method of controlling bulk is, in general, inferior to the method based on restricting height and coverage together so as to obtain the desired angle of light. Some combination of all methods is most effective.

Social and Economic Basis of Zoning

In connection with all phases and stages of development, or redevelopment, of land for building in urban areas the primary consideration is that of preventing excessive bulk of building in relation to open space. To ascertain what is excessive bulk we have to discover what are the reasonable requirements of a community in respect to health, safety and general welfare. In other words, we have to estimate what are the maximum building densities under which we can obtain adequate light and ventilation in buildings, recreation facilities adjacent to buildings,

GUIDANCE OF BUILDING



Schultze and Weaver, Architects

HOTEL PIERRE

An example of modern setbacks in New York City.

tremely difficult to arrive at definite conclusions. But it is believed to be true that if the requirements for light, ventilation and recreation are met, sufficient space can be provided in some form for all purposes of movement.

SOCIAL FACTORS

Certain factors that are predominantly social include the following:

- (1) The minimum standards required for health and safety should be the same for all classes of residence, whether one family, two family or multi-family dwellings. The requirements for health remain the same in any type of residential building.

and adequate room for freedom of movement to and from buildings in order that an optimum degree of health, convenience and sound economy may be secured in dwelling and working places. The term general welfare includes, of course, the reasonable protection of rights and values of property.

While the actual needs of the inhabitants of buildings in respect to sunlight and ventilation are impossible to measure with any degree of accuracy, it seems reasonable to suggest that human beings require for health: first, that every room they occupy for any considerable part of each day should have direct access to the outer air; second, that at least two of the walls of buildings should not be overshadowed by adjacent buildings; and third, that a percentage of every block or lot used for residence sufficient to meet the normal needs of the inhabitants should be available for recreation.

Although the unknown factors in connection with the measurement of the space needed for traffic to serve a given density of building probably are not so many or so complex as those connected with the space needed for light, they are sufficiently numerous to make it ex-

ZONING: PRINCIPLES AND PROPOSALS

(2) Business buildings may have less space about them for light and air than residential buildings because of the greater opportunities they present, as a rule, for artificially overcoming deficiencies in natural light and ventilation.

(3) Higher standards than the minima for health and safety may be applied, within wide variations, where there is public demand for something better. For instance, a group of owners in a neighborhood may demand an amount of open space about buildings in excess of the minimum that is decided to be essential for health, such as for large garden or court space in single family residence areas. This demand may be considered to depend on a conception of general welfare under which the preservation of pleasant open surroundings is necessary for the aesthetic satisfaction of the majority of citizens occupying the particular neighborhood.

(4) Apartment house districts should be definitely zoned in neighborhoods where there are wide thoroughfares and ample public open space, and they should be prohibited in single family districts, particularly those that have narrow streets.

(5) Where existing private restrictions are satisfactory, and reasonable under the police power, they should be given permanence by zoning.

(6) Zoning should be as permanent as is practicable. Changes or departures from zoning regulations should be made only in the public interest or because of absolute necessity. Greater permanence and freedom from complexity in zoning can be accomplished if it is based on principles and not on financial expediency or on undue subordination of health and social welfare to rights of property. Permanence is desirable to insure among other things the protection of the investor who has complied with zoning regulations.

(7) The variety of conditions in a city makes it difficult to standardize zoning on simple principles and with but a few classifications. It is obviously desirable, however, to make classifications as broad and as few as possible.

(8) While allowances must be made for the need of adapting height and bulk regulations to differences in uses of buildings in various areas, it is inconsistent to permit the coverage of land to be greatest where the height is greatest when, logically, the opposite should be the case.

(9) Zoning, building and tenement laws which regulate building uses, densities and heights should be based on the best practicable standards that can be secured, but, except to the extent necessary to comply with these standards and with legal requirements, such laws should permit reasonable variation and freedom of action.

(10) Owners of land in one part of a city should not be given privileges that injure the property of other owners. It is unjust to permit adjacent owners to do different things and to enjoy benefits to the injury of each other. For instance, every owner should be required to make his fair contribution to the light enjoyed by himself and his neighbors.

(11) All areas outside those where exceptional densities and heights are now permitted should be restricted to the fullest extent that is practicable, and the general height and density standards outside these areas should conform to the requirements of health, safety and general welfare, and be unchangeable in any direction that would lower these requirements. Where excessive coverage of land or cubage of building already exists in parts of such areas it should be reduced when reconstruction of buildings takes place.

(12) Building codes should be entirely rewritten in accordance with modern ideas and under skilled advice.

It may appear from the above statement of principles that they unduly stress the objective of health in zoning, and do not appear to take account of questions of

GUIDANCE OF BUILDING

economy. Our conception of what is economical relates to necessities for efficiency of the human being as well as necessities for his existence. In that concept agreeable and attractive surroundings to buildings, even beyond what is necessary or desirable for health, may fit in with an economic demand in a highly civilized community. Education is raising the economic demands in modern times in regard to appreciation of orderly growth and beauty.

ECONOMIC FACTORS IN CENTRAL AREAS

The most important economic factors which should govern the distribution of building bulk were referred to in the Regional Survey¹ and may be summarized as follows:

(1) The density of building that is economically sound is that which can be maintained without excessive cost for locomotion in all its forms. The questions of what bulk pays best in relation to a given cost of land, or what height is made possible by invention of new methods of building construction are of secondary importance. To ascertain what is an ideal degree of concentration of building, we have first to discover what is the degree of concentration that can be most efficiently and economically served by railroads, transit lines and streets. Anything which exceeds that degree of concentration is excessive from an economic point of view. One of the greatest needs in New York City and the surrounding Region is to follow the making of the Regional Plan with the preparation of a carefully worked out estimate of the extent to which means of locomotion can be provided, in the future, to supply the needs of any given degree and character of concentration of buildings and population. What is required is a full and continuous investigation and a carefully prepared analysis by public authorities of the relation between transportation, transit and traffic, and different degrees of building density and different kinds of building uses. The making of this estimate would involve large expenditures and a continuous process of inquiry over a period of years by each of the more populous cities in the Region.

(2) The physical characteristics of the New York region do not afford a sufficient excuse for excessive concentration in any of its parts, for instance in Manhattan, because in the first place it is probably more economical to overcome these obstructions by the erection of bridges and tunnels than to overcome the defects of congestion, and in the second place there is adequate land space to provide for all urban growth without overcrowding of any part.

(3) The forces that will continue to make New York grow will be the continued effectiveness of its transportation facilities to serve industrial and residential functions and the attainment of a better balanced distribution of these facilities and functions.

(4) The degree of light and access to outer air that is necessary in buildings for health is also economically desirable, as it is one of the best means of maintaining property values.

The foregoing factors together lie at the root of maintaining adequate and stable land values which should be higher in the aggregate in proportion as the distribution is evenly balanced and a maximum efficiency thereby obtained. Had the growth of the Region been planned with these factors in view, however, the peak

¹Regional Survey, Volume VI, pages 87-121.

ZONING: PRINCIPLES AND PROPOSALS

values now created by excessive concentration, particularly in parts of Manhattan and Brooklyn, would never have been reached.

Maintenance of Locomotion.—We have seen that the proportion of land allowed to be covered by buildings need not and should not be greater than 40 per cent, and we know that when this coverage is exceeded and buildings are erected to a greater average height than 10 stories, as in parts of Manhattan, the only practicable solution is to widen or double deck streets. Double decking is an artificial contrivance to increase traffic space in relation to building bulk where the ground space provided



Courtesy of the Aetna Life Insurance Company

A MAJOR ECONOMIC ACTIVITY CARRIED ON IN SPACIOUS SURROUNDINGS
Air view of the Aetna Life Insurance Company's new building, Hartford, Connecticut.

is inadequate to meet the needs of a district. Probably if an estimate could be made of the increased income obtained by groups of owners in certain districts, as a result of exercising their privilege to erect higher and bulkier buildings than the streets can serve, without double decking, and this could be set against the cost of congestion plus the cost of the remedy in double decking, there would be a balance in favor of more stringent zoning.

We repeat that any bulk of building based on a greater coverage than 40 per cent of gross area, or a greater average height than 8 to 10 stories, will probably prove in time to be uneconomic. It is impossible to predict when such a condition is likely

GUIDANCE OF BUILDING

to arise, but it is obvious that as the areas of highest densities increase in size, the cost of providing the facilities for rapid movement into and out of these areas, as well as of maintaining the facilities for circulation within them, will increase. The question is when this increased cost will bring about diminishing returns from the intensive use of the land.

Conditions and tendencies in Manhattan indicate that such a time is coming and that there are limits, from an economic point of view, beyond which even Manhattan cannot go in burdening the community with the cost of transit lines, elevated streets, tubes, bridges and tunnels to meet the combined demands of: (a) excessive density of building; (b) the high degree of concentration of retail trade, commercial activity and cultural facilities existing in a main center serving 11,500,000 people; and (c) of the convergence of through traffic which may accompany that density and concentration. It is inevitable that these things together will create needs for the enlargement of street capacity in New York beyond what can be obtained on existing levels or without expensive overground and underground facilities.

The factor that has the wider influence and can be controlled most effectively is that of excessive density of building. Reasonable restriction of this density would result in great benefits to the community apart from its effect in lessening concentration of traffic; whereas it is improbable that anything can be done to control commercial activities in the interest of traffic movement that would not cause injuries in one direction as great as the benefits obtained in another.

One suggestion that has been made is that Manhattan cannot develop a system of transit in combination with a system of widened and double decked streets that will serve more than twice the present bulk of building.¹ It may be that the limit of cost in transport will be reached before that bulk is attained, and that it will be found more economical to spread out into Staten Island, Queens and New Jersey than to go further up in the air in Manhattan. As no great city has ever exceeded an average of five stories in an area as large as Manhattan, it has yet to be proved to what extent Manhattan can exceed this height and maintain its circulation and values.

We have to accept the fact now in process of realization that the financial, Grand Central, and Pennsylvania Station zones of skyscrapers will constitute masses of buildings above the 10 story average in height, with occasional towers rising 600 or 800 feet high on 25 per cent of the lot area.

Supply and Obsolescence of Buildings.—The economic forces that may tend to lessen excessive densities are not only those related to the cost of extending facilities for transit and traffic, to which we have referred, but also in respect to the difficulties due to lack of flexibility in limiting the supply of floor space to the demand, and in dealing with changes of use of great skyscrapers when they enter the obsolescent stage. In this connection the late George B. Ford in a recent monograph said:²

¹ Regional Survey, Volume VI, page 77.

² BUILDING HEIGHT, BULK AND FORM, Harvard University Press, 1931.

ZONING: PRINCIPLES AND PROPOSALS

"The astonishingly quick turnover in skyscraper buildings, the average life being reckoned currently at twenty-five to thirty years, should certainly make us pause. The newest building with more attractive working facilities crowds out its older neighbor and pushes down its rentals."

The Regional Survey has shown that there are periods of serious over-production of office and loft space even in Manhattan, due partly to the difficulty of keeping the supply within control when so much space is included in one building. This is also borne out in a statement of the Building Owners and Managers Association of New York to the effect that in July, 1930, there was enough office space in skyscraper areas to supply all needs for two years.¹ A survey of 291 buildings showed that there were 2,000,000 square feet of vacant space in 97 existing buildings in the Grand Central zone; 800,000 in the downtown financial section and 500,000 in the Plaza section.² While this space existed, it was indicated that another 3,500,000 square feet were in course of construction for occupancy in 1931. The percentage of vacancies was not serious in the downtown financial district, being well below five per cent, but the following were above 10 per cent: City Hall district, 10.9 per cent; Grand Central district, 11.8 per cent; and Plaza district,² 25.4 per cent.

The enormous advantages of the skyscraper, many of which have been pointed out in the Regional Survey, are being lost by reason of over-density of skyscrapers. The difficulties connected with over-supply are greatly increased by reason of the amount of dark space that is erected. It is the dark rooms that do not rent. The condition of too rapid obsolescence is due largely to the conversion of well lighted buildings into darkened buildings by new skyscrapers being crowded around older skyscrapers.

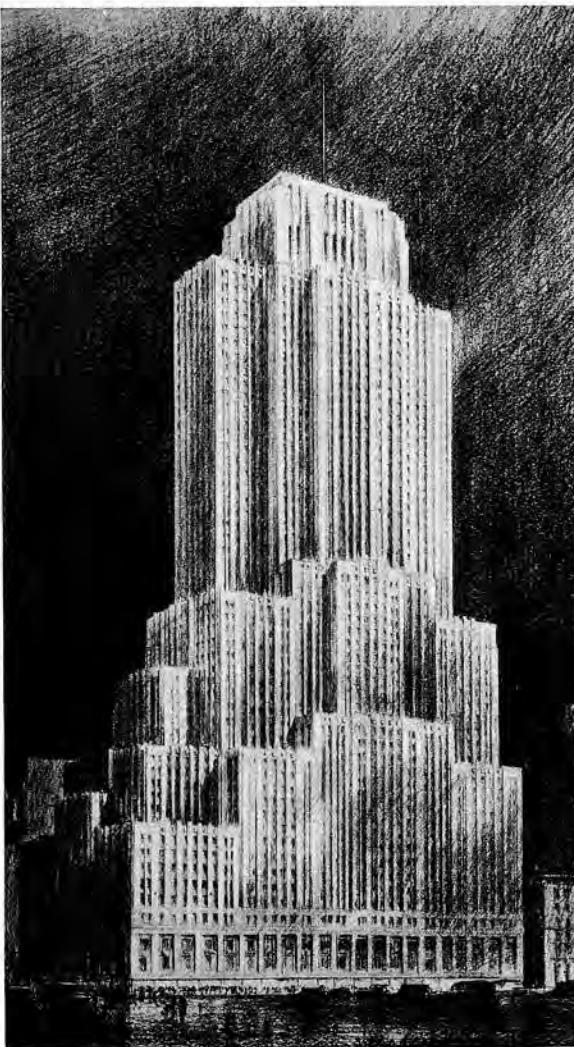
It is the greed of getting too much floor area on the land that causes the production of large quantities of dark space and conversion of light space into dark,—difficult space to rent at a profit outside the financial district. It is reasonable to assume that owners of high buildings would gain if, as a result of saving in costs of construction, they could reduce the percentage of vacancies and enjoy the maximum rents for what they have to offer. It is on this principle that the Empire State Building has been designed, and builders generally should welcome rather than discourage zoning standards which, in reducing densities, would at the same time make building more profitable.

With regard to obsolescence, it is obvious that changes in fashion, or custom, or in movement of centers such as have taken place in the various uptown movements in Manhattan will continue. It is obvious, too, that in two and $2\frac{1}{2}$ times height districts the older buildings will continue to suffer from being overshadowed by new buildings. As high buildings suffer from these changes and at the same time from

¹ *Journal of the Real Estate Board of New York*, August, 1930.

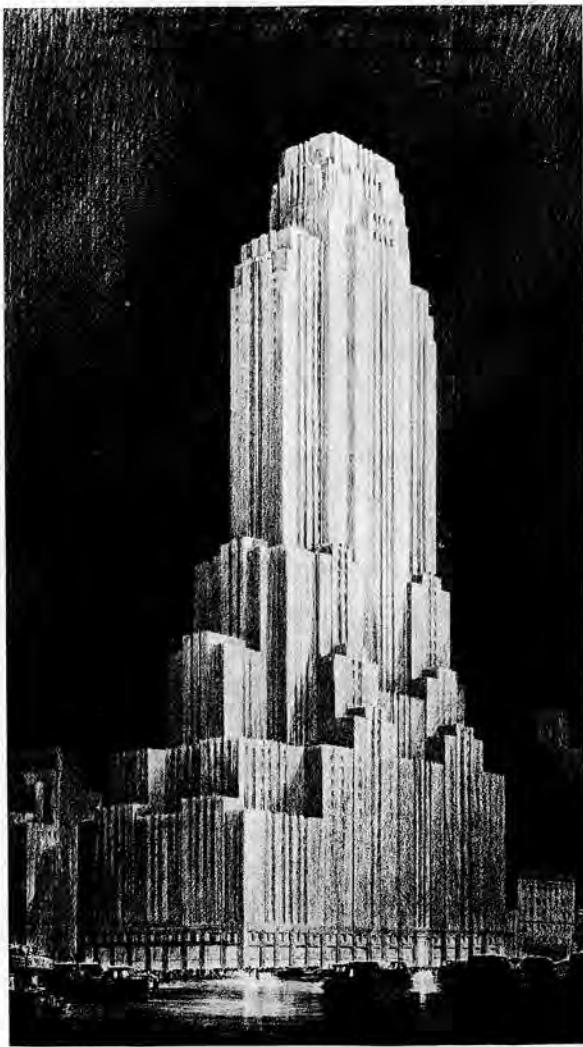
² The district centering around 57th Street, extending from 50th Street to 62nd Street.

GUIDANCE OF BUILDING



Shreve, Lamb and Harmon,
Architects

A



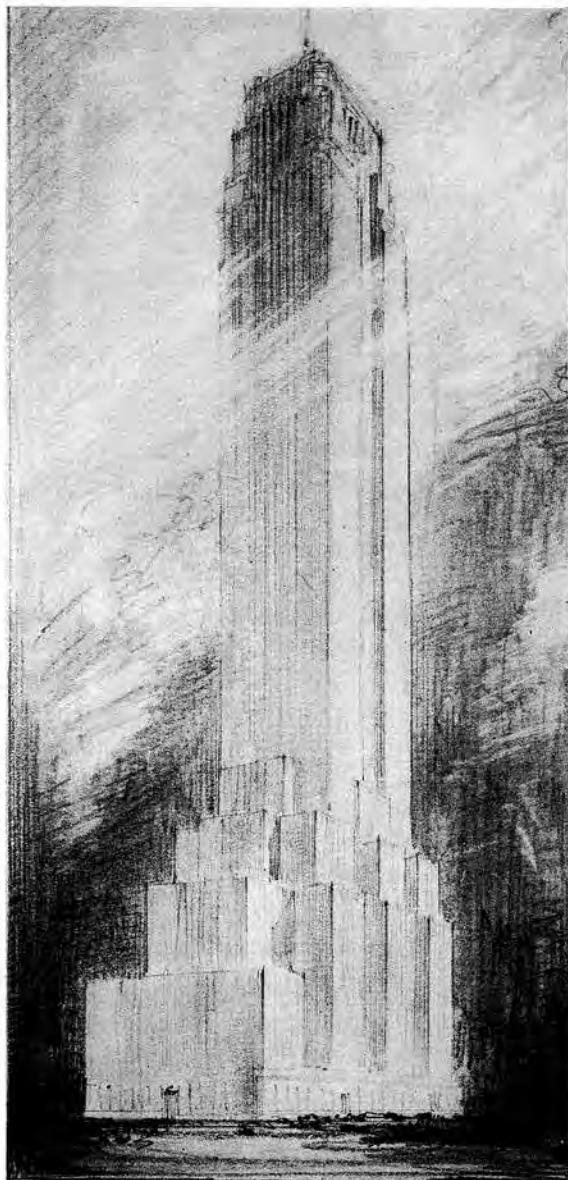
B

THE EVOLUTION OF THE EMPIRE STATE BUILDING—THE GREATEST SKYSCRAPER

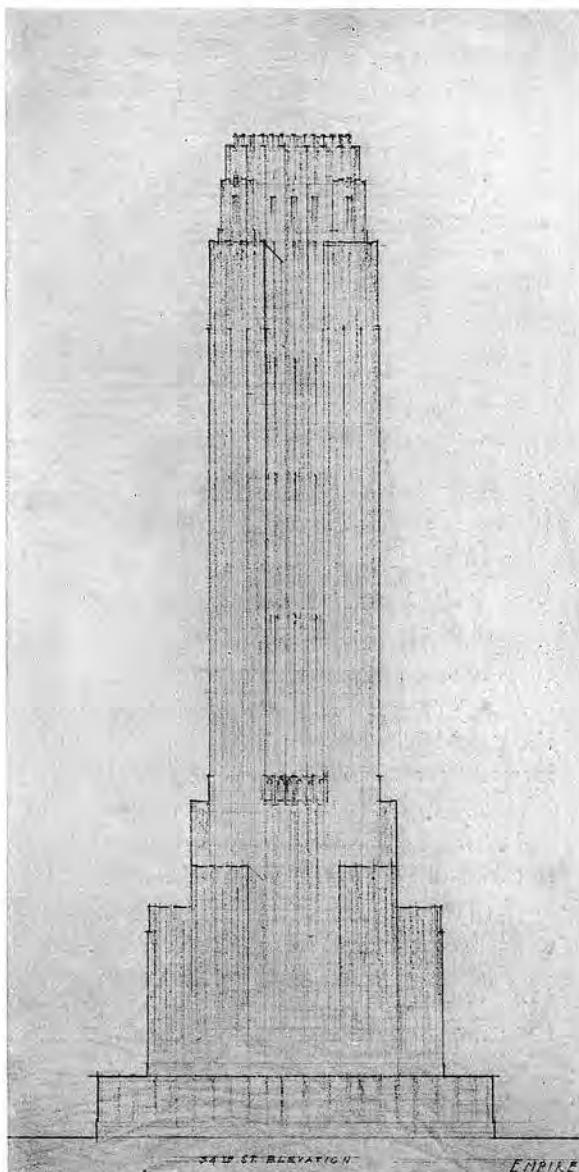
Four studies showing (from A to D) the transition from a plan for a loft building of great bulk and moderate tower to the final design which is, in effect, all one great tower standing on a five story base. For a view of the completed building see page 186.

depreciation, it will be impossible to reconstruct them to obtain as good advantage in respect to light as they had when erected. Even if they are adaptable for a new type of use it may not be profitable to remodel them, owing to their darkened situation. The only hope of profitable reconstruction in such cases will be by demolishing large numbers of buildings and erecting taller skyscrapers on blocks surrounded by open streets. This will not be financially sound when deterioration of a district occurs. The time has not yet come when the effect of this obsolescence can be appraised to a proper extent, but it would appear to be much greater with high than with low buildings.

ZONING: PRINCIPLES AND PROPOSALS



C



D

Courtesy of the
Architectural Forum

Land Values.—From an economic point of view it is also of importance to bear in mind that:

- (1) The *value* of land for building is in proportion to the advantages it possesses in respect to:
 - (a) Accessibility to the greatest number of people, this accessibility involving ease and facility of movement to and from and within buildings for all purposes;
 - (b) Extent of desirable concentration; that is, the highest degree of concentration that is practicable without injuriously affecting health, safety, or convenience of movement; and

GUIDANCE OF BUILDING

- (c) The factors of organized preservation or creation of amenities, or of custom and tradition, such as those that have made sites on Fifth Avenue so much more valuable than the almost equally accessible Third Avenue, or as have resulted in the transformation of Park Avenue from low to high values after the electrification of the New York Central Railroad.
- (2) The *price* of land created by densities that injure health and create congestion may represent a temporary local gain to the injury of real values, which must have as their basis a reasonable and proper density for general welfare, in terms of health, safety and freedom of movement.

Basic Standards for Zoning

As zoning proposals in a regional plan have to deal with the standards that should apply to large groups of districts of the same character, and not to separate districts, we have to consider what is the most appropriate classification of districts in the New York region into groups for purposes of presenting our proposals.

In the New York region we find the following broad classification provides the best basis:

(1) *Open suburban or undeveloped areas*, where it is still possible to apply adequate zoning regulations in combination with planning.

(2) *Close suburban or intermediate areas*, where land is mostly developed with buildings but where the height permitted for business buildings at the street line is not over one times the street width and it is still practicable to limit coverage of lots to 80 per cent or less.

(3) *Sub-central areas*, where land is partly developed with large business or apartment buildings and existing zoning laws permit such buildings to be erected to a height greater than one times but not in excess of $1\frac{1}{2}$ times the width of streets.

(4) *Central areas*, where many skyscrapers exist and business buildings are permitted to be erected to a height greater than $1\frac{1}{2}$ times the width of the street and to occupy over 80 per cent of the lot.

These groupings broadly define what we have in mind, and are sufficiently precise for purposes of discussing general standards.

OPEN SUBURBAN AREAS

In suggesting standards for open areas we assume that all undeveloped or partially developed land within the suburban areas of cities and villages should be planned and zoned together. We also assume that there should be much strengthening of zoning regulations beyond those that now exist, partly to accomplish the extension of the scope of zoning in connection with land utilization,¹ and partly to permit the adoption of such standards as are suggested herein for controlling densities and heights. Zoning in undeveloped areas in particular should be a constructive part of a community plan and should not be a modified form of the regulations applied to areas already built upon.

¹ See Regional Plan, Volume I, pages 376-377.

ZONING: PRINCIPLES AND PROPOSALS

What Are Ideal Standards?—In zoning open suburban areas there is nothing to hinder the application of ideal standards if once a decision can be reached as to what is ideal. In spite of all the investigations we have made, and the fact that we regard health as of most importance in determining bulks and densities of buildings, we cannot say that we have been able to arrive at an ideal standard for purposes of health. If we consider the desirability of sunlight penetration alone it appears that the ideal dwelling would be one that had a depth of open space on all *four* of its sides equal to two times the height of the building and that no part of it should be more than two rooms deep. But there is no proof that the degree of sunlight thus obtained is absolutely essential to health. Sunlight is only one factor. Living conditions appear to be more healthful in New York City, where there is good sanitation, than in some rural areas where there is poor sanitation but great spaciousness.

In seeking health for the majority who cannot afford expensive homes, there has to be a compromise between obtaining spaciousness about buildings to secure sunlight, on the one hand, and obtaining compactness of buildings to get good sanitary conditions at reasonable cost and reduction of the fatigue of travel, on the other hand. Again, in face of the difficulty of determining an optimum for health, it is not reasonable to sacrifice unduly the known advantages of convenience, social amenity and economy of development, as factors in general welfare produced by fairly compact building, for unknown advantages of having sunlight in every room for the longest part of each day that is physically practicable.

Hence we consider the ideal minimum to be one which provides the best practical combination of light (including sunlight), sanitation (including paved streets and yards), convenient proximity between dwellings, and reasonable economy; and not one which considers either sunlight penetration or economy alone. In other words the standards we suggest will not be found to be ideal from any one point of view. What we conceive them to represent is the ideal for general welfare when all factors are taken into consideration and the factor of health is regarded as of primary importance.

The standards are suggested as ideal minima for *average* types of building and are not appropriate for expensive types of single and multi-family dwellings.

Those who can live in expensive houses or apartments can obtain, if they so desire, the best sanitary conditions along with the space needed to give ideal amounts of sunlight in all rooms. The same high degree of spaciousness, however, cannot be provided along with the other health requirements in the cheaper houses. The spaciousness that is generally practicable is indicated in the summary of standards which follows, and should be sufficient to permit, in new developments: (a) all dwellings to have direct sunlight in a substantial part of rooms used for habitation during daylight hours, and adequate space for outdoor recreation for the inhabitants;

GUIDANCE OF BUILDING

and (b) all *office buildings* to have the degree of natural light necessary to enable work to be carried on without the aid of artificial light during the greater part of a normal working day, and the space necessary for parking vehicles incidental to the use of the buildings. These conditions, together with good sanitary facilities, can be obtained without excessive cost for development, or lowering of land values.

Without entering into details of method or precise dimensions for specific application, we suggest the following as the principles which should govern zoning policies in open suburban areas. We deal first with coverage and yard restrictions, and second with height and cubage restrictions.

Coverage and Yard Requirements:

(1) No land should be built upon to a greater extent than 40 per cent of the gross area of any district. With a normal allotment of street and park space, this would probably be obtained by limiting the area of occupancy of lots to an average of 60 per cent.¹

(2) Land occupied by small houses, whose use may at some future time be changed to permit the erection of apartments or business buildings, should be zoned so as to prevent undesirable density from occurring as a result of redevelopment coincident with the change of use. (In the evolution of cities, districts of small houses with gardens are gradually threatened with the danger of conversion into apartment or business districts. The reverse process rarely happens. The open space required in the later, more intensive, development should be fixed before the change of use is imminent.)

(3) Under the comparatively ideal conditions possible in open suburban areas, and when essentials only are considered, apartment buildings should have the same light, direct ventilation and space for movement, per family unit, as the single family residence.

(4) Open space on dwelling or apartment lots should not be less than 50 per cent of the lot area nor less than one square foot of open space for each four square feet of the gross floor area of the building. For outlying dwelling house and apartment zones the open space minimum should be 60 per cent and not less than one square foot for each two square feet of gross floor area.

(5) Business buildings should not cover more than 60 per cent of the lot with the same street area as residential buildings, but should be permitted to cover up to 70 or even 80 per cent if the street area is increased in proportion as the open space on the lot area is reduced.

(6) No part of a building used for residence should be more than two rooms deep, except that projections may be built out from the main wall on the front or rear to a depth not exceeding 10 feet and a width no greater than 25 per cent of the building; and all habitable rooms should have direct access to the outer air by a window or windows with an aggregate surface of not less than one-eighth of the floor area. (This is a most vital provision. Height and density restrictions may fail, in themselves, to give adequate light to rooms. With 50 per cent coverage the light conditions may be worse than with 70 per cent coverage unless the depth of buildings is restricted, in the main, to two rooms.)

(7) Front, side and rear yard space should be required for all residential buildings, and either front or rear yard space for all business buildings.

In many residential areas there should be uniform and definite front yard space of a prescribed minimum. On the other hand, where residential buildings face wide boulevards it may be desirable to require nearly all of the available space in side and rear yards. In the case of business buildings having

¹ See page 147 ff.

ZONING: PRINCIPLES AND PROPOSALS



Courtesy of the American City

HAMBURG, GERMANY

Comparatively high coverage of land, with uniformly low buildings.

one frontage on wide streets it may be desirable to have all the yard space in the rear so as to enable the rear as well as the front of the building to have a good angle of light; but in the case of those buildings that are erected on lots running through from street to street all the space would have to be in front yards.

Thus width and character of streets, particular uses and location of buildings, and other local factors will determine the proper yard requirements in each district. But, above all, the size and location of yards have to be related to the regulations fixing the area of occupancy and angle of light to buildings. Subject to the latter requirements being adequate, much freedom can be given in regard to the distribution of yard space.

There are certain essential considerations, however. Among them are the following:

- (a) When front yard space has once been determined in a residential area it should not be reduced in case of conversion of such area to business use. (Although front yards cannot at present be obtained for purposes of street widening, it seems reasonable to suppose that in course of time it may be practicable to require an owner of business premises to provide front yard space for purposes connected with his business, so as to prevent

GUIDANCE OF BUILDING

encroachment on the public highway for private uses. Moreover, the considerations of health and safety that make front yards desirable in residential areas are equally applicable to many business areas.)

- (b) Corner lots should have yards fronting on both intersecting streets, but it may be necessary to reduce the depth of the exterior side yard to half the front yard requirements for the adjoining lot.
- (c) Side yard requirements in particular should be fixed in relation to the proposed type of construction. For instance, wooden buildings should have wider side yards than fireproof buildings, as a measure of safety.
All buildings above three or four stories (or 40 feet) in height should be fireproof. The side yard for fireproof multiple family buildings should vary with the height.
- (d) Rear yard standards should vary according to the angle of light requirements at the rear of buildings, as fixed by the height and cubage restrictions.
- (e) Whatever the restriction of coverage of lots may be, not less than 10 feet in depth of yard space, at right angles to the rear of each building, should be required to be left open. (This is necessary to secure rear open space on shallow as well as on deep lots, but normally this minimum would be much increased in residential areas.)

(8) All loft, department store and office buildings should be required to have rear access from lanes so as to provide off-the-street loading and unloading space. The suggested requirements as to coverage, yard space, heights and cubage make it unnecessary to require special loading and unloading space within the building, although this will be necessary where provision is not made for adequate space in yards and lanes.

(9) Public garages and filling stations should be permitted in business or retail districts only under variances granted by a board of appeals, which should have power to require adequate setbacks and protection of adjacent property. A front yard 40 feet deep should be required wherever practicable for entrance roads, gasoline pumps and parking. Gasoline pumps should be set back at least 20 feet.

(10) Private motor garages accessory to residential buildings should be subject to special regulation so as to confine them to strictly private uses.

(11) In addition to area of occupancy, height and yard requirements, all residential areas should be subject to area-per-family requirements.¹

Height and Cubage Restrictions:

(1) Residential buildings should not be higher than half the width of the clear open space at front and rear.

(2) The front walls of business buildings up to the first setback should not be higher than one times the width of the street, with a maximum height of 60 feet; and the height of the rear walls up to the first setback should not be higher than twice the depth of the rear yard. Above the first plane of height as determined by the width of street and the depth of the rear yard the buildings should be set back one foot for each foot of additional height, except on the 20 per cent of the lot on which towers may be erected.

(3) Towers should be permitted without limit as to height on 20 per cent of the lot area, with setbacks on all lot lines so as to secure the best angle of light obtainable on all four sides. No tower should be permitted to be less than 25 feet from any lot line.

¹ See Chapter VIII, pages 205-214.

ZONING: PRINCIPLES AND PROPOSALS

(4) The maximum cubage in business districts measured in floor areas (inclusive of towers) should not exceed the equivalent of six to seven floors equal in size to the portion of the lot permitted to be built upon, or from 50 to 59 cubic feet for each square foot of lot, the actual maximum to be determined according to size of community and other local conditions. (See Fig. 20 A)

If the foregoing proposals were used as a basis for zoning they would probably result in making average land values higher than they would otherwise become. It is reasonable to suppose that the improved distribution of building which would result would give land a higher average value. Obviously, for one thing, business buildings would be spread over wider areas. This would mean that more land would be used and consequently more land would have a building value for business uses. Traffic movement would be more easily maintained after development took place, thereby preserving the value of accessibility to buildings. Also the assessable value would be limited naturally to the potential use of the land under the greater restriction of density, thus permitting taxation to be more equitably distributed.

None of these general standards are in conflict with higher standards in present zoning practice. They suggest the basis on which detailed zoning should be made, but not alternatives to the existing methods and standards where these aim to secure the lowest possible building densities, or to preserve existing open uses.

Particular areas, such as those devoted to high class single family residence, would still have to be safeguarded by special regulations to suit local demands and to preserve amenities in the public interest.

Whatever conditions could be obtained that would be better than those secured by the minimum standards suggested would be all to the good. For example, the existence of the minimum requirements would not prevent more ample spaces being obtained about buildings in single family districts than are suggested here for residential buildings in general. In the case of business buildings, the preservation of an angle of light of 45 degrees apart from towers would result in keeping most buildings comparatively low and in providing ample open areas surrounding them.

The proposed restrictions would have the effect of preventing premature changes and consequent blighting of districts, as there would be no profit in changing prematurely from one use to another. In residential buildings the combined open space and two room depth requirements should secure ample light.

CLOSE SUBURBAN OR INTERMEDIATE AREAS

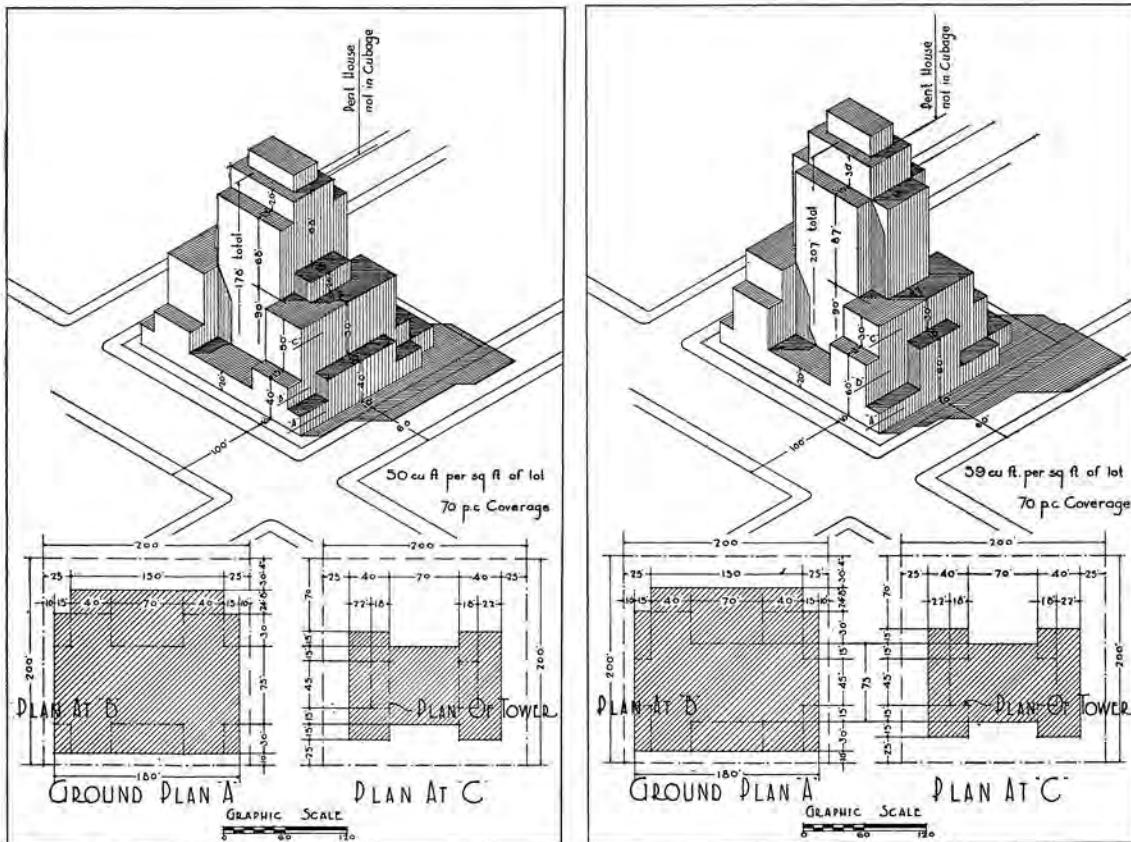
It is customary to think of zoning in connection with land that is already built upon more than in connection with open suburban land. Because of this there is a tendency to assume that zoning is a method of preventing changes in existing conditions rather than a constructive method of guiding future development. By suggesting standards for the most open areas first we have been able to ignore this assumption. We also get a better starting point for considering how far sound

GUIDANCE OF BUILDING

principles can be applied in areas that are built upon than would be the case if we followed the usual practice of considering first what zoning can be applied in the most central areas and then proceeding to work out its application to open suburbs.

There are a variety of different conditions in intermediate areas. One group of neighborhoods in these areas comprises those that approximate in character the open suburban neighborhoods, with parts that are more or less built up with single family houses. In this group, as a rule, it will be practicable to apply the same ideal requirements as in open suburbs, with occasional variations to meet conditions that do not now conform to the requirements.

A second group of neighborhoods comprises: areas where apartment buildings have penetrated into dwelling districts; areas used for business or mixed business and residence adjoining highways; and large, fully developed areas of apartments and business buildings occupying 50 to 80 per cent of lots and varying in height from one-



Open suburban areas (smaller communities)

FIG. 20 A

Open suburban areas (larger communities)

ENVELOPES OF TYPES OF BUILDINGS RECOMMENDED FOR BUSINESS CENTERS

(See note under Fig. 20 B, page 174)

ZONING: PRINCIPLES AND PROPOSALS

half to one times the width of streets. In this second group, which excludes main centers and sub-centers, there are few existing conditions that would preclude the application of better standards than are now contained in zoning plans, although whatever is done must be a compromise with the more ideal proposals for open suburban areas.

As far as practicable any increase of density over what is now permitted should be prevented and such changes as are needed should be made more in conformity with the standards of areas that are undeveloped than of areas that already have a higher density.

Large parts of all cities and villages in the Region have the characteristics of intermediate areas. In the greater part of New York City itself the present law restricts heights of buildings to one times the width of the street. Out of the 298 square miles in the city, 189.2 square miles, or 63.5 per cent of the total area, is in one times districts,¹ which are confined to the four boroughs of The Bronx, Brooklyn, Queens and Richmond. This great area is still capable of being controlled so as to secure fairly adequate light, air and freedom of movement about buildings.

In general the standards suggested for open suburban areas should be applied, as far as practicable, to all parts of intermediate areas where in fact, or under existing zoning requirements, the area of occupancy and the height are less or no more than are suggested in these standards. Otherwise existing densities and heights should continue to be restricted as at present and no future changes should be allowed which would increase the area of occupancy or permitted height in the more compact areas.

We suggest the following standards as a basis for future revision of zoning regulations in these areas:

Coverage and Yard Requirements:

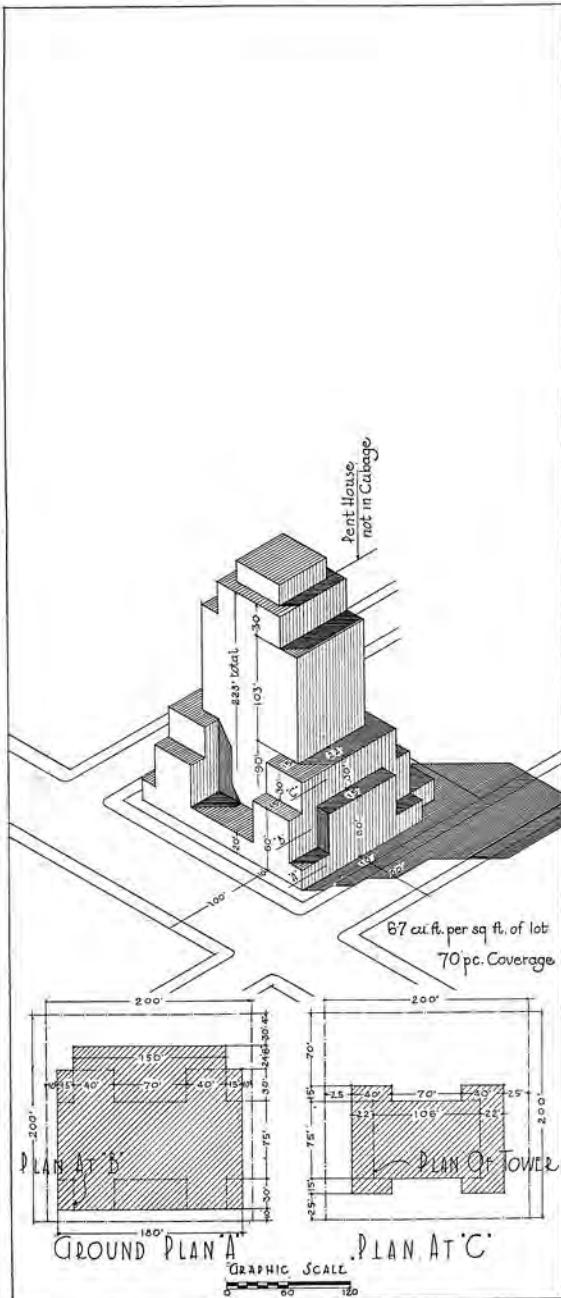
(1) In residential districts the minimum open space requirement should be 50 per cent of the lot area for buildings not over eight stories in height, and not less than one square foot for each eight square feet of the gross floor area of the building. Under this scale a 12 story building would have 60 per cent open space. While the above should be a minimum standard for intermediate residential areas, there are large portions of such areas where the open space requirement should be one square foot for each four square feet of gross floor area. This will mean 50 per cent open space for a four story building, 60 per cent for six stories, and 75 per cent for 12 stories. This will insure provision for open space on the lot roughly proportionate to the population density.

(2) No part of any building used for residence should be more than two rooms deep, with provision for projections of a prescribed depth and width, and reasonable window space with direct access to the outer air. (See requirement 6, page 168.)

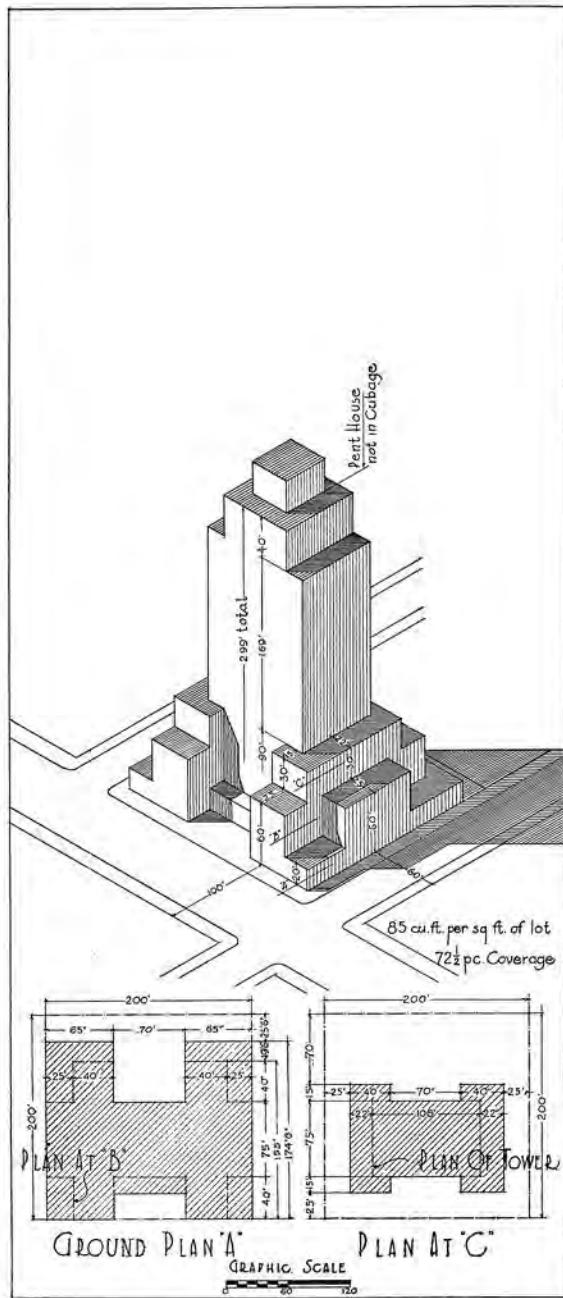
(3) In business districts the area of occupancy should not exceed 70 per cent of the lot, except that corner lots may be permitted to have a coverage of 80 per cent for a width of 50 feet measured from the boundary of the side street.

¹These figures were compiled in 1926, but changes in the zoning map since that date have not materially affected the results.

GUIDANCE OF BUILDING



Close suburban or intermediate areas (smaller communities)



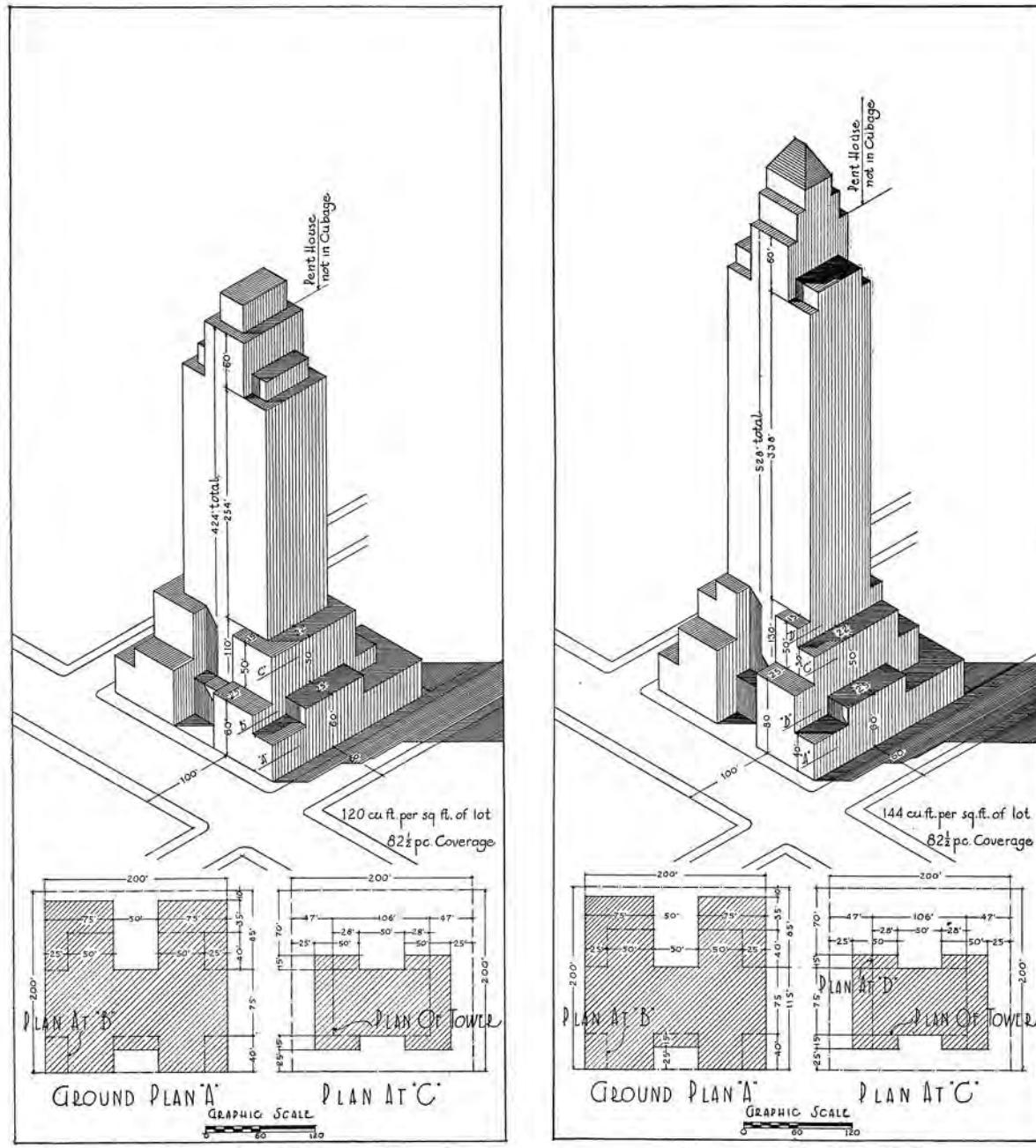
Close suburban or intermediate areas (larger communities)

FIG. 20 B

ENVELOPES OF TYPES OF BUILDINGS RECOMMENDED FOR BUSINESS CENTERS

The isometric drawings in Figs. 20 A, B and C show possible heights and setbacks of buildings in accordance with the recommendations for different types of area. There is room for considerable variation in arrangement of space, but in the drawings it is assumed that present tendencies will encourage the placing of bulk in towers rather than in the lower parts of buildings, and that more open space than is customary under existing conditions will be preserved at corners. The inclusion of corner lots gives a higher coverage than is suggested for interior lots.

ZONING: PRINCIPLES AND PROPOSALS



GUIDANCE OF BUILDING

In the areas to which this proposal applies it is assumed that the coverage does not now exceed 70 per cent. Where it does, provision should be made for non-conformity. In no case should present coverage be increased above present limits, except where it is less than 70 per cent.

(4) Zoning regulations regarding front, rear and side yards should be greatly strengthened in the C, D, E, and F districts in New York City.

For example, in the C (multi-family) districts a rear yard at any given height should be increased to six inches in least dimension for each one foot of such height. The depth of the rear yard should be, in such districts, at least 10 per cent of the depth of the lot. Front yard requirements need to be increased in E and F (single family) districts, from 10 to 15 feet in the former and 15 to 20 feet in the latter. In the C (apartment) and the D (two family and apartment) districts, front yards of 10 feet should be required.

(5) The variations which now exist between the densities permitted in different districts in New York City are too great. There appears to be little logic in permitting multi-family houses to have from 50 to 80 families with an average lot area of only 500 square feet per family, whereas the E and F districts usually have 4,000 or 5,000 square feet to a family. The combined limitation of the sizes of the lots and the number of families permitted to the acre, as suggested later, will assist in securing a better distribution of open space about all residential buildings.¹

(6) The yard space in business districts should be allotted to the front and rear of the building in such manner as to secure the best distribution of light to the building that is practicable, and secondly to fit in with the existing buildings and other local conditions. Where practicable, business buildings that front on one street only should have rear access for purposes of loading and unloading and a depth of open rear space on each lot of 30 feet. Where circumstances require buildings to be erected on the rear parts of lots, the equivalent open space should be provided in front yards or courts.

(7) Where, owing to existing conditions, it is impracticable to obtain adequate space for off-the-street loading and unloading in the case of loft, department store or office buildings, adequate loading space should be required within these buildings. An area of 200 square feet of loading space should be required for each 10,000 square feet of floor area in loft and storage buildings and hotels. (Thus a building area of 10,000 square feet covered with a 10 story commercial building would require 2,000 square feet of loading space.) Loading space within buildings should have a clear height of 12 feet. This two per cent requirement may not be practicable to apply to any building having less than about 8,000 square feet of floor space.

Height and Cubage Restrictions:

(1) In all C and D (two family and apartment house) districts and the E and F (single family) districts in New York City, the height limit should be reduced in general to 40 feet, except for fireproof apartments. All buildings should have a minimum street and yard space on two sides sufficient to secure a 45 degree angle of light.

(2) On all streets of 60 or more feet in width, business buildings should be restricted in height to five stories or 60 feet up to a first setback; above this level buildings should be required to be set back, on front and rear lot lines, to a minimum depth of 25 feet; and the architect should be permitted to dispose of the floor area as he chooses up to an additional height of 60 feet. Above the total height of 120 feet, towers should be permitted to any height on an area not exceeding 20 per cent of the lot, with a setback of 25 feet on front and rear lot lines and 10 feet on side lot lines.

¹ See Chapter VIII, pages 205-214.

ZONING: PRINCIPLES AND PROPOSALS

(3) The maximum cubage in business districts measured in floor areas (inclusive of towers) should not exceed the equivalent of eight to 10 floors equal in size to the portion of the lot permitted to be built upon, or 67 to 85 cubic feet for each square foot of total lot, the actual maximum to be determined according to size of community and other local conditions. (See Fig. 20 B, page 174)

(4) Public garages and filling stations should conform to the same coverage restrictions as other business buildings, but should be set back from 30 to 40 feet, with the gasoline pumps at least 20 feet from the curb line. Existing public garages and filling stations that are temporary in construction should be required to conform to these requirements after a period of five years.

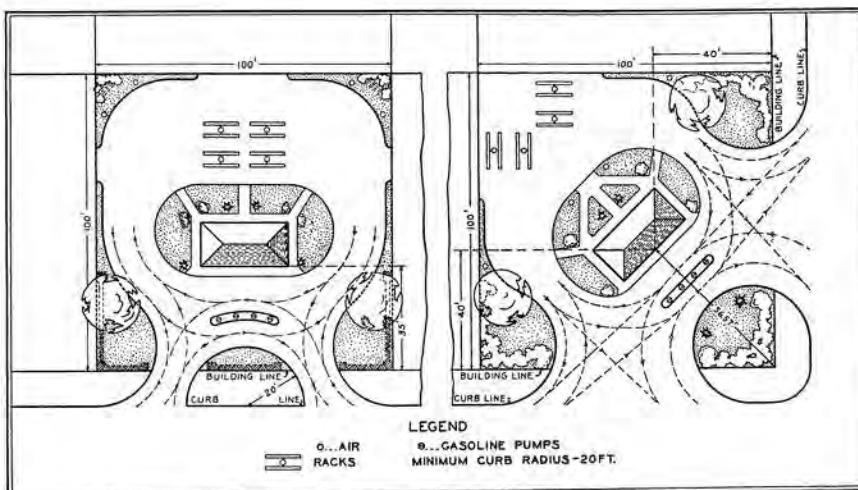


FIG. 21
DIAGRAM ILLUSTRATING DESIRABLE LAYOUT FOR GASOLINE FILLING STATIONS

SUB-CENTRAL AND CENTRAL AREAS

The conditions common to, as well as those that are different in, sub-central and central areas need to be referred to before we suggest some general principles for future control.

We use the term *sub-centers* in connection with three groups of areas. These are: first, the secondary centers in New York City, such as Harlem in Manhattan, Fordham in The Bronx, and Queensboro Plaza in Queens; second, the group of districts which are off-shoots of or adjacent to the three greatest centers, namely, the financial and midtown sections of Manhattan and the chief business section of Brooklyn; and third, small parts of the centers of the largest cities in the environs, such as Newark, Jersey City, Bridgeport, Paterson and Yonkers.

Any statement of principles with respect to the problems of either the sub-central or central areas must be even more general than with respect to the less developed areas. In more or less degree all the sub-central and central areas are already overbuilt or are subject to such influences that they are likely to be overbuilt. In parts of the sub-central areas the one times height restriction applies, but

GUIDANCE OF BUILDING

the prospects of increase of heights in these districts are such as to make them potentially, if not now, parts of the Region where greater heights are permitted.

It has to be admitted that there are parts of the City of New York where existing congestion of building is proudly accepted as both a necessity and an advantage and where it is hopeless to obtain much, if any, reduction in existing building densities. This necessarily limits our opportunities for proposing satisfactory standards for areas where excessive concentration has not already taken place.

Taking New York City alone, the sub-central areas include those where buildings are now allowed to be erected to a height greater than one times the width of the street but not greater than $1\frac{1}{2}$ times. These comprise 36.9 square miles or 12.4 per cent of the city where the limit is $1\frac{1}{4}$ times, and 58.4 square miles or 19.6 per cent where it is $1\frac{1}{2}$ times the street width. The central areas comprise a total of only 13.5 square miles or 4.5 per cent, of which a meager 1.4 square miles or 0.5 per cent is in the $2\frac{1}{2}$ times districts.¹ The total sub-central and central areas in the city cover only about a third of its area.

The greatest importance attaches to what can be done in sub-central areas, for two reasons. The first of these is that they present greater opportunities than the more central areas for preventing further increase of density, because of the fact that their present densities and land values are lower. Another reason is that in the sub-central areas there is a larger proportion of the population living in multi-family dwellings, while, with the exception of certain waterfront areas in Brooklyn Heights and along the East River in Manhattan, there are no districts that may be regarded as permanently in use for multi-family dwellings in the central areas. Whatever other residential use remains in the central business areas may be ignored, as it is a temporary or secondary incident in their business use. In the sub-centers, on the other hand, the greater part of all sections is likely to continue to be devoted to multi-family residence and the popularity of the apartment dwelling, together with the slogan of "walk to work," will go on adding to the forces that concentrate population in these areas. This will be so perhaps in spite of all the logic and sound thinking that favors decentralization over wider areas.

The main existing defect in both these types of area is excessive coverage of land rather than excessive height of building in itself. In Manhattan and other central areas conditions of coverage are such that restriction of height has become the primary consideration, although in the intermediate areas it should be secondary to restriction of coverage.

Apart from the area of open land occupied by streets and parks, from 70 to 100 per cent of the ground space in Manhattan either has been covered with building or can be so covered under the law. We may assume that the land that will continue to

¹ Based on height restrictions as of 1926. See footnote, page 173.

ZONING: PRINCIPLES AND PROPOSALS

be left vacant will be no more than the owners of property are willing to leave, rather than what the city requires.

It is where coverage is greatest that the demand to erect the highest buildings is strongest, and is most encouraged by the high price of land. Where opportunity no longer exists in central areas to secure adequate *ground* space on private land, we have to determine the lowest general plane of height of existing buildings above which we can secure *overground* space. For instance, if this general plane could be fixed at 60 feet above ground, with wide setbacks above this level, it would be possible to get fairly adequate light in future buildings.

To refer to a different matter, where adequate street space cannot be obtained on the ground level, means will have to be adopted, at enormous expense, to increase overground space for traffic by means of double deck highways and other artificial improvements. But in this case the overground space obtained is of no value from the point of view of obtaining light for buildings.

Presently we shall have to acknowledge our inability to formulate any practicable program for reducing densities in the central business districts in any substantial degree. But we have to make the same acknowledgment in respect to many multi-family districts in the sub-central areas. In some respects the latter are more crowded in relation to their use, and present greater difficulties in securing reduction of density than the former. In crowded tenement blocks land is more costly for the purpose for which it is or can be used than other land in the city. In addition there is the fact that any remodelling of such districts involves loss rather than gain to owners of property. Hence the difficulty of getting a reduction of density as part of any process of reconstruction. From now on we shall refer to zoning objectives rather than requirements, for the reason that our suggestions will have a lesser degree of applicability for the central and sub-central areas than did those for suburban and intermediate areas. All our proposals may be regarded as objectives which can be realized in



Weiss, Dreyfous and Seiferth, Inc., Architects

THE NEW LOUISIANA STATE CAPITOL, BATON ROUGE
An excellent example of a building well within the requirements proposed for sub-central areas.

GUIDANCE OF BUILDING

some places and not in others, and with varying degrees in different places, but in the most crowded centers the breach between what is ideal and what is practical widens so much that they almost cease to have any connection.

Objectives in Sub-Central Areas:

(1) Those parts of sub-central areas that approximate in character intermediate areas of highest density, that is, where the area of occupancy does not at present exceed 65 per cent for residential or 75 per cent for business buildings, should be restricted to prevent increase of coverage.

(2) Business districts where the coverage exceeds 65 per cent for residential or 75 per cent for business buildings should be restricted so that the area of occupancy cannot be increased above 70 per cent and 80 per cent respectively. Corner lots for a distance of 50 feet from side streets may be increased to 90 per cent coverage.

(3) Subject to the conditions regarding coverage, the same principles should apply to location of yard and court space as in intermediate areas. Apartment buildings should have rear yard space of a minimum depth of 30 feet and business buildings, 20 feet. Where it is essential for two buildings to be back to back, space must be provided in front yards and courts. Special provision should be made for the sizes of courts.

(4) Loft, department store and office buildings should be required to make such provision as is reasonable and practicable for loading and unloading space in the form of front or rear yard space or, alternatively, within the buildings.

(5) The height limit of all buildings should be reduced to 60 feet up to the first setback, i. e., equal to one times the width of the street on 60 foot streets. Above 60 feet in height, apartment and business buildings should be set back 25 feet front and rear, after which they may be permitted to rise an additional 80 feet in height (total, 140 feet). Apartment buildings should not be more than two rooms deep, with reasonable allowances for projections, and have setbacks sufficient to provide one foot of horizontal space for two feet vertically.

(6) Above 140 feet, towers may be permitted to be erected to any height on any area not to exceed 20 per cent of a lot, with a setback of 25 feet on front and rear lot lines and 10 feet on side lot lines. (In sub-central areas that are immediately adjacent to central areas the wishes of owners of property should influence the placing of land in the central areas.)

(7) In general the objectives should be to secure that the main lower part of all buildings shall have a uniform height of 60 feet up to the first setback; shall have abutting open space in front of all buildings equal to, or greater in depth than, the height of buildings; and shall have abutting open space at the rear of buildings equal to, or greater in depth than, the height of residential buildings or than two-thirds of the height of business buildings. Above the 60 foot height it is assumed that reasonably good light would be obtained by means of the combination of setback and cubage restrictions.

(It should be noted that these objectives go much further in the way of restriction than the New York City Multiple Dwelling Law and zoning regulations, which permit multi-family dwellings to be erected to a height of 1½ times the width of the street or 90 feet on 60 foot streets.)

(8) The maximum cubage in business districts measured in floor areas (inclusive of towers) should not exceed the equivalent of 10 floors on the total area of the lot or alternatively 120 cubic feet for each square foot of lot. (See Fig. 20 C, page 175) Where practicable, however, the maximum should be that for the larger communities in intermediate areas. (See Fig. 20 B)

ZONING: PRINCIPLES AND PROPOSALS

(9) Provisions as to public garages should conform as nearly as is practicable with requirements for intermediate areas.¹ Those already erected and not of a permanent character should be required to conform to improved standards within a period of five years.

We come finally to a consideration of the *central* districts, that offer the least opportunity for regulating density within sound economic limits. Far too much of the argument that is indulged in with regard to economics of high buildings and the difficulties of controlling them relates to conditions in the small areas in which greatest densities are already permitted. The consequence is that the more important part of the problem which relates to conditions in the more extensive open suburban, intermediate, and sub-central areas is lightly passed over or considered to be of small significance.

In some important features the problem in the central areas differs from that in all others and it should be considered independently. We have alluded to the fact that residence is, as a rule, subordinated to business and in places does not exist in the central areas, whereas it remains an important element in all other areas. Another feature is that the health factors in the central areas have become secondary to the financial factors. It is not too much to say that the degree to which we can obtain healthful conditions in these areas is governed by the degree to which we can obtain financially sound conditions in relation to land values already established on a very high level.

The two most important economic factors are light and locomotion. The problem is to determine how we can obtain the optimum of light that gives property the highest returns and the means of locomotion that will maintain the highest degree of accessibility.

With regard to light, it has been demonstrated that the greater the possibility and security of obtaining natural light, the higher the rentals obtained. Isolated tower buildings, for instance, possess these in high degree. The great demand for

¹ See page 171.



Morris and O'Connor, Architects

THE NEW UNION LEAGUE CLUB BUILDING

The volume of this building is 113 cubic feet per square foot of lot, on 98 per cent coverage.

GUIDANCE OF BUILDING

office space has made it possible in the past to lease dark rooms in the financial district, but in some cases as much as 100 per cent more rental is obtainable for light as compared to dark space. Reservation of wide courts and yards may pay indirectly in helping to create these higher rentals.

As our surveys have shown, there is much confusion of thought regarding the effect of high building densities on locomotion. This is due partly to the tendency to compare buildings that are unlike, for instance low department stores with high office buildings. It is also due partly to the assumption that vertical locomotion within a building is a form of relief of horizontal locomotion outside a building. This might be the case in some degree if the workers in the building had both their residences and shopping facilities within it. Otherwise it is not true. This confusion of thought is illustrated by the statements made by the builder of the Bank of Manhattan Trust Company Building. Speaking at a meeting in Brooklyn in December, 1930, Colonel William A. Starrett, the builder, claimed that the skyscraper does create traffic but not congestion. Of course this may be claimed for every building of

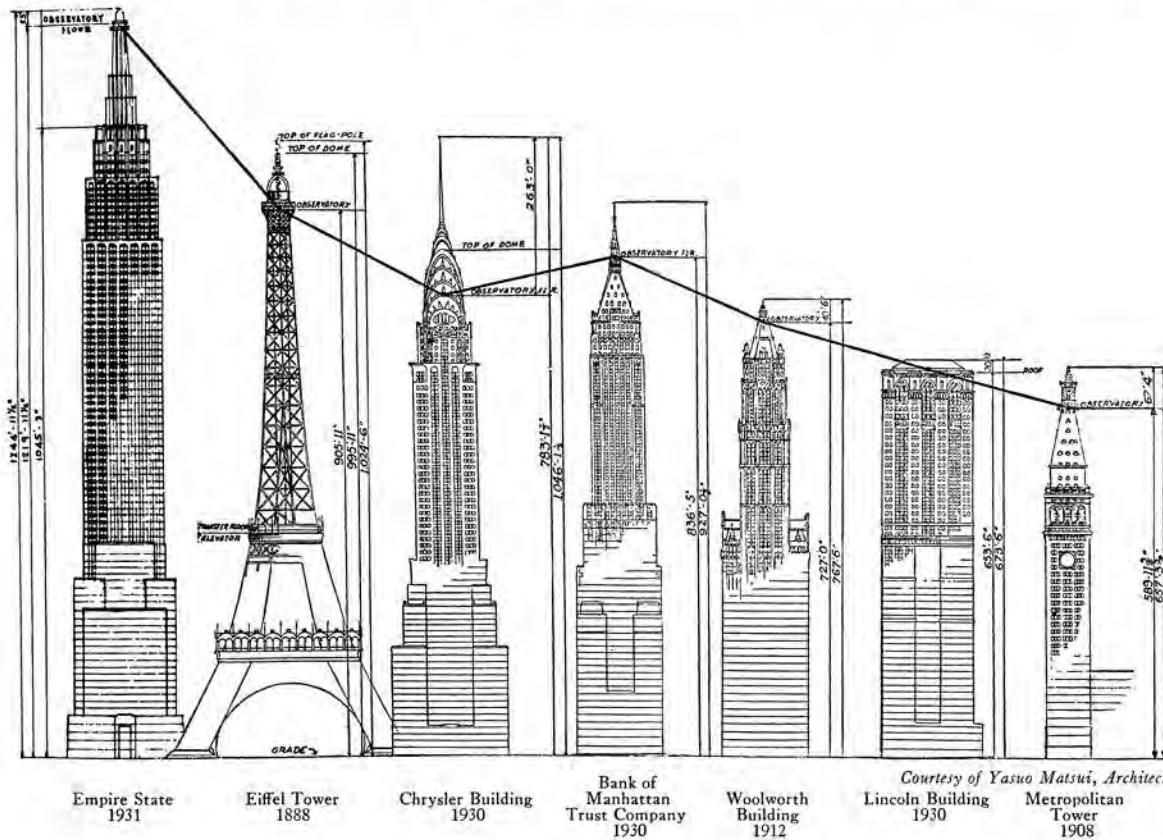


FIG. 22
COMPARATIVE HEIGHT OF LEADING SKYSCRAPERS

ZONING: PRINCIPLES AND PROPOSALS

whatever height. But as the skyscraper creates traffic, too many skyscrapers in one district are bound to create traffic congestion. Mr. Ralph Walker, the architect, claimed that the greatest causes of traffic congestion were parking of vehicles and unloading of freight. But this cause is first an effect of congested building. Mr. Walker put his finger on the point that always needs to be emphasized when he said that the solution of the problem of congestion was decentralization with more skyscrapers, that is with skyscrapers more widely separated.

The two most plausible arguments used to justify the present skyscraper intensity are: first, since land prices in skyscraper districts are so high, the erection of the highest buildings that are physically practicable is necessary to meet the cost of land; and, second, because some owners have already been allowed to build up to the present highest intensity on their lots, the owners of adjacent lots must be granted the same privilege. The validity of both these arguments depends, however, on whether the continued high density can be made to pay. If it cannot, land prices will adjust themselves to the intensity that can be made to pay and the second question will cease to be a factor.

Many authorities have proved that on land costing \$300 to \$600 per square foot, 60 to 80 story buildings are necessary to obtain a full economic return.¹ But some of these claims are accompanied by the statement that to make buildings pay there must be a potential increase of land value of 100 per cent during the life of the building. Are we to assume then that the \$600 per square foot shall increase to \$1,200 in the twenty-five or thirty years of life of the skyscraper? It is stated that buildings below Chambers Street that are over thirty years old are operating at a loss. It seems that the highest skyscrapers now being erected use the land to the maximum capacity and that wherever this is the case there is no potentiality of increase of land value to offset the depreciation of the building.

The factor of waste bulk at the base of skyscrapers is another feature which is not now sufficiently taken into account in estimating the economic returns from high buildings. The mistake of putting such a large proportion of office space on the lower floors, where rentals per square foot are frequently but half what they are on higher floors, is being realized. The Empire State Building has been set back on its lower floors as a result of the owners' recognition of this mistake.

Enormous gross returns have no meaning in deciding whether a building pays or not. The building that pays best is the one that produces the highest return on the capital invested; and this may be a building of low height and coverage.

These observations are brought forward here to justify our claim that the main requirement in the central areas, in the interest of property, is to restrict the cubage in the lower parts of buildings, and to obtain the best possible conditions in respect

¹Regional Survey, Volume VI, pages 88-95.

GUIDANCE OF BUILDING



Drawn by Arthur J. Frappier

George B. Ford, Architect

SUGGESTION FOR ARRANGEMENT AND SETBACKS OF APARTMENT GROUPS IN NEW YORK CITY

These groups were designed by the late George B. Ford for an open situation in New York City with the object of suggesting the best treatment under the existing law. Combining, as they do, generous setbacks at the ground level with the heights permitted under the existing law, they afford an interesting alternative to what would be permitted under the proposals set forth in these pages, which call for a general setback in all buildings at a 60 foot height, with a maximum of 80 feet in exceptional cases.

to light for the towers. This involves lowering the first plane of height and reducing the area of coverage. Incidental to the latter, it involves having more rear yard or front court space for all buildings.

Improvement in the central areas depends mainly on the voluntary action of owners of property and on their initiative in obtaining collaboration from the city in reducing densities.

There are only two definite directions in which improvement can be obtained in the central areas. One is by amending the zoning law so as to obtain the maximum restriction that the owners will approve in reducing heights and area of occupancy; and the other by carrying out elaborate physical improvements in the areas of highest density, such as the widening of streets or the building of streets and sidewalks on two levels.

ZONING: PRINCIPLES AND PROPOSALS

The latter question is dealt with in Chapter X of this volume. We shall now indicate a few objectives that should be aimed at in amending the zoning law in central areas:

Objectives in Central Areas:

(1) Not more than 80 per cent of interior lots or 90 per cent of corner lots should be built upon. (The areas to be considered as corner lots in computing coverage should be limited in size to 50 by 100 feet.)

(2) Rear yard space should have a minimum depth of 20 feet between the rear wall of a building and the lot boundary; this should be increased by one foot for each 10 feet by which the building height (exclusive of tower) exceeds 135 feet. Where a building is erected on a lot extending through from street to street, thus preventing the reservation of rear yard space, an equivalent space should be provided in inner and outer courts and in front yards as may be best for obtaining light in the building. Existing standards for widths and sizes of outer courts should be increased.

(3) The standards already adopted by owners in such buildings as the New York Life and Empire State should be used as a basis for improved standards.

(4) All buildings should be restricted in height at the street line and in the rear to five stories or 60 feet for interior lots. The height may be increased to $6\frac{2}{3}$ stories or 80 feet where buildings face wide avenues. A height of 80 feet may also be permitted on a corner lot but should not extend more than 50 feet from the side street.

Above the respective heights of 60 and 80 feet, all buildings should be set back 25 feet on front and rear lot lines and 10 feet on side lot lines; after such setback they should be permitted to rise 140 feet, making the total height of the second plane from the street level 200 feet.

(5) On 20 per cent of the lot a tower should be permitted to be erected up to any height with a setback of 25 feet from front and rear lot lines and 10 feet from side lot lines. (In the present New York ordinance there are no regulations as to the location of the tower in relation to adjacent property, although the area provisions require that any wall of the tower with windows giving light to rooms in which people work shall have a court of a specified size.)

(6) The maximum cubage measured in floor areas (inclusive of towers) should not exceed the equivalent of 12 floors on the total area of the lot or alternatively 144 cubic feet for each square foot of lot. (See Fig. 20 C, page 175) (This cubage represents about seven-tenths of the cubage of the New York Life Building, but is much higher than the average below Fulton Street, Manhattan, where the "equivalent prism" height of existing buildings is estimated at 8.4 stories, and the average cubage about 100 cubic feet per square foot of lot.)

PRACTICABILITY OF STANDARDS

However radical the foregoing proposals may appear in comparison with what is now permitted in the New York City law, they are not higher than the standards followed by many developers of land, and their adoption would permit as much concentration as is desirable from all economic points of view. It has to be admitted, however, that their possible effects on small lots and on preventing an adequate return to be obtained on land that is already very high in price may prevent their realization in any adequate degree.

GUIDANCE OF BUILDING

With its comparatively large amount of overground space and low height, the New York Life Building has about 205 cubic feet per square foot of lot, as compared with the 144 cubic feet we suggest as a desirable maximum. Notwithstanding, how-



Photo by William Frane

IN SPLENDID ISOLATION

The Empire State Building, with ample light and air. Height of base at 6th floor (first setback), 73 feet; height of shaft (21st floor), 250 feet; height of tower, 1,055 feet; highest point, 1,245 feet.

ever, the difficulty of application and the fact that certain well located and well designed buildings have a much greater cubage, we regard the 144 cubic feet maximum as the proper objective in restricting building bulk in the central areas in future. Should it be impracticable to obtain what we regard as essential limitations in order

ZONING: PRINCIPLES AND PROPOSALS

to secure reasonable light and air in the central areas, some compromise should be made in the direction of securing that the setback principles adopted in the New York Life and Empire State buildings will be followed in all future buildings. An isometric view (Fig. 23) is shown of the kind of building which might be permitted under such a compromise. In this case the height of the base is limited to 60 feet on interior lots, and 80 feet on corner lots; two shafts rise to heights of 140 feet above the first setback and the tower is permitted on 25 per cent of the lot. The coverage represents 80 per cent on interior lots and 90 per cent on corner and "island" sites.

As already stated, the average height per unit area of building lot below Fulton Street, computed from the top story of each building, is 10.7 stories, but if we consider the average as an equivalent prism it is about 8.4 stories. If 75 per cent of the lots in this district were limited to a height of six stories and 25 per cent were in towers, the latter would need to rise only to 18.6 stories to give the same cubage as at present, namely, about 100 cubic feet per square foot of lot.¹

In the large area of Manhattan south of 59th Street the average height is computed at 6.1 stories. It is here that the greatest part of the two times and $2\frac{1}{2}$ times districts are located. It seems unlikely that the existing skyscraper zones can extend much in size or number. Two choices seemed to be available for us to consider in recommending what was necessary to get the needed restriction of cubage. One was that buildings should be restricted to about 10 stories in height on 80 to 90 per cent of lots; and the other that the walls of the main buildings abutting on the street lines should be restricted to six or eight stories, with setbacks at that height, above which buildings would rise to a plane corresponding to about two times the width of the avenues and with towers covering 20 instead of the present 25 per cent of the lots.

¹ See Regional Survey, Volume VI, pages 58-62 and 66-67.

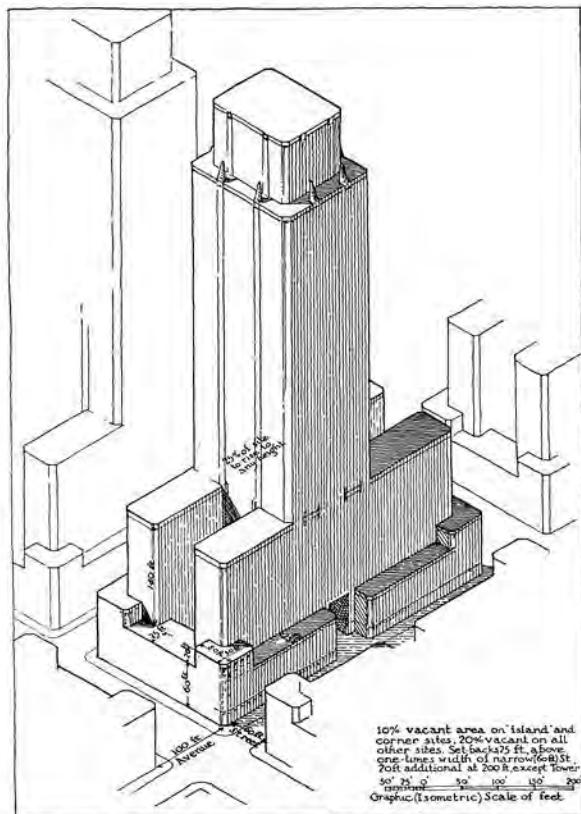


FIG. 23
A POSSIBLE COMPROMISE IN REGULATION OF BUILDING BULK

GUIDANCE OF BUILDING

Subject to such improved regulations, including lower height limits for the greater parts of lots, the more towers that are erected on the proposed limited areas the greater will be the variety in skyline and the openings between buildings for light and air. If 50 per cent of the land is in building lots and a quarter of this were occupied by skyscraper towers, these would cover only 12.5 per cent of any part of the city.

One of the great advantages of these proposals is the opportunity they would give to improve the architecture of the city. As Mr. Ernest Flagg says, "a flat limitation of height is desirable only when the limit is low," as in European cities. A city of comparatively low buildings that emphasize horizontal lines and changes in level of land may be orderly and beautiful, but if buildings are uniformly high the effect is to create dark streets and monotonous gloom. In a city of high buildings the vertical lines need to be emphasized.

The main objection that will be raised to the proposal that any such standards as we have indicated should be applied is that land prices have already risen to the level created by the heights of building now permitted and, therefore, the heights should not be reduced. Undoubtedly some owners of small lots would suffer from requirements that go beyond those in existence.

It is reasonable that owners of land around a great terminus like the Grand Central Station should be able to build with greater intensity than in districts which are more inaccessible; but the stability of the Grand Central zone depends on limiting its outward expansion sufficiently to prevent the high buildings being blanketed by other high buildings and the street movement being clogged beyond endurance. Therefore, the first object of those who own property in the most intensively built areas should be to prevent the extension of the same intensity beyond the present limits.

The standards suggested are reasonable and practicable. Other proposals have been made that go far beyond them. One of these, put forward by Mr. Raymond Hood, the eminent architect, is that instead of restricting heights an effort should be made to promote widenings of streets and separation of tower buildings by large open spaces.¹ Mr. Hood contests the view of those who claim that the solution of the high building is to double deck streets, to set back building lines, and to install overhead and arcaded sidewalks or bridges. He says that this would involve obtaining an almost impossible degree of cooperation between the private owners and the public, and that the expense to the public would be tremendous.

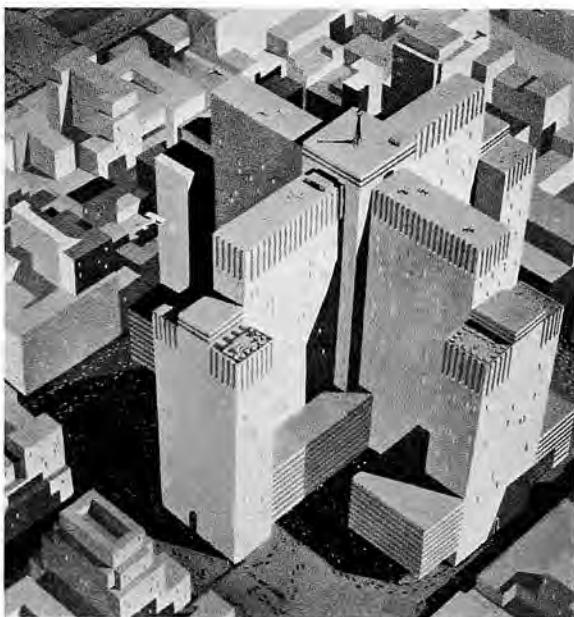
On the assumption that "buildings full of people should bear some fixed relation in floor area to the area of the streets that serve them," he suggests fixing a ratio between these areas of 12 to one, that is, that there should be 12 square feet of floor

¹"A City Under a Single Roof," *Nation's Business*, November, 1929.

ZONING: PRINCIPLES AND PROPOSALS

space permitted for each square foot of adjoining street space. Further, if an owner desired to exceed his allowance, based on the present street width, he would be required to add to the street area from his private lot so as to keep the ratio of 12 to one constant.

Mr. Hood's conception includes provision for second story shops and for apartments on upper stories, with spaces between buildings increased from 60 or 100 feet to 300 feet. There will be general agreement with the objective of Mr. Hood, but there does not appear to be any hope that it can be achieved. Part of it can, if the standards herein suggested are followed.



Raymond Hood, Architect

AN ARCHITECT'S SOLUTION OF THE PROBLEM OF
OBTAINING INCREASED SPACE ABOUT BUILDINGS OF
GREAT BULK

Proposals to secure reduction of heights and bulks by means of special taxation of high buildings also seem to be impracticable. Nor is it necessary if there is proper regulation. In course of time the assessed value of the land for taxation will adjust itself to what it will sell for under restrictions. If cubage is restricted on certain land it will not be assessed on the basis of a greater cubage. Similarly, special restrictions on apartments, as to depth of building or setbacks to secure light and air, that reduce their cubage below that of business buildings, will affect the market value of the land they occupy. Indirectly the lowering of the densities for these more intensive buildings will discourage the destruction of older buildings having a lower density

GUIDANCE OF BUILDING

and thereby keep their assessed land value down to a reasonable relationship to their present revenue-producing value.

PROBLEMS COMMON TO ALL AREAS

There are a few other considerations that apply to all areas, to which we will now allude in conclusion.

Private Open Spaces.—In suggesting standards for coverage of private land it has been assumed that all open spaces required for common or public use should be acquired by the public. No attempt should be made to compel private owners to make up for the deficiency of such public spaces. The space that the property owners should be required to leave free of building on private land is that which is reasonably adequate for purposes that are incidental to the property, such as necessary parking space for loading and unloading of vehicles in business buildings and private recreation space for the inhabitants of residential buildings. These two forms of private space should be provided in addition to and not instead of public streets and playgrounds.

The amount of open space that is actually needed in each group of buildings is subject to a variety of factors which make it difficult to give precise dimensions of the space that should be left vacant on lots for private parking or recreation. We have already indicated, however, the space needed for loading and unloading in loft, department store and office buildings, and have discussed the need of private space about all residential buildings for purposes of recreation.¹ We have also suggested that the amount of ground space that is essential and can be required under zoning regulations to give adequate light and air to buildings will in most areas be more than sufficient for the needs of traffic and recreation. Adequate public open space in the form of parks, athletic fields and playgrounds should be provided *in addition to* recreation space on private lots. The standards of public space requirements are set forth in the report on Public Recreation.

Corner Lots.—The genuine corner lot is one which has two sides facing on streets. It therefore has special advantages of light, air and access, and pays more for improvements than interior lots. It is commonly considered reasonable to permit corner lots to be covered with a higher percentage of building than interior lots. Thus the zoning law exempts the lot from rear yard requirements. Although the result of granting the privilege is to cut off light and air, and perhaps access, from interior lots, yet when it is confined to genuine corner lots it has some justification. But in practice the privilege is used by those who assemble large plottage, who thereby obtain rights to build quarter, half, and whole blocks with full advantage of corner lot concessions. This has been one of the causes of excessive densities and discriminates in favor of purchasers of plottage. When all factors are considered, it

¹ Regional Survey, Volumes V and VI.

ZONING: PRINCIPLES AND PROPOSALS

would not seem to be an unreasonable exercise of the police power to limit corner lots to the same density as interior lots. The least that should be done is to limit any concession to areas of lots that correspond to the original lot size, at the most 50 feet by 100 feet.

Buildings Facing Parks.—Buildings should not be allowed to be higher on streets facing public parks than on other streets.

Orientation of Buildings.—Those who erect buildings with the combined object of providing healthful conditions and obtaining the best financial return should aim at securing the maximum of southern exposure, and next to that the maximum eastern



THE CITY HALL, LOS ANGELES

Illustrating a high degree of overground space due to low base and shaft of building with substantial cubage.

or western exposure, for their buildings. Courts and yards should be located so as to open to the south or toward the southeast or southwest, and in all cases outer courts should be chosen in preference to inner courts.

Temporary Structures.—The problem of control of temporary structures has never been properly faced with a view to preventing private abuses. As an illustration of needs we have the persistent problem connected with the erection of billboards in places where they do much harm to permanent property or destroy the beauties of the countryside. Many cases exist where vacant lots are temporarily used for junk yards to the injury of valuable buildings. They can be regulated by zoning and the uses need not be protected as non-conforming uses.

GUIDANCE OF BUILDING

Non-conforming Uses.—A temporary or non-conforming use should never be extended or enlarged. In the case of non-conforming buildings, alterations made to an extent exceeding 25 per cent of the fair value of the building should result in a requirement that it be changed to a conforming use.

Variances Allowed by Boards of Appeal.—Boards of appeal should never allow variances on appeal unless where unnecessary hardship is proved. Special exceptions under the ordinances should be severely limited.

Freedom for Architectural Treatment.—While zoning regulations must make adequate provision for space about buildings so as to secure good light and ventilation, they should be so framed and applied as to give as much freedom as possible to architects to design buildings suitable for their particular uses. Simplicity of zoning rules and avoidance of detailed requirements outside the main essentials are necessary to give this degree of freedom. In particular the requirements for setbacks should be such as to permit the greatest conformity with rectangular forms of construction so long as adequate overground space is preserved. The rectangular prism remains the most economical framework for a building. But economy of construction is not true economy if the building is not rentable at a profit. As the best lighted space brings the highest rents, this gives the economic justification for wide setbacks. But it is a mistake to make the setback requirements so complicated that the design and construction of setback sections is made unnecessarily expensive. The setback is essential in high buildings and is an architectural opportunity. It must, however, admit of simple, straightforward construction to be economical and therefore permanent.

Difficulty of Attaining an Ideal Distribution of Building Densities.—Finally, the proposals we have made conform to our conception of what will be attainable in the future in the direction of securing an ideal distribution of building densities by means of zoning restrictions. To put forward a program of compulsory restriction that is not likely to be adopted would be injurious rather than beneficial to the community. Even if we should conceive a completely perfect community in its human and social relations it would still be almost beyond human power to plan a perfect system of distribution of uses and densities of building. But certainly there are ideals we could embody in a plan which would bring the city much nearer to physical perfection, and yet they are ideals we cannot hope to attain under the best social and political conditions we can conceive. One such ideal would be to have a common rule for every building that would give it a completely satisfactory angle of light and sun-light. Another would be to obtain, as we suggested in Plan Volume I, the permanent reservation of agricultural land, and of golf courses and other private open spaces, within and about cities.

In the near future at least there is no prospect of attaining such ideals; not, in these connections, by reason of the technical limitations of the planner, nor because of legal difficulties (although both of these are factors in the situation), but mainly

ZONING: PRINCIPLES AND PROPOSALS

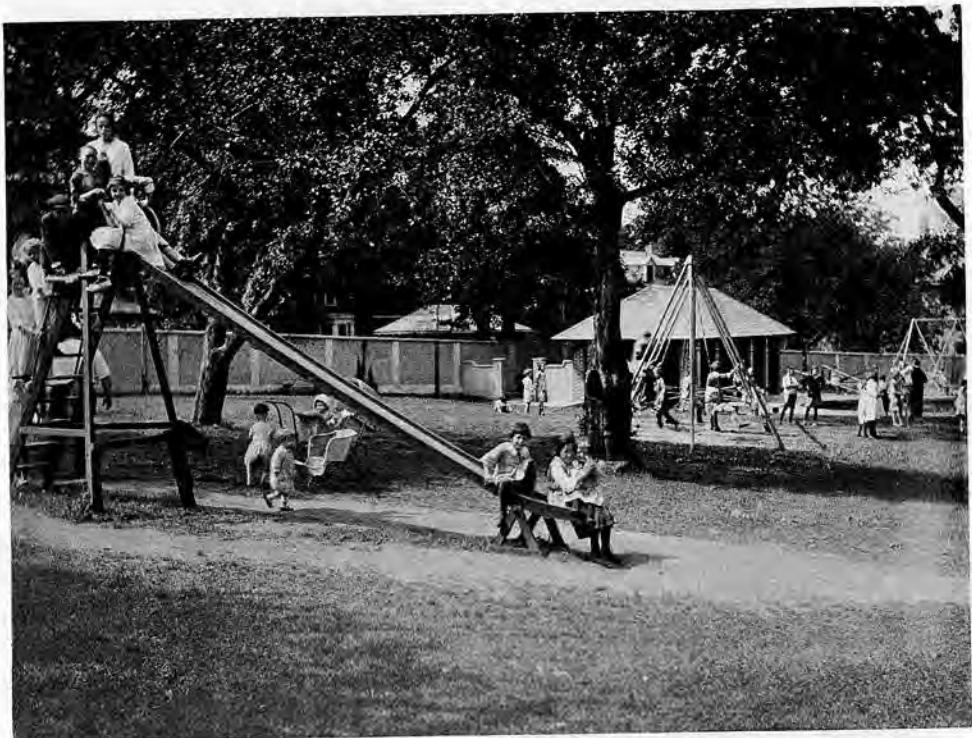
because the complexities of human life and civic growth are such as to make the application of a completely scientific plan unattainable.

To achieve perfection in zoning we would require a perfect adjustment of building densities and distribution of land uses to topography, to means of communication, to exact ratios of light and sunlight, to methods of design and construction, and to numerous other interrelated physical conditions. The adjustment would involve meeting every social demand that elevates human character and protects human well-being, and rejecting every demand that fails to do so. This is speaking of the impossible.

The Regional Plan does indicate what should be, but with the recognized limitations that govern and restrain all human action and prevent it achieving perfection. The limitations of the zoning proposals for the Region must be considered in the light of and in combination with all other planning proposals, and when that is done we can visualize the plan as a foundation for as perfect a community structure as may be.



Photo by William Frange



Designed by Arthur A. Shurcliff, Landscape Architect

THE BURR PLAYGROUND, NEWTON, MASSACHUSETTS
Every residential district should have a satisfactory, easily accessible playground.

VIII. HOUSES AND HOUSING NEIGHBORHOODS

Summary of the Problem

WE HAVE gone a long part of the way toward showing what is needed to improve housing conditions in our proposals for planning housing neighborhoods and for regulating housing development under zoning. What remains to be said is partly a summary and partly an amplification of principles already discussed. All our studies have pointed to the conclusion that the stability of the city depends on good and enduring qualities in the home, and conversely, that the latter qualities depend to an important degree on the planning of the city.¹

FUNDAMENTAL ELEMENTS

Looking backward over these studies we find that there are six elements to be specially considered in making proposals for improving housing conditions, independent of the many secondary but important elements that need to be regulated and controlled by building ordinances and housing codes. The six elements are:

- (1) The sites of the buildings—their sufficiency in area to permit of adequate light and air to the buildings.
- (2) The surroundings of buildings—their agreeableness and freedom from external features that are injurious to the health and safety of the inhabitants.
- (3) The local improvements comprising water supply and drainage services and means of access to and from the dwellings—their planning and economy of development.
- (4) The space for recreation—its sufficiency in area and accessibility to residents.
- (5) The unity of housing neighborhoods—its success in promoting an attractive neighborhood life.
- (6) The transit facilities—their cost as part of the cost of the dwelling and their degree of comfort or discomfort as factors in living conditions.

Most defects in housing have been shown to be primarily due to lack of space,² or some other external quality. Adherence to low standards in connection with the spaces about old dwellings means acceptance of low standards in connection with the spaces about new dwellings. When overcrowded areas are cleared for rebuilding, a new arrangement of building bulks, open spaces, and streets will usually be required, involving some displacement of families originally housed in these areas. Existing

¹See preceding chapter and Regional Survey, Volumes VI and VII. ²Regional Survey, Volume VI, pages 124-131.

GUIDANCE OF BUILDING

congestion cannot be cured by repeating the overcrowding in newer buildings with improved sanitary equipment. There must be reduction in the crowding of families and this requires that, simultaneously with slum clearance schemes, new accommodations be provided on open land in suburban areas. For example, one of the greatest needs is for the city to encourage improved housing accommodations in outlying parts of the city where open land is still available, simultaneously with making possible reconstruction schemes in the center. The trends of population distribution are toward wider dispersal, and it is fair to assume that the most rapid growth will continue to be outside the city.

Most housing evils are seen to have their origin in the original platting of the land and in the first beginnings of building development.¹ Given the right start in planning the site, surroundings, access and recreation facilities, and subject to proper zoning regulations, no slum area need ever be allowed to become long established in a community. Bad building construction in itself will not cause the blighting of a district for any lengthy period. Rebuilding of slums is seriously difficult only where buildings are congested.

The chief difficulties in zoning are the chief difficulties in housing, namely, lack of light, insufficient ventilation, smallness of back yards and courts, excessive height and bulk of building and the conflagration hazard due to congested building.

All these difficulties are due chiefly to insufficiency of space about buildings. Therefore, in the building of the city it is essential to decide what standards are necessary to give adequate space for light in dwellings and circulation of air surrounding them, and then to incorporate and give effect to these standards in law and methods of control. As in the case of zoning, housing standards should be based on the best that can be obtained by planning and zoning undeveloped areas.

Planning, zoning and housing policies have to be determined jointly to secure, *inter alia*, wider and better planned dispersal of buildings, including protection of single family dwelling districts. In areas already built up, including blighted districts, zoning may be used to prevent increase of density or wrong change of use in the event of rebuilding taking place; and in similar districts, the form of a housing scheme may be to reconstruct entirely parts of such districts in accordance with the zoning requirements.

THE PROBLEM OF THE SUBURBS

One phase in the growth of cities that indicates the close alliance of city planning, including zoning, with housing, and the alliance of housing with transit, is the present stagnation of the areas intermediate between the business centers and the outer environs. Although the population is drifting outward, it is doing so along

¹Regional Survey, Volume VII, pages 222-226.

HOUSES AND HOUSING NEIGHBORHOODS

narrow corridors and leaving enormous intervening areas without development. This has been pointed out by Mr. Stanley McMichael as a serious condition from the point of view of the real estate developer.¹ Absence of trading centers is given as a reason for the stagnation, but the real reason is absence of facilities for transit and of planning arterial road communications. Mr. McMichael says:

"Planning the development of property blindly is an economic waste. Buildings sometimes are erected in localities where they have absolutely no chance of earning a fair return because there is no definite reason for their existence there. They are not only a dismal failure themselves but a blight on all surrounding property."



Grosvenor Atterbury, Architect

Photo by Samuel H. Gottscho

STATION PLAZA, FOREST HILLS

The Inn and surrounding stores are all parts of a unified design.

Confirmation of what Mr. McMichael says is contained in a statement of the Harmon National Real Estate Corporation.²

"Mr. W. Burke Harmon says that land values in metropolitan centers increase constantly at the center and the circumference of population but in the intermediate sections they may remain static or increase at a rate slower than population growth. Values in these intermediate sections may even decrease owing to a change in character of the population."

¹ *National Real Estate Journal*, August 9, 1926.

² *New York Times*, August 15, 1926.

GUIDANCE OF BUILDING

The foregoing quotations are significant because of their emanating from real estate authorities, and they indicate a growing realization of the importance of city planning in protecting real estate interests in suburban areas.

One village community on Long Island may be referred to as an example of degeneration due to lack of city planning and zoning. In 1926 the village of "X" had grown up as a residential community, with most of the families living in separate dwellings. The land was first subdivided and sold on the usual rectangular pattern plan. Big profits were made in selling the land by people who incurred no capital



Voorhees, Gmelin and Walker, Architects

Drawing by Chester B. Price

A TELEPHONE BUILDING SUITABLE FOR A RESIDENTIAL NEIGHBORHOOD

cost in providing it with the necessary improvements. These original subdividers transmitted the financial responsibility to the purchaser, and the purchaser in turn, after becoming a voter, to the village. Therefore, as the mayor of the village said, people obtained an exaggerated idea of the value of their property, and gained this idea partly from their failure to appreciate the high cost of improving it. The result was that the budgets for improvements increased to such an extent that they could not pay for them. The \$3,000,000 that was needed to pave the village could have been saved very largely, had there been in force an ordinance requiring the owners of land to provide improvements in advance of development. There are vacant

HOUSES AND HOUSING NEIGHBORHOODS

stores because real estate owners have tried to cash in on business sites that never should have been business sites.

Therefore this public official has decided that what is wanted is a larger population. To get this, he wants apartment houses. As the larger population comes, they will bring with them new responsibilities for the community. Apartment houses will depreciate the value of single family residences; more schools will be needed. The only real benefit that will come will be that the vacant stores will be occupied and the crowding of people will help the retail merchant. But all this benefit for a few will be obtained at the cost of injury to the many. In the long run the community, the home owner and the real estate developer all suffer from this type of haphazard development.

To prevent the evils which are the consequence of such development, suburban and outlying villages and towns must prepare and carry out comprehensive plans which deal, among other things, with the control of building densities and uses, the securing of agreeable surroundings to dwellings both by zoning regulations and the acquisition of public open spaces, and the proper extension and coordination of transit and traffic facilities so as to promote well balanced distribution of buildings.

THE PROBLEM OF THE CENTRAL AREAS

In Survey Volume VI an effort was made: (a) to show the defects of existing housing conditions in the central areas of the New York region; (b) to indicate in a general way the need of improving conditions in order to promote the health, safety, morals and general welfare of the inhabitants; and (c) to outline briefly what a housing policy should include.¹ Once these needs have been determined on right lines a proper basis will have been reached for the development of a detailed program of improvement in city plans and housing schemes. It is futile in this, as in other connections, to set forth an ideal set of principles that cannot be carried out, or any code of doctrine for general application. In housing as in zoning there has to be discrimination between central areas and suburban areas, as well as between suburban areas and country areas, in the matter of standards of open space about buildings, and other features.

For example, while the rebuilding of blighted areas must be dealt with in conformity with a city plan, these areas involve special and somewhat independent treatment. Mr. Irving Lee Block, Vice President of the Long Island Title Guarantee Company, has pointed out² that one of the greatest needs in the City of New York is to rebuild large areas that have become deteriorated and that only by large scale developments can this be successfully accomplished. Whole neighborhoods are involved in these improvements for, as Mr. Block points out, builders cannot obtain

¹Regional Survey, Volume VI, Monograph One, Chapter VII, and Monograph Two.

²New York World, September 28, 1930.

GUIDANCE OF BUILDING

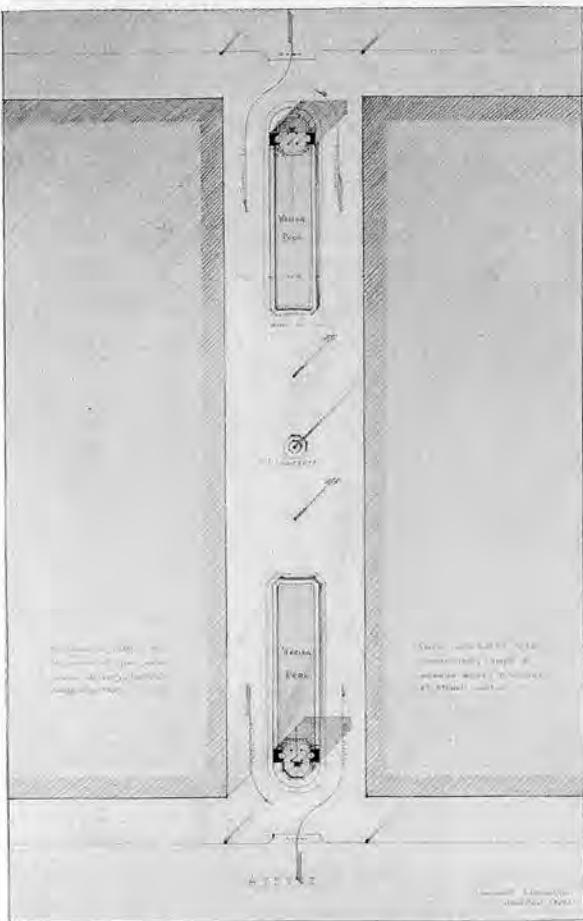


FIG. 24 *Herbert Lippmann, Architect*

PLAY SPACE FOR A TENEMENT DISTRICT

An architect's conception of a cross street closed to traffic and supplied with wading pools and additional play space.

Above—A perspective of one end of the block.

profit from erecting one new building in a blighted neighborhood. The neighborhoods, or at least large blocks at a time, need to be transformed to make the improvement economically sound.

In considering what can be done in the central as compared with suburban areas, this question again recurs, namely, why, if it be true that a certain openness is desirable or necessary for health in the suburbs, should not the same degree of openness be attempted in the central areas in spite of its enormous cost? The answer is mainly that the citizens have convinced themselves that the ideal is unattainable in the center. It is disappointing, however, to admit that what is desirable to secure health and public welfare in one place cannot be applied in another place owing to the existing high density of building and high land values.

The high land values persuade not only poor people but many wealthy people that overcrowding of the land with building is necessary. It has to be conceded, however, that in many instances there is a preference for the conveniences of living in comparatively crowded conditions to the more open conditions of the suburbs or the country. The zoning requirements of many districts occupied by poor people living in small residences represent a much healthier degree of openness in development than exists in many parts of the central areas occupied by wealthy citizens.

HOUSES AND HOUSING NEIGHBORHOODS

Whatever difficulty may exist in securing good standards in cheaper houses, whether in areas already built upon or in those that are undeveloped, there should be no difficulty in obtaining such standards in the dearest houses. Nevertheless many expensive homes in New York are more than two rooms deep, have windows with an angle of light of less than 45 degrees at both the front and rear of buildings, and have no adequate courts or yards to provide an outdoor playground for children.

The problem, therefore, of securing really adequate housing standards in parts of New York City, that is standards of open space to provide adequate light, ventilation and open recreation areas about the cheaper class of houses, is complicated by the fact that such standards are not desired by those who rent or purchase the more expensive classes of houses. The best that would seem to be within reach for the tenement districts in the matter of open spaces about buildings is the comparatively low standard set by the modern apartment districts. While this is the case at present, those who can afford to pay for what they want are demanding more open surroundings to their apartments and homes, and the most wealthy people show the same desire by escaping as frequently as possible from the crowded apartment to a country home.

In any event the fact that the apartments of those who are able to pay high rents do not conform to reasonable standards in regard to space about buildings, should not influence the determination of a housing policy as a guide for securing improved conditions in the future. In these pages we are thinking of the probable requirements of future generations in the matter of standards of residential as of other buildings in the city. What, then, should these requirements be? We shall endeavor to indicate them by a summary of underlying assumptions and specific proposals.

Suggestions for a Constructive Housing Policy

ASSUMPTIONS

Any housing policy for New York City and the Region should be based on the following underlying assumptions:

(1) All dwellings for human habitation should be wholesome, in the respect that they should have ample space about them for light, air and ventilation, as well as be safe and of good construction. It is the function of government to adopt and enforce minimum standards for wholesome housing, or for the reconstruction of unwholesome into wholesome houses.

(2) Remedial and preventive measures to ameliorate or extend housing accommodations must be promoted together and correlated. For instance, the building of new houses in open suburban areas must proceed simultaneously with reconstruction of slum areas in the crowded centers.

(3) The most significant and far reaching defects in housing are those relating to the planning and development of the land, particularly with regard to the insufficiency of space about buildings for air, light, ventilation, recreation and agreeableness of surroundings.

GUIDANCE OF BUILDING

(4) It is needless and unfair to blame the greed of the landlord and the poverty of the tenant for existing defective conditions. These are uncontrollable secondary causes which are incidental to the primary cause of bad housing, namely, the lack of proper public standards and effective governmental control.

(5) All housing should be economic, in the respect that it should yield a fair return on the investment in building and land. The state and the city should, however, give financial aid in the poorest quarters of the city toward the acquisition of parks and playgrounds, the improvement of



KOHLER VILLAGE, KOHLER, WISCONSIN
An office building and a home section combined with advantage to each.

sanitary conditions, the widening of streets, and the opening of lanes through congested blocks. It should also encourage the investment of money at a low rate of interest for low cost housing.

(6) Where land has a value based on a more profitable use than low cost housing, such as business, or expensive residence, it should not be used for such housing. Where this value is based on the use of the land for congested housing, the city should endeavor to lessen the congestion and thereby reduce what is fundamentally a false value.

So long as there are accessible areas in the city which can be acquired at a price low enough to permit of wholesome and economic housing, areas that are too dear for the purpose should not be acquired. Improvement of slum areas will necessarily be very gradual because it depends on the

HOUSES AND HOUSING NEIGHBORHOODS

demands of tenants for better conditions, on landlords being made to realize that slums are becoming less and less profitable, on the acquisition by the city of land for playgrounds and on the enforced demolition of dwellings that are unfit for human habitation.

(7) Because of the difficulties involved in providing wholesome new or reconstructed dwellings for industrial workers in crowded centers, every effort should be made to encourage the construction of transit lines into undeveloped areas and the transfer of fabricating industries from the crowded centers to the suburbs or open country with the following three objects, namely:

- (a) The lessening of industrial and housing congestion in the central areas and the consequent increase of opportunity to make the housing that must remain in these areas more healthful and otherwise wholesome.
- (b) The encouragement of migration of workers to more open areas, where land is plentiful and reasonable in cost for small dwellings.
- (c) The lessening of the congestion of transit facilities that is due to separation of homes and places where people work.

The foregoing assumptions are based on the findings of the Regional Survey. It will be seen that the order in which they are set forth leads logically to the final conclusion (paragraph 7) that the most practical and effective improvement in housing conditions can be obtained by developing new areas in the environs of the city and that as far as possible this development should proceed in such a way as to combine industry and residence.

PROPOSALS

It is proposed, therefore, that the following program be adopted as a housing policy for New York and its environs:

(1) The encouragement of the development of new urban neighborhood units in which provision will be made for wholesome housing with ample spaciousness for light, air and recreation; for the application of the methods and principles which have been put to practical test at Forest Hills and Sunnyside in Queens, Long Island; and for the more complete application and extension of these methods and principles of development to areas of sufficient size to permit the building of self-contained towns, such as Radburn, in which provision will be made for both industry and residence.

(2) Acquisition by cities of land for housing purposes and development of such land with necessary local improvements, the land so acquired and improved to be disposed of under proper conditions of sale or lease and be permanently zoned for erection of homes by private builders or prospective occupants.

(3) The improvement of the dwelling laws and their strict enforcement so as gradually to secure better sanitary conditions and a reduction of densities of new multiple dwellings to the fullest extent practicable.

Needed improvements include: more adequate protection against fire hazard, separate toilets for each family in existing as well as new buildings, provision of open play courts in blocks by demolition of dilapidated rear dwellings with the aid of public funds, demolition within a prescribed period of time of structures not suitable for human habitation, prevention of use of cellars as dwellings, requirements that new buildings erected for residence purposes shall not be more than two rooms deep,

GUIDANCE OF BUILDING

or be erected nearer to buildings opposite to them than will permit them to have an angle of light of 45 degrees to first floor front and rear windows.

(4) Immediate strengthening of zoning ordinances along the lines proposed in the Regional Plan so as to secure reduction of the area of occupancy and greater limitation of the height of all buildings.¹ The zoning requirements should include limitation of densities of population on the land either by limiting the number of families per given area, or by determining the minimum area of the lot that may be occupied by a family, or by fixing the floor area of the building in relation to the open space provided on the lot.

(5) Exercise of the power to open up new streets and playgrounds by condemnation of hopelessly defective houses, as part of general improvement schemes in the crowded areas.

Areas where buildings that have become uninhabitable have to be acquired by the city, should be cleared and partly allocated for street improvements as well as for the construction of modern buildings meeting new standards of light and ventilation and adequate playground space.

(6) The making of thoroughgoing surveys of housing conditions in all built areas of the Region, either by special commissions with adequate expert staffs, or by much enlarged and more highly paid inspectors under existing departments of building inspection. The surveys should be made with a view to ascertaining the detailed defects of all existing structures and the form and method of raising the standard of these structures to the minimum necessary for health, safety and public welfare.

(7) Continuation of the experimental work of the New York State Housing Board in studying methods of renovating slum areas, promoting housing developments and securing legislation to aid in housing improvement on sound economic lines.

(8) The granting of adequate powers and funds to a permanent City Plan Commission for the City of New York to enable the commission to investigate and suggest a definite policy of housing reconstruction, to determine and enforce the principles and methods which should be adopted in planning and developing new residential areas, and to collaborate with the State Housing Board.

The argument in favor of all these proposals has been presented in the Regional Survey, Volumes VI and VII, but probably more needs to be said concerning the need for limitation of densities and for the public acquisition of land. Both these proposals have their origins in practices that have long been followed in other countries but are still largely untried or only beginning to be tried in America. The fact that foreign experience has to be cited to show their effectiveness does not mean that the methods they involve are foreign to American traditions and laws. Zoning was introduced into America from Germany, but as practised in America it is distinctly American and is consistent with democratic government. If a method that happens to have a foreign origin is sound in principle, then the only question is how to adjust its application to American conditions.

The method of solving the problem of overcrowding population on the land by limiting the number of houses per acre has been carried furthest in Great Britain, and that of the public purchase of urban land areas for housing schemes has been adopted in most European countries but perhaps earliest and to greatest effect in Germany.²

¹ See Chapter VII.

² Regional Survey, Volume VI, pages 24, 289-290.

HOUSES AND HOUSING NEIGHBORHOODS

REGULATION OF HOUSING DENSITIES

In our zoning proposals for restricting coverage of land, providing yard space and limiting heights of building, we have indirectly suggested several methods of restricting densities of residential buildings, and therefore of population per acre. In the previous chapter we also alluded to the importance of supplementing these methods with the restriction of density by means of area-per-family or open space requirements, but intentionally avoided dealing with these requirements until we could relate them to our housing proposals. Logically they are supplementary to the zoning proposals.

It is well to point out here that the need of having more space about houses on private lots is of importance from other points of view than making housing conditions more agreeable. It is important in the interest of movement of street traffic, as well as for their health, that children be kept from playing in the street and have some place for play adjacent to their homes. These and other collateral advantages to be obtained from regulating housing densities have to be borne in mind in considering the need and extent of restriction.

English Experience.—In England much progress has been made in limiting the number of families that may be allowed to occupy a given area of land. This is done under its Town Planning Act, which has always been closely identified with the national housing acts. The Town Planning Act includes a provision that property shall not be deemed to be injuriously affected by reason of restrictions limiting the number and character of buildings to be erected. This law has led to the restriction of families per acre to a degree that was impracticable prior to 1909 when the act was first passed.

The application of this particular restriction in England is based on what may be described as a national policy. While the density permitted varies in different localities, it has some relation to the restrictions in all other localities. The Ministry of Health, which is the controlling authority under the act, has not always had a consistent policy, as circumstances have caused it to change its mind and give way to demands for increases in density; but, generally speaking, the following densities have been accepted as reasonable, in the eyes of the Ministry, for undeveloped areas:

- (1) Average number of single family dwellings per gross acre¹ in a suburb near a large city, 16 to 18.
- (2) Similar average in outer suburbs, 10, 12 and 14.
- (3) Similar average in proximity of built-up areas of rural districts (towns or townships), 8 to 12.
- (4) Similar average in open areas, 4 to 8.

¹Gross acre includes the streets and other open spaces that abut upon the private buildable land. A net acre of buildable land may represent 50 to 75 per cent of the gross acre according to the extent of the street and other open adjoining areas.

GUIDANCE OF BUILDING

It will be seen from these figures that government authority in England, which is supported by public opinion, has come to believe that the density of building should be based on the requirements of about 50 people to the acre.

A recent report on a regional planning scheme says that the "fallacy of development to a high density from the viewpoint of either health, economy or amenity, has by now been amply demonstrated." On the other hand, the Ministry of Health points out in one of its memoranda that "low densities cannot be safely imposed unless there is clear evidence that the land concerned is being or will in the near future be developed for a class of property for which larger plots are generally required." This statement means that the Ministry is guided in the matter of de-

termining density by what is reasonably necessary to meet the general needs of the property.

Conditions in the New York Region.

The extraordinary difference between these standards and those regarded as economically necessary in the crowded parts of the New York region, raises the question whether there is an economic fallacy underlying the low densities in England or whether they exaggerate the amount of air



Grosvenor Atterbury, Architect

Photo by F. Garcia Monteiro

FOREST HILLS, LONG ISLAND

Attractive features in a neighborhood of row houses with shallow front yards.

and space that is needed for wholesome conditions. In the United States as a whole population density is very much less than in England. Although the cost of developing land is much higher, this is only in proportion to the higher prices obtained from the sale of improved land and from the sale and rental of buildings. In many areas already built upon in the New York region conditions exist that make it necessary to permit higher densities, but this is not a reason for similar densities being permitted in areas that are still to be developed. The greater amount of sunshine in America is perhaps a reason why greater density can be permitted from the point of view of sunlight, and this might mean that the average of 12 dwellings per gross acre could be properly increased here to a maximum of 20 dwellings. While this a much

HOUSES AND HOUSING NEIGHBORHOODS

lower density than is found in congested parts of the Region, still lower densities are already prescribed for single family districts in many suburban communities.

Whatever may be regarded as suitable requirements for restricting densities in the built-up portions of the New York region, it seems desirable to have adequate density regulations for all unbuilt areas.

The courts now allow large lot areas to be required in high class residential districts on the ground that the existing conditions justify a low density. If this is so in one place for large houses, why could it not be made so in other places for smaller houses? The courts, in taking economic questions into consideration, as they sometimes do, will act only where public opinion is in their favor. The real strength of a zoning ordinance must lie in its being the natural and proper expression of the police power to obtain health, safety and general welfare.

Indianapolis has a requirement of 7,500 square feet per dwelling, within the areas deemed most suitable for larger houses. This requirement is equal to the low density of about 3.8 houses to the gross acre.

The justification for this is said to be that it is required to protect the character and charm of a residential section. The courts uphold it because public opinion is behind it.

The real crux of the problem of getting adequate restriction of density for health lies in the fact that land values tend to increase with the number of families normally housed on a lot. The individual owner benefits from a higher density, although if all landowners were considered together the restriction of density would not lower land values in the aggregate.

Such standards of density as we have been discussing cannot be applied to areas already built upon with higher densities. This fact shows the desirability of encouraging the development and planning of new areas in order to obtain the minimum requirements of health in connection with housing accommodations.



Grosvenor Atterbury, Architect

Photo by Samuel H. Gottsch

FOREST HILLS

Informal grouping of houses about a cul-de-sac.

GUIDANCE OF BUILDING

Let us see how these standards would compare with those that now prevail in the New York region, remembering that such densities as 10, 12 or 20 houses per acre refer to gross acreages, and therefore to areas that include land in abutting streets and open spaces. Taking a house covering about 634 square feet and about 35 per cent of a lot, the total size of the lot would be 1,811 square feet or 25 feet by 72.4 feet. If these lots covered 60 per cent of an acre and the other 40 per cent was devoted to abutting streets and other open areas, as would be a normal condition in the Region, the number of lots or houses per gross acre would be 14.4. If, as might be, there was 50 per cent of a district in streets and open spaces, an average density of 14 houses per gross acre would be equivalent to a density of 28 houses on the buildable land and an average of 20 houses would be equivalent to 40 houses. Therefore it will be observed that for districts where there are wide streets and a large percentage of park area, these averages are comparatively high. In the E and F districts under the New York Zoning Ordinance, the average density probably approximates ten and eight houses per gross acre respectively.

In these districts in New York City the probable percentage of street, proportion of main highway and local parks is not less than 40 per cent. On the remaining 60 per cent, comprising the buildable land, the coverage permitted is 50 per cent up to 18 feet above the curb level in the E districts (above that, 30 per cent); and in the F districts 35 per cent for the first 18 feet (25 per cent above that level). On three-fifths of an acre, representing the buildable land per gross acre, the maximum number of families that can be accommodated is about 10.5 per acre.

It will thus be seen that when gross areas are kept in mind the English density of 12 houses to the acre is greater than can still be obtained over large areas that are zoned for residence in the New York region.

APPLICATION OF AREA-PER-FAMILY AND OPEN SPACE REQUIREMENTS

In a report prepared by Mr. Robert Whitten for the Regional Plan Committee and the City Committee on Plan and Survey in 1928, methods of regulating population density are discussed and the conclusion reached that the most effective method of preventing overcrowded building in residential areas is that of directly relating the amount of open space about a building to the number of families housed in the building, or to the gross floor area of the building.

The following is a résumé of Mr. Whitten's report on this subject. The earlier state zoning enabling acts did not provide specifically for the regulation of density of population. They sought to do so indirectly as a result of the regulations applied to control the height and bulk of buildings and the area of yards, courts and other open spaces about buildings. The model zoning enabling act, drafted under the auspices of the United States Department of Commerce, does provide specifically for the regulation of density, and this model act has now been adopted in most of the states.

HOUSES AND HOUSING NEIGHBORHOODS

The New York State enabling acts for cities, villages and towns now provide for the regulation of density of population. In New York City the authority to zone is contained in the charter, and the state enabling act applicable to cities is not used. The charter provision does not contain specific authority to regulate density. The zoning division of the City Committee on Plan and Survey in its report made in 1928 recommended an amendment of the charter provision so as to include limitation of density, as follows:

"The Board of Estimate and Apportionment shall have power to regulate and limit the height and bulk of buildings hereafter erected *and the density of residential population*, and to regulate and determine the area of yards, courts and other open spaces."



Photo by Brown Bros.

JACKSON HEIGHTS, LONG ISLAND
A spacious apartment development.

In most of the states in which the zoning enabling act specifically authorizes density regulation, such regulations are quite common. They have usually taken the form of an area-per-family requirement. For example, in an apartment zone there may be a requirement of 1,000 square feet of lot area for each family in an apartment house, or this regulation may be stated in terms of families per acre. A requirement of 1,000 square feet per family is equivalent to a limitation to 26 families to the gross acre, if 40 per cent of the district is in streets and other public open space.

GUIDANCE OF BUILDING

As applied to dwelling houses for either one or two families, the area-per-family requirement is often stated in terms of required size of lot, e.g., in a dwelling house district there may be a requirement of 5,000 square feet of lot area for a single family dwelling and perhaps 8,000 square feet for a two family dwelling, respectively equivalent to 5.2 and 6.5 families to an acre.

Of the cities of the United States of over 200,000 population having comprehensive zoning ordinances, there is about an equal division between cities that make use of the area-per-family requirement and those that do not use this method of directly regulating density.

Objections have been raised to the area-per-family requirement on three grounds: first, that families vary in size and consequently the family is a poor unit to use in the control of density; second, that the area-per-family requirement is difficult to enforce; and third, that density can be regulated more effectively by percentage of lot area and by yard and court requirements.

Answering the first point, Mr. Whitten says that while it must be admitted that the size of a family is variable, it is clear that for any considerable residential area the population density will vary directly with the total number of families housed therein. For all practical purposes the human load on the land can be limited effectively by restricting the number of families or the number of separate housekeeping units.

As to the second objection, there are difficulties of enforcement that cannot be fully overcome. A house or an apartment may be subdivided for light housekeeping in violation of the area-per-family requirement. A somewhat similar difficulty was involved in the enforcement of the Tenement House Law. A dwelling becomes a tenement house as soon as it is arranged for occupancy by more than two families. It is sometimes difficult to prevent the conversion of a two family house into a three family house without complying with the tenement house requirements. There will be occasional violations, but no large proportion of the population of the city will be housed permanently in light housekeeping or makeshift apartments. For this reason a limitation of the number of complete housekeeping units constructed on a lot through an area-per-family requirement will control density of residential population quite effectively.

As to the third point, the percentage of lot occupancy, yard, court and height regulations, as usually applied, are not as effective in regulating density as the area-per-family requirement. Where height and bulk are controlled effectively there is sometimes a tendency to crowd more families into a given space. Rooms are made smaller and the number of rooms per apartment reduced.

On the other hand, the area-per-family requirement seems to be the most effective method that has as yet been extensively applied to prevent the spread into new districts of the area of excessive tenement house congestion. It offers an escape from

HOUSES AND HOUSING NEIGHBORHOODS

the vicious circle of more intensive housing resulting in higher land values, and such higher land values resulting in turn in greater housing congestion.

In a given district, the land values tend to increase with the number of families normally housed on a lot. The speculative builder sees a large opportunity for gain in crowding more families on a lot than has been customary in the neighborhood. He buys a vacant lot at a value based on its net return from use for a one or two family house and builds a four family house, and is usually able to pocket the difference between the cost of a single lot and the cost of two lots. After a considerable number of such small tenements have been erected, and land values have thereby been practically doubled, the same process is repeated. The speculative builder discovers a profit in building six or eight family tenements on lots of the size originally used for one or two family houses. This process of a more and more intensive use of the land and a corresponding increase in land values continues until at length slum conditions are produced.

Moreover the area-per-family requirement makes possible the preparation of accurate estimates of future population in the various residence areas of the city as a basis for a more accurate forecasting and planning of future needs with respect to all kinds of utilities and of public and municipal facilities and services. The area-per-family requirement needs of course to be supplemented by height, bulk and yard requirements.

Open Space per Unit of Floor Area.—Both the area-per-family and the height, bulk and density regulations fail to a certain extent at least to secure open space about the building in proportion to the bulk of building. In order to secure this, there should be a requirement of a certain number of square feet of open space for each family housed, or a requirement decreasing the percentage of coverage in proportion



Photo by Brown Bros.

JACKSON HEIGHTS
Design of rear garden space.

GUIDANCE OF BUILDING

to the gross floor area of the building. A dwelling or apartment house without a proper yard space does not conform to a desirable standard of housing. Each dwelling or apartment house should be required to leave a certain minimum open space on the lot for the out-of-door use of its occupants.

In seeking to obtain a reasonable amount of open space on every lot, with a view to securing both an appropriate distribution of population and out-of-door space for the occupants, a method of basing the required open space on the gross floor area of the building has been worked out and applied in a few cases. In the zoning ordinance recently adopted by the town of Oyster Bay in the New York region, open space and appropriate density are provided for in the apartment house district by requiring one square foot of open space on the lot for each two square feet of the gross floor area of the building. This requires a three story building to leave 60 per cent of the lot area uncovered, a six story building 75 per cent, and others in proportion.

The zoning division of the City Committee on Plan and Survey, in its report to Mayor Walker made in 1928, recommended the application of this principle for the purpose of securing play yards in C and D area districts. It was proposed to require in the C area district one square foot of play space for each 10 square feet of the gross floor area of the building and in the D district one square foot of play space for each five square feet of the gross floor area of the building. Under the proposed regulation in a D area district on a lot 10,000 square feet in area a three story apartment house covering 50 per cent of the area of the lot would be required to provide 3,000 square feet of play space.

This open space was intended as a minimum out-of-door area and play space, particularly for the little children. It was proposed that this open space could be located within required courts or rear yards, but if so, it should be at least 30 feet in its least dimension. It was proposed also that such open space or yard be permanently maintained as a recreation space for the joint use of the occupants of the apartment.

Similar provisions for required play space have already been incorporated in the zoning ordinances of several smaller communities in both New York and New Jersey.

Instead of thus setting off a certain amount of open space as a play yard, it will probably be found more advantageous simply to provide open space on the lot in proportion to the gross floor area of the building. This open space will then serve several purposes, including access of light and air, out-of-door space for the occupants and the control of density of population.

For a suburban community Mr. Robert Whitten suggests that there might be two density districts. In the first district the requirement might be one square foot of open space for each two square feet of the gross floor area of the building, and in the second, one square foot of open space for each four square feet of the gross floor area of the building. In the first, or one-to-two district, a three story apartment house

HOUSES AND HOUSING NEIGHBORHOODS

would be required to leave 60 per cent of its lot area vacant, a four story apartment house 66.7 per cent, and a six story apartment house 75 per cent. In the second, or one-to-four district, a four story apartment house would be required to leave 50 per cent of its lot area vacant, a six story apartment 60 per cent, and a 12 story apartment 75 per cent.

Such a requirement of open space based on gross floor area, besides serving to secure out-of-door area for the occupants and adequate access of light and air, also provides a very definite limit on density of population. In so far as multi-family houses are concerned it may be substituted for the usual regulations specifying area-per-family and percentage of occupancy. In the case of one or two family dwellings, however, it is simpler and quite as effective to require a certain minimum lot area for a one family dwelling and a larger lot area for a two family dwelling, with the usual provision for side, rear and front yards.

Legal Difficulties.—Mr. Edward M. Bassett, in a report to the Regional Plan, points out one difficulty in applying area-per-family regulations. He begins by supporting the suggestion we have made that an official city map should not contain secondary streets and small parks where it applies to unbuilt areas in outlying districts, but only main thoroughfares and large parks. He then says:

"Where open localities in Greater New York are covered by the official city map and detailed streets are shown, it is probably impracticable to make area-per-family regulations based on gross area, that is including both streets and building lot land. In unplatted districts, however, both in Greater New York and elsewhere, we should favor the inclusion of all the land. The tendency of court decisions throughout the country is to support such a plan if fairly worked out."

"In municipalities local legislatures will not create density regulations that are not favored by a majority of the owners, and if a regulation (requiring, say, 1,452 square feet) were enacted against



Andrew J. Thomas, Architect

THE PAUL LAWRENCE DUNBAR APARTMENTS IN HARLEM

A pioneer project for the housing of negroes.

GUIDANCE OF BUILDING

the wishes of the owners or with only 25 per cent approval, the courts would be likely to set it aside. The reason why they would set it aside is because the owners by proper legal proceeding would demonstrate that their land was treated differently from other land similarly situated and would claim that the regulation was arbitrary and unreasonable. In open localities, however, I believe a regulation of 1,000 to 1,452 square feet would be acceptable and would be upheld. It is remarkable how the courts throughout the country have upheld area regulations. This is so well understood that property owners rarely venture into court to attack them. I believe the 7,500 square foot regulation of Indianapolis would be upheld by the local and state courts of Indiana. Of course, the argument would not be based on charm, but it would be based on light, air, fire safety, play space and the handling of fire fighting machinery.

"A single minimum cannot be employed in organized localities. I suspect that in open localities a single minimum is also impracticable in this country. There seems to be a real need for small house-keeping units in apartments. Newly married couples want two rooms and kitchen and bath. There are many women workers, school teachers, et cetera, who double up and rent a small apartment. The servant problem causes many parents after they have raised their families to sell their homes and live in a small apartment.

"Regulations based on area per family will be effective, I think, both in Greater New York and in open localities. In Greater New York there is a certain amount of evasion, especially during the recent housing shortage. Two family houses all over the city have been prone to change into three family houses by fitting up additional rooms and a kitchen in the attic."

PUBLIC PURCHASE AND DEVELOPMENT OF LAND

The other proposal we have made which requires some explanation is that which refers to public purchase and development of land in combination with private enterprise in the building of houses. As stated in the Regional Survey,¹ there are strong objections to the construction of houses by public authorities, but the reasons against such action do not apply, at least in the same degree, to the buying of land and the construction of local improvements. Nevertheless the objections to the one are generally regarded as equally applicable to the other on the ground common to both, that the function of government is to govern and not to compete with private enterprise in constructive undertakings.

There is an abundance of precedent for public authorities in the United States to own, construct and engage in the direction of public utilities. The acquisition of land for roads, sewers and water mains is even more customary and proper than the ownership and management of transit lines. Even when roads and sub-surface services that use public rights of way are privately constructed, they are, as a rule, transferred to the public in course of time. Thus for a public authority to construct local streets, sewers and water mains for the service of houses is not fundamentally different from constructing highways for traffic or main sewers and water mains. Both are undertaken for a public purpose and may with equal propriety be considered legal in the eyes of the courts.

¹ Regional Survey, Volume VI, pages 297-298.

HOUSES AND HOUSING NEIGHBORHOODS

Public authorities are also involved in the ownership of certain values that are attached to land which abuts on public highways and streets. These values are derived from local improvements and it is quite a common practice for the authority to collect the amounts of its expenditures on such improvements by special assessment from the abutting land. It is commonly regarded as improper, however, for the authority to actually acquire and sell such land for houses. Rather, in effect, it gives financial aid to the development of land to a large extent, obtaining such recoupment as it can by means of special assessments and taxes. To that degree it engages in real estate development and even real estate speculation. But it leaves the field of actual ownership of the land and of its utilization for building to private enterprise, subject to such control as the public body may exercise under its city planning, zoning and building laws.

It would not be departing seriously in principle from present methods if the public body were to purchase raw land, construct the local improvements and then dispose of the improved land for building under zoning and building regulations that would prevent undesirable changes in density or other conditions, and by doing so restrain private speculation.

Why should there be greater justification for using public funds to make local improvements for the financial benefit of private land speculators than for helping the public authority to secure the proper development of the city? Every city engages in real estate development to the extent that it does make these improvements. There should be no objection to its going a step further and purchasing vacant land with a view to improving it.

Before considering the objections and difficulties to such action, let us assume these did not exist. We could then imagine the City of New York or other cities in the Region first acquiring a large tract of vacant land without improvements, and then proceeding to plan the tract, construct streets, sewers and water mains, as well as, if need be, transit lines, thus making the land fit for the erection of houses. When the land is improved, it can be disposed of in lots to private persons to build their own houses.

Thus the individual could purchase or lease an improved lot, and after obtaining a loan from a building and loan society proceed to erect his house, paying the city a capital sum for the value of the raw land plus an annual assessment for the value of the improvements, as at present. The city would require compliance with appropriate zoning regulations and conditions in regard to construction, so as to regulate density and insure durable buildings. Or, under similar conditions, a private builder could purchase a large tract from the city and erect a number of houses. Thus there would be stimulation to home ownership and private building enterprise without the wasteful process of land speculation in unimproved land and the burden which this process casts upon the city.

GUIDANCE OF BUILDING

Much vacant land in the city is awaiting development because of needing local improvements and extension of transit facilities. Private persons cannot provide the necessary improvements and benefit from the increased values that would be given to the land. Some areas need only extensions of the transit system to make them quickly accessible from the center of the city and to convert them into ripe building land. In Queens and Staten Island there is much open country land that could be easily developed if it were made accessible. If it were practicable for the City of New York to condemn parts of these areas for housing in the same manner that it condemns them for parks, it would be able to give an example in land development that would have beneficial results throughout the Region. By imposing proper restrictions in its capacity as landowner it could prevent the erection of the poorly constructed wooden houses that crowd the unimproved fields in parts of Queens.

It would be better for cities to lease than to sell the lots; although if leases were not popular, there would be no difficulty in imposing proper restrictions in deeds of sale. The success of the German land purchase schemes is partly due to the system of leasing. It is not certain that a similar system could not be made practicable in this country, and if properly applied it could be of great financial benefit to communities. As Mr. Lawson Purdy has pointed out, New York, Chicago and other American cities have owned large areas of land which, had they been kept and leased intelligently, could now be yielding enormous revenues to these cities.

By acquiring a large parcel of land, planning it as a unit so as to secure economical construction of streets and services, and reserving sufficient open space for recreation, it should be possible for a city to give the benefit of great savings in cost to prospective home owners. Public enterprise of this kind would be helpful to private enterprise, except that it would hamper certain forms of land speculation that are wasteful and injurious to general welfare. If the form of private enterprise which consists of trading in unimproved land for purely speculative purposes must be protected, then we must regard one of the best means to obtain improved housing conditions as impracticable.

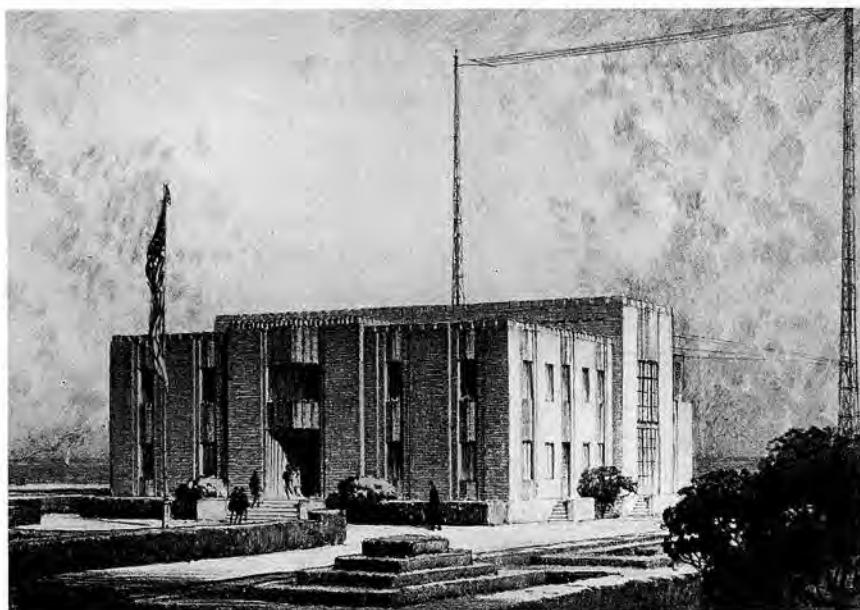
Legality of Method.—Mr. Edward M. Bassett indicates that the foregoing proposition could be lawfully carried out under the excess condemnation provisions of the New York City Charter.¹ By these provisions New York City has the power to "take more land and property than is needed for actual construction in the laying out, widening, extending or relocating parks, public places, highways or streets; provided, however, that the additional land and property so authorized to be taken shall be no more than sufficient to form suitable building sites abutting on such park, public place, highway or street. After so much of the land and property has been appropriated for such park, public place, highway or street as is needed therefor, the remainder may be sold or leased."

¹Section 970-a.

HOUSES AND HOUSING NEIGHBORHOODS

In constructing streets, parks and playgrounds in the tract, the city would locate them so that all the land not devoted to such purposes would be building sites. Then it could sell or lease these sites for dwelling houses or any other sort of structure.

It may be objected that the city, in laying out these streets and acquiring adjacent land, is engaging in a housing enterprise. Be this as it may, it is claimed that it would be acting strictly within the four corners of the constitutional amendment affecting excess condemnation and the New York City Charter.



Voorhees, Gmelin and Walker, Architects

A TELEPHONE BUILDING SUITABLE FOR THE BUSINESS CENTER OF A RESIDENTIAL
NEIGHBORHOOD

Unless carried out under the Charter in New York City, and in any event in the rest of the Region, additional legislation would be required to permit condemnation of land for housing. Mr. Bassett says that so far as New York City is concerned, "for the present at least, the difficulties caused by the new Home Rule constitutional amendment would make such legislation doubtful or impossible." However, the legislature of the State of New York has already passed general legislation with regard to housing enterprises.¹ Mr. Frank B. Williams says that it seems reasonably clear that if held valid by the state authorities such a provision (i. e., condemnation of land for housing) would be sustained by the Supreme Court of the United States.²

¹State Housing Law, Chapter 823, Laws of 1926.

²LAW OF CITY PLANNING AND ZONING, The Macmillan Co., New York, 1922, page 22.

GUIDANCE OF BUILDING

Difficulties.—It is admitted that there are at present serious obstacles to employing the proposed method in the New York region. They are not insuperable, but are effective barriers to immediate action along the lines indicated.

The greatest difficulty arises from the general attitude of suspicion and even fear on the part of taxpayers toward the public purchase of land. Experience of purchases of land by the city has shown how difficult it is for the city to obtain land at reasonable cost. Unless some better way can be found than that which has to be followed at present in the condemning of land for parks and other public purposes in New York City, the city is not likely to purchase more than is needed for absolute necessities.

The buying of land would not be difficult to finance. It is not likely that the amount of money required to purchase and improve land by the method proposed would add to the financial commitments of any city in the Region.

Questions of administration of what would be a new city activity would present another difficulty. There would be objection that cities would not use their power with proper discretion and honesty. Experience in regard to the manner in which local improvements have been carried out and the difficulties of collecting taxes in payment of such improvements in some areas give ground for this objection.

It is possible that the economies which could be obtained by this method might be offset to some extent by the city taking more time and spending more money on the installation of local improvements than the private developer. However, if a scheme were intelligently directed, it seems likely that small house owners could purchase or lease the improved lots more cheaply than at present.

One of the great defects of the present system is that numerous purchasers of raw land are ignorant, at the time of purchase, of the high cost of local improvements necessary to make it fit for buildings. They assume an unknown liability, and this is one of the reasons why the arrears of assessments are so high. As a rule small house owners are less prone to fall into arrears for taxes and assessments than speculative developers. Directly or indirectly the latter are perhaps chiefly responsible for the heavy arrears in New York City. In 1930 the uncollected real estate taxes in the city amounted to \$113,492,006 and assessments, \$53,375,219.¹ Of the latter no less than \$22,294,201 represented the amount due in Queens, with its extensive speculative developments of new subdivisions.

There is no question that some improvement in political and administrative methods would be desirable before such a method as we suggest could be successfully applied in New York City. But surely with the growth of education the ways of government will improve.

Altogether, the question resolves itself into this: If the citizens are convinced that the use of such a method would assist in solving the housing problem, which in

¹ *The City Record*, Comptroller's Annual Report for the period ending December 31, 1930.

HOUSES AND HOUSING NEIGHBORHOODS

certain of its aspects at present defies both public and private enterprise, all the objections and difficulties could be overcome.

GREATEST OPPORTUNITY FOR PRIVATE ENTERPRISE

Finally, on the subject of housing, we have to accept the fact that the difficulties that exist in restricting density of population by zoning regulations, or in inaugurating any system of public purchase of open land to enable model schemes of housing to be carried out, make it all the more important that such private enterprise as has been directed toward the building of model towns and neighborhood communities like Radburn, Forest Hills, and Sunnyside should receive every possible financial support and encouragement from public authorities.

It is by the creation of such object lessons, in which the combined advantages of predetermined planning, of reasonable restriction of density of population, of provision of adequate recreation spaces, of associated community life and of good architecture are demonstrated, that the proper guidance can be obtained for improving housing conditions in all parts of the Region. Such well directed enterprise, when coupled with the model rebuilding and reconstruction schemes of the State Board of Housing and other groups in the central areas, will gradually educate and awaken public opinion towards a realization of what public action is needed to improve the environment of the home in the New York region.



RECREATION PIER, ATLANTIC AVENUE, BROOKLYN



Francis S. Swales, Architect

RAILROAD TERMINAL PROPOSED FOR THE HUDSON RIVER WATERFRONT ABOVE 60TH STREET YARDS, MANHATTAN
(See Chapter XII)



STETTIN, GERMANY, SHOWING HARMONIOUS DEVELOPMENT OF WATERFRONT WITH QUAY, HIGHWAY, PARK AND PUBLIC BUILDINGS

IX. IMPROVEMENT OF TERMINAL FACILITIES

The General Problem

NEARLY all projects discussed and presented in this volume contain elements relating to transportation, such as the proposals for improving the waterfront of Manhattan or the Harlem River, or the civic centers of Queens and The Bronx. In this chapter we will refer to proposals where improvement of transportation facilities is the primary if not the sole objective.

The fundamental problems connected with ways of communication are dealt with in the Graphic Regional Plan, which anticipated the more specific proposals we are now discussing by indicating the locations for new port and industrial developments.

Transportation in all its forms has a profound influence on the distribution of industry and population, and therefore of buildings. New York, both as a shipping and a railroad center, has been encouraged to concentrate in the vicinity of seaboards and main railroad terminals for the last hundred years.

Up to the present time motor vehicles have tended to contribute to the high concentration of business and industry, although this appears likely to be a temporary condition, for with the development of new highways and the facilities offered by the motor vehicle for transport in small units it is probable that its strongest influence will be in the direction of encouraging greater diffusion of cities. Until recently transit facilities have been so laid out that they have increased rather than reduced concentration and the suburban trend of residence has not been accompanied to an adequate extent by a wider dispersal of industry away from the centers.

GUIDANCE OF BUILDING

The residential areas have spread widely, but chiefly in narrow corridors along railroad and transit lines. As the radius of railroad commuting travel lengthens, the corridors of building nearest to the centers increase in width. Time and cost of travel between the home and place of work, rather than distance, are the factors that influence location of residential areas. The motor car and bus, serving high land away from the valleys traversed by the railroads, have helped to widen the corridors of residence and to extend them to a greater radius from the railroad stations.

Before the mobility of the motor vehicle was appreciated, H. G. Wells pointed out that railway traffic was at best a compromise and that the ideal form of locomotion was a highly mobile conveyance "capable of traveling easily and swiftly to any desired point, traversing at a reasonably controlled pace the artery roads and streets, and having access for higher rates of speed and long distance travel to specialized ways restricted to swift traffic." He mentioned that such a system obviously would be superior to existing methods for delivery of perishable goods. The motor vehicle permits of every adjustment to change, because of flexibility in size of vehicle, in line of travel, and in places of origin and destination; whereas the railroad tends to arrest or prevent changes because of its comparative inflexibility. There is need for both, but each is becoming more and more essential to the other.

In considering plans for future expansion of the various means of transportation, it is essential at this time to place more emphasis on trends than on past conditions. This is a time of transition from the period that depended on the steam engine and the horse to the period when there is more and more dependence on electricity and the motor car.

In the future building of the city there are a number of vital problems to be solved in connection with these changes. There has not yet been any proper coordination of transportation by rail, road and air. This is still a matter for the future. An important part of it consists in coordinating the terminal arrangements and means of distribution of passengers and freight in central areas. These terminal and distributing facilities will involve the erection of great buildings and the construction of proper connections and approaches.

KNOTS OF THE NETWORK

The Graphic Regional Plan dealt primarily with the network of facilities for lines of transportation, and indicated methods of coordinating these lines so as to secure effective distribution and movement. The terminal and distributing facilities in this system constitute what Wells once called the "knots of the network." Congested arteries of travel and the existence of whirlpools of traffic are perhaps more the result of absence of bold treatment of the focal points in the system of circulation than of the lack of system and coordination in the lines of transportation.

IMPROVEMENT OF TERMINAL FACILITIES

The degree of diffusion of industry and population that is necessary for efficiency can be attained only if paralleled with adequate control of building densities and adherence to a sound plan of extension of properly planned ways of communication, terminals and converging points.

The late Samuel Rea, formerly President of the Pennsylvania Railroad, pointed out in 1925 that the real problem as between the railroad and the highway was not how to compete but how to coordinate. He said also that there was little probability of great increase in the line mileage of railroads, but that future development would be in the direction of enlarging and improving stations, eliminating curves, building better bridges and separating grades. With the changes incidental to increased electrification such developments will greatly improve the appearance of railways. One point which is made evident by this statement is that the improvement of railways will be largely a question of improving terminal facilities. Another is that important questions will arise in the future as to whether creation of new stations may not be better than enlargement of existing stations.

The situation in regard to rapid transit lines, and still more in regard to highways, is that in their case, unlike the railroads, great extensions must be made. But even now these lines are in advance of the provision made for coordinated treatment of the transit system with railroad terminals and for means of "housing" the motor vehicle in central locations.

In the New York region the worst knots in the network of communications lie around the harbor and involve consideration of waterway as well as land terminals. It is appropriate to refer first to a few specific needs in regard to dock and industrial waterfront improvements.

Dock and Industrial Waterfront Improvements

The proposals for waterways and port and industrial areas presented in Plan Volume I relate to the general development of the present main harbor and the extension of harbor facilities. It is desirable to supplement these proposals with some more detailed consideration of the structural development involved in carrying them out.

FACILITIES ON THE HUDSON RIVER

During 1929 and 1930 a considerable demand arose for new docking facilities in the central part of the Port. This demand was based on the expectation that larger piers would be needed to accommodate the enormous passenger liners recently built or suggested for future construction. New passenger steamers will require piers 1,000 feet or more in length in situations that are readily accessible to the center of the metropolitan region.

GUIDANCE OF BUILDING

A different but related problem has arisen in connection with the provision needed for freight steamers with cargoes destined mainly for shipment to the West over the various railroad systems. These now find Manhattan locations disadvantageous because of the congestion on the waterfront and the added expense of transferring their cargoes across the Hudson River. New facilities are needed to remedy both these conditions.

In order to supply longer piers on Manhattan, New York City applied in 1929 for a 100 foot extension of part of the pierhead line along the Hudson River waterfront. This was denied by the War Department, and the city authorities prepared alternative studies which would require the extension inland, at great expense, of some of the existing slips. The only places on the west side of Manhattan where new 1,000 foot piers could be provided without changes in the existing street system were in the neighborhood of Canal Street, where two piers were under construction by the city in 1930, and opposite West 48th to 50th streets.

In March, 1930, the Board of Commissioners and Pilots of the State of New York recommended changes in the pierhead lines on both the New York and New Jersey sides of the river between points opposite 23rd and 59th streets by balancing an advance on one shore with a recession on the opposite shore so as to maintain the present channel width. On the basis of this recommendation the War Department agreed to reopen its decision, and on January 13, 1931, issued its approval of changes on Manhattan between West 23rd and West 121st streets, and changes on the New Jersey shore between the Central Railroad of New Jersey Terminal in Jersey City and Palisades Interstate Park in Fort Lee. These were based on joint applications filed by the New Jersey State Board of Commerce and Navigation and the Dock Department of the City of New York. They included staggered advances and recessions on both shores of the river.

The new lines will permit New York City to construct additional long piers between West 34th and West 59th streets without encroaching on the upland areas, and this is a part of its \$26,000,000 program for port development. It will make possible the provision for proposed new passenger liners of suitable facilities, convenient to the main hotel district of Manhattan, in accordance with the general recommendations already presented.¹ The new layout which the city has proposed for the section between West 42nd and West 59th streets has been incorporated in the general plan of Manhattan and adjacent waterfronts.²

On the New Jersey shore of the Hudson River, the new Pennsylvania Railroad piers and the projected Port Authority development of three 1,200 foot piers and one 1,000 foot pier adjacent to the old Morris Canal Basin, all in Jersey City and affording facilities for direct interchange between rail and steamer, are in conformity with the proposals of the Regional Plan. The

¹Regional Plan, Volume I, page 209.

²See Fig. 46, page 383.

IMPROVEMENT OF TERMINAL FACILITIES

new pierhead lines give ample opportunity for additional long piers in the northern part of Jersey City.

The Shipping Board piers in Hoboken are 950 feet in length and could readily be extended inland to make them 1,000 feet. While there are no railroad tracks on the piers, they are served directly from the mainland by the Hoboken Manufac-

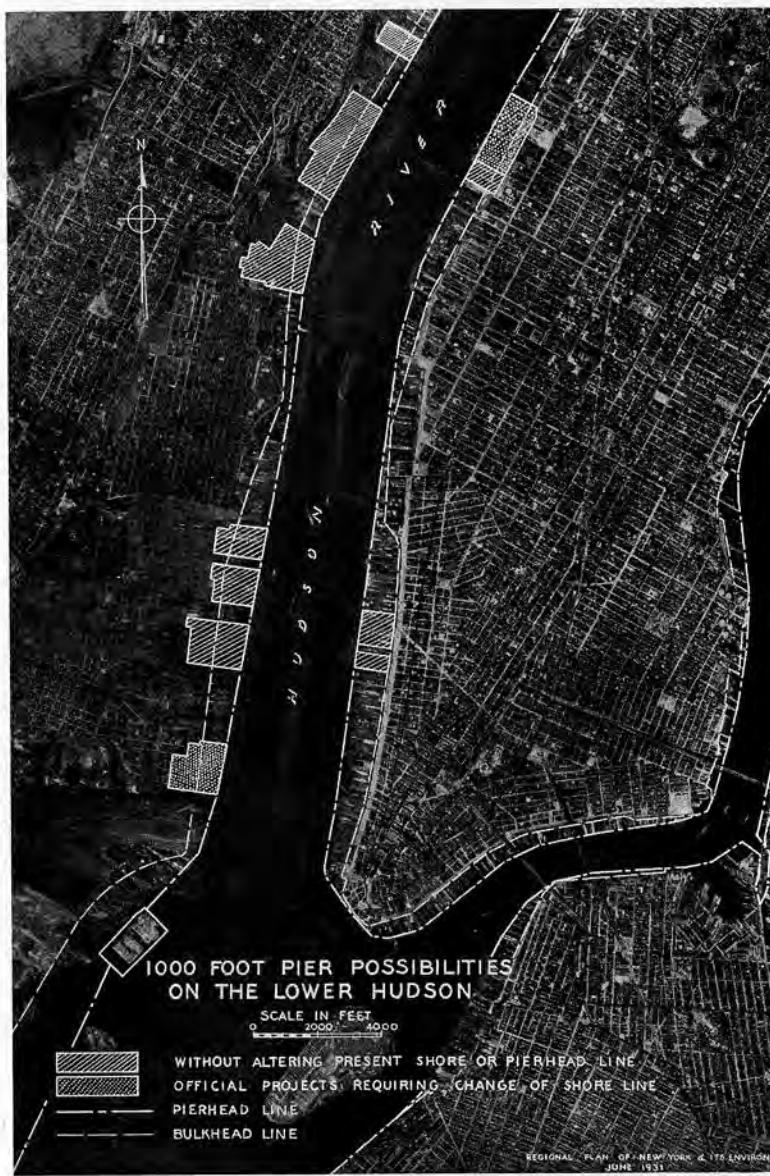


FIG. 25
HUDSON RIVER FRONTAGE WHERE 1,000 FOOT PIERS CAN BE BUILT
BETWEEN PRESENT SHORE AND PIERHEAD LINES

GUIDANCE OF BUILDING



GENERAL VIEW OF THE WATERFRONT AT ANTWERP, SHOWING QUAY DEVELOPMENT

turers Railroad. The suggestion has been made that the Port of New York Authority purchase these piers, lease them to shipping companies and turn them over to the City of Hoboken when the purchase bonds have been paid off. Hoboken's longest pier, at the foot of 17th Street, is 1,008 feet in length.

Apart from such extensions of facilities for the largest ships afloat, the main need of improvement of the Hudson River and other developed sections of the Port is in bringing the system of piers and the land facilities connected with them up to the highest standard of efficiency. It is not anticipated that the main dock system on the Hudson River will extend further north than 59th Street. (Fig. 25)

THE EAST RIVER

The development of port facilities along both sides of the East River should be restudied by the city and should be part of any plan of waterfront improvement. The plan should include a continuous quay wall along the bulkhead line of the narrower parts of the waterway with as few projecting piers as possible. The quay wall would, of course, be broken at numerous points by the necessary basins and the whole system of quay development should be constructed in harmony with a general plan.

Example of Antwerp.—Where quay walls exist, good results have been obtained in coordinating shipping and railroad transportation. The Port of Antwerp, which ranked next to New York and was visited by 9,971 sea-going vessels in 1925, is an illustration of good coordination as well as of skill in municipal management. Captain J. Cooper, Assistant Harbor Master of the Port, expressed a sound principle in regard to civic as well as port development in stating "that the activity of a port may be compared with an intricate wheelwork, every fragment forming an indis-

IMPROVEMENT OF TERMINAL FACILITIES

pensable part of the whole, and that the working of each part continuously is essential to prevent serious consequences."¹ Antwerp's success as a port for a vast hinterland in Europe has been the result of up-to-date equipment, swiftness of loading and unloading, safety of approaches, large docks, extensive riverfront quays, simplicity of arrangement, and a fine network of railroad facilities. All these are reflected in the ability to offer low tariffs and dues.

The accompanying views show the quay walls which are situated on one side of the River Scheldt, 5,283 yards long and providing 37 berths.

The depth of the water ranges from 18 feet to 36.3 feet. Sheds covering nearly 50 acres are erected along their sides. The quays are intended for general merchandise only and are provided with railway tracks—most of them with three, some with two, and others with only one—and with 1½ to two ton portable hydraulic cranes. There are four floating pontoons placed in recesses. An important feature is that large vessels, which are berthed just before high water, are "ready to cast loose their moorings and to sail without having to swing again." During 1925 no less than 3,355 sea-going and 5,560 river vessels were berthed at the riverside quays. The quays are independent of the inner port, comprising 381 acres and a total quay length of 12.5 statute miles. The land crane equipment of the harbor, including both hydraulic and electric, is especially efficient.

Captain Cooper says that the port owes its reputation "to the celerity with which the railway trucks may be brought to and taken away from the quays." This is a facility that is made efficient more easily with a quay parallel to the river rather than at right angles. Ample land free of buildings behind and surrounding

¹Introduction to booklet, THE PORT OF ANTWERP AND ITS VICINITY.



VIEW SHOWING THE QUAY AND UPPER DRIVE, ANTWERP

GUIDANCE OF BUILDING

the quays is also an important feature. There are 31 miles of railroad tracks placed along the frontage of the river quays and 120 miles along the quays of the docks. Altogether there are 315 miles of trackage in the port. During 1925 a total of 48,758 freight cars arrived and 50,286 departed.

An interesting feature of the port is the provision of fine waterfront promenades above the quay walls. Similar treatment of the east waterfront of Manhattan would be of great value to the citizens in affording an open prospect over the East River for residents on adjacent land and for pedestrians. The views also show the fine opportunities such quay development presents for architectural treatment of the raised roads and adjoining buildings.



LOADING FACILITIES AT ANTWERP, AS VIEWED FROM A PROMENADE ABOVE THE STORAGE SHEDS

Besides being a great port, that at Antwerp is one of the greatest of municipal undertakings. It is managed and owned by the city, and the budget in 1926 was 101,700,000 francs income and 92,700,000 francs expenditure. The economy and efficiency of its equipment and the extent and utility of its riverside quay development afford an object lesson of special value to New York.

Mr. Roy S. McElwee in a report on the Port of Toledo advocates the construction of a marginal quay and highway system on the bank of the Maumu River and refers to the examples of Paris, and of Stettin, Germany. In both these cities the use of quays is not interfered with by the parks and boulevards laid out on the upland above them. Paris handles 15,000,000 tons of products every year on the banks of the Seine, and although these products are delivered to a large extent on the edges of marginal boulevards, they do not lessen their attractiveness, but rather

IMPROVEMENT OF TERMINAL FACILITIES

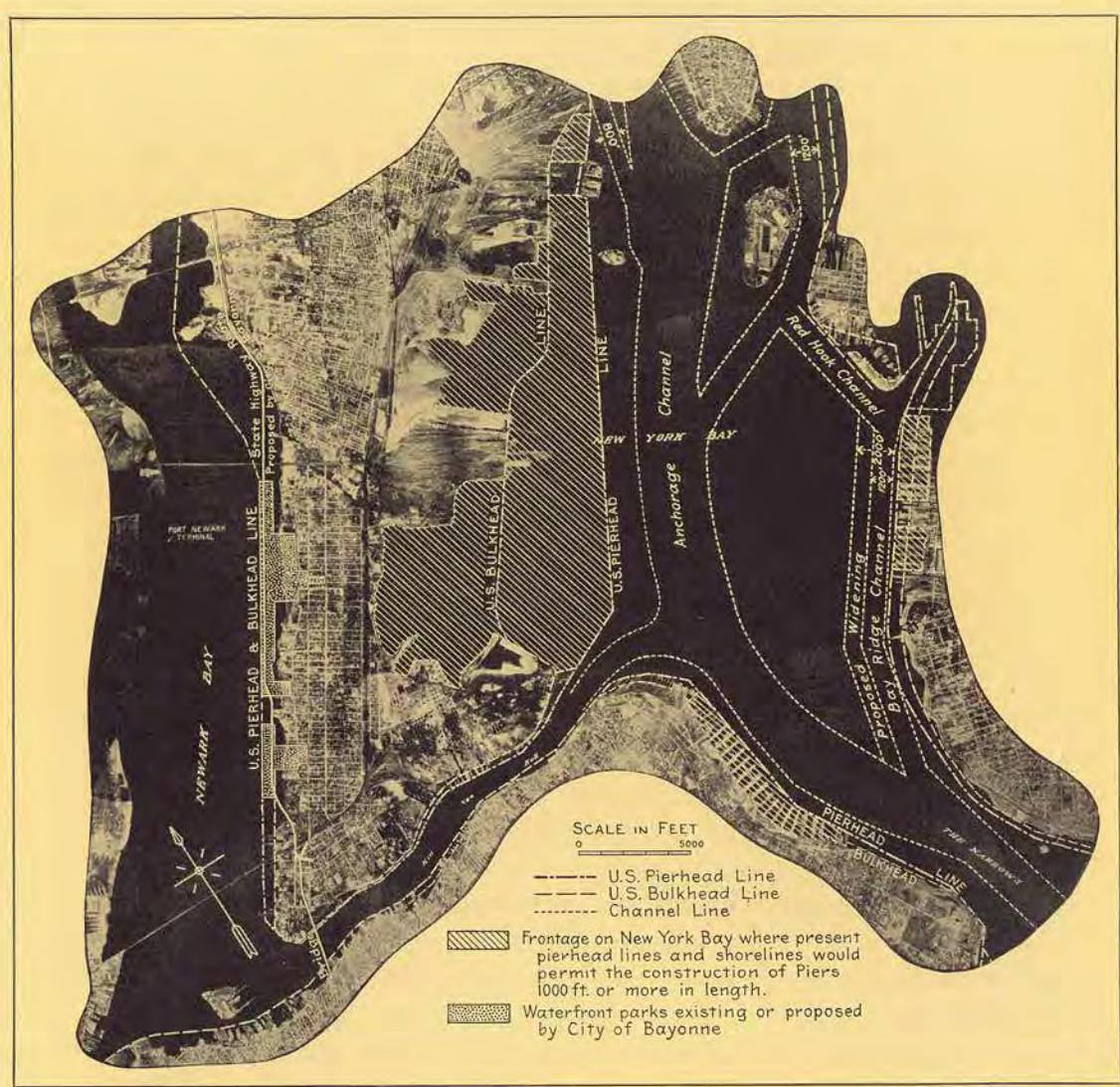


FIG. 26
PORT DEVELOPMENT POSSIBILITIES IN UPPER NEW YORK BAY
Waterfront parks for the Bayonne shore of Newark Bay are also shown.

add to their interest. The illustration of the Stettin waterfront (page 221) indicates how a waterfront may be developed in an orderly and dignified way without detracting from its usefulness for small shipping.

UPPER NEW YORK BAY

The carrying out of the trunk line railroad and suburban rapid transit proposals shown on the Graphic Regional Plan would greatly increase the accessibility of all

GUIDANCE OF BUILDING

the land fronting on Upper New York Bay. While parts of this waterfront are intensively developed, much of it is undeveloped. Figure 26 shows the extent of waterfront in this section of the Port where piers of 1,000 feet or more in length can be constructed between the present shore lines and pierhead lines. A widening of the Bay Ridge Channel, as proposed by the Port of New York Authority in February, 1930, to facilitate the use of the South Brooklyn waterfront by large steamers, is also indicated.

On the New Jersey side of the river there is room for more improvement in the form of entirely new construction of dock facilities. These require to be harmonized in the highest degree practicable with the railroad termini and future highway extensions in New Jersey. There are also excellent opportunities for extension of existing facilities on the New Jersey side of the river offering direct interchange between rail and steamship. A study of Plan Volume I shows that there is probably no improvement of more importance to the Region, including New York City, than that which relates to a further development and coordination of port and industrial facilities along the New Jersey shore of the Hudson River and Upper Bay. In particular, the possibilities of expansion of new docking facilities combined with a great scheme of land reclamation on the east waterfront of the Bayonne Peninsula have been too long neglected and should be exploited by means of a great public enterprise.¹ Due to the great distance—about 4,500 feet—between the government bulkhead and pierhead lines at this point, some form of quay development should be employed.

STATEN ISLAND PIERS

From a financial point of view there are few chapters in the history of New York City that lead to wider reflections on wastefulness than the Staten Island piers. The loss in connection with these piers is not to be measured by the deficiency in the returns they provide on the invested capital of the city. There are two other losses of a more serious kind. When it is considered how much needs to be done to improve the Port, for which no money is available, it is seen how injurious it is to the city to have its capital tied up in a bad investment.

But the worst effect of the Staten Island development has been in destroying public confidence in the making of such improvements. The average person reasons that the city has built piers in a good strategic position and that they have been unsuccessful. In this case, however, the failure has been due not to the position of the piers, but to the fact that before they were built adequate highway and rail connection with the rest of the Port was not provided, and particularly because no adequate connection with the various trunk line railroads serving the Port was supplied. In addition, no proper means of access to the piers were provided, nor was a

¹ See Chapter XV.

IMPROVEMENT OF TERMINAL FACILITIES

sufficient area of land reserved to provide all the traffic and warehouse facilities needed in order to utilize them properly.

That there are possibilities for the future utilization of the Staten Island piers in spite of their drawbacks has been indicated by reports made to the effect that if the piers should come to be used for docking transatlantic liners the Baltimore and Ohio Railroad would be willing to provide shipside freight and passenger service.¹ The railroad company has demonstrated the advantages of operating such a connection, but there would remain the major difficulty of using the piers for transatlantic service in competition with piers that are more accessible to the center of the city.

From the point of view of New York City alone, the development of Staten Island is highly important, but Staten Island cannot be properly developed without the aid of better approaches from New Jersey, Manhattan and Brooklyn, and connections with the railroads serving the Port. Improvements in these approaches are being made and others are suggested in the Regional Plan which it is believed are necessary for the proper utilization of the waterfront of Staten Island.

BROOKLYN WATERFRONT

On the Brooklyn side of the Upper Bay and lower East River, the opportunities for improvement are like those on the west of Manhattan, namely in extending facilities already created. To make the present docks more efficient is more urgent than to extend the dock system in this location. A continuous marginal railroad north of the Bay Ridge section, such as is included in the Comprehensive Plan of the Port of New York Authority, has been shown on the Graphic Plan and would be the most important factor in increasing efficiency. Detailed studies showing how it might be located along Brooklyn Heights are shown in other special studies presented later in this volume.²

There being ample room for dock extension in places where the land areas are adaptable for providing the needed areas for communication, it would be unwise to incur enormous expense in extending facilities inland where the price of land and the built-up conditions of the area are serious impediments. The final decision in regard to the location of new long piers should be based on a weighing of the advantages of a central location against those of economy in construction. It should also take into consideration the effect of such new transportation facilities as are projected. On the lower frontages of the Upper Bay, south of Bay Ridge on the Brooklyn side, and correspondingly on the Richmond side, as much as possible of the land should be preserved as open space and as incidental to the national defense and residential requirements of the Region.

¹ *New York Times*, March 28, 1930.

² See Chapter XIV.

GUIDANCE OF BUILDING

A vehicular tunnel between Brooklyn and West Street, Manhattan, via Governors Island would greatly increase the accessibility of the South Brooklyn waterfront to the Borough of Manhattan.

NEWARK BAY

In the analysis of port and industrial areas in the Regional Survey,¹ the meadows on the west side of Newark Bay ranked second in the existing advantages which would make them useful for new port developments, the New Jersey waterfront of the Upper Bay ranking first. In another study of the availability of New Jersey areas for large scale industrial developments the Newark Bay meadow areas also ranked second, the first place in this case being given to the Hackensack Meadows. This would indicate that the west side of Newark Bay is destined to see a considerable expansion of the port and industrial developments which the City of Newark has started in the improvement of Port Newark. The bird's-eye view of Newark Bay included in Chapter XV shows a type of development for the west shore which would be in conformity with the Graphic Regional Plan. The existing basin and industrial buildings at Port Newark are clearly visible, and south of that are indicated the plans for an additional basin and piers as developed by the City of Newark for the reclamation of the remainder of Newark's portion of its waterfront on the Bay. Further south is indicated an area for future port expansion lying within the City of Elizabeth. It is proposed that this section be developed along lines similar to those adopted by the City of Newark. The relationship of these developments to the Newark Airport and the express highway between Philadelphia and the Holland Tunnel is indicated.

We have shown in the Regional Survey² that the Port of New York has more than sufficient waterfront land for the needs of port and industrial developments, and we believe it would be sound economy to reserve such of this land for parks as is least suitable for commercial development. One proposal for a waterfront park adjacent to the existing Corlears Hook Park is shown on the general plan of Manhattan,³ and another on the Newark Bay waterfront of Elizabeth is shown on the Graphic Plan.

Realizing the great advantage of its easterly waterfront for port development, the City of Bayonne has proposed that its Newark Bay waterfront be reserved for the residential and recreational use of its growing population. In this respect it is following out the general scheme for development as shown in the Graphic Plan. The park and highway proposals of the Bayonne City Plan Commission for its Newark Bay waterfront are described and illustrated in Chapter XV.

¹Regional Survey, Volume IV, pages 133-149.

²See Chapter XII, page 383.

³Regional Survey, Volume IV, page 139.

IMPROVEMENT OF TERMINAL FACILITIES

THE LOWER BAY

The Lower New York Bay forms the main entrance to New York Harbor and is flanked on its outer end by the Rockaway Peninsula on the north and Sandy Hook on the south. The easterly storms have forced the sand along both of these points of land toward the bay. This has resulted in the gradual extension of the Rockaway Peninsula several miles to the west within the past fifty years. The Sandy Hook Peninsula has likewise been built up to the north, but this growth has recently been deflected westward. The greater part of the Lower Bay still remains exposed and offers little protection for steamers.

In January, 1930, the Board of Commissioners and Pilots of the State of New York, with the approval of the corresponding New Jersey board, presented recommendations for improvements in the anchorage grounds within the Port of New York. This included a proposed breakwater about six miles in length to be constructed in the Lower Bay off the shore of Staten Island and an extension of Ambrose Channel so that a branch of it would pass through an opening in the center of this breakwater. These proposals are indicated in Fig. 27.

For comparison with this proposal of the Pilot Commissioners there have also been indicated in this drawing the lines of a causeway between Sandy Hook and the Rockaway Peninsula as proposed about five years ago by Colonel William J. Wilgus.¹ He suggested that such a causeway be traversed by rail and highway routes passing under a widened Ambrose Channel in tunnel and offering a short connection between the southern part of the Region and New York City, which would also serve as an easterly by-pass around the city. His suggestion was that the outer side of this causeway be developed as a sand beach at a natural slope, making the whole of it available for an extension of the bathing facilities which are in such great demand by residents of the New York region. A sketch showing a view through the portal to the harbor which would be created by this causeway, and the monumental towers and lighthouse proposed, is shown on page 235, and an enlarged view of one of the towers on page 236.

In presenting his proposal to the Regional Plan, Colonel Wilgus pointed out that it was designed to meet the need of a direct route between the northeast and southwest sections of the Region within the next forty years. Its construction, which has been estimated to cost about \$120,000,000, would save a much greater expenditure on crossings of the East and North rivers, as well as across the tributaries of Newark Bay, in order to facilitate outward expansion of the industries and population of the Region. To avoid the enormous expense of numerous bridges and tunnels, and the delays and congestion which will occur pending their construction over the rivers, Colonel Wilgus would create a great by-pass route passing southeast of the metropolitan center.

¹ See Regional Survey, Volume IV, pages 161-177.

GUIDANCE OF BUILDING

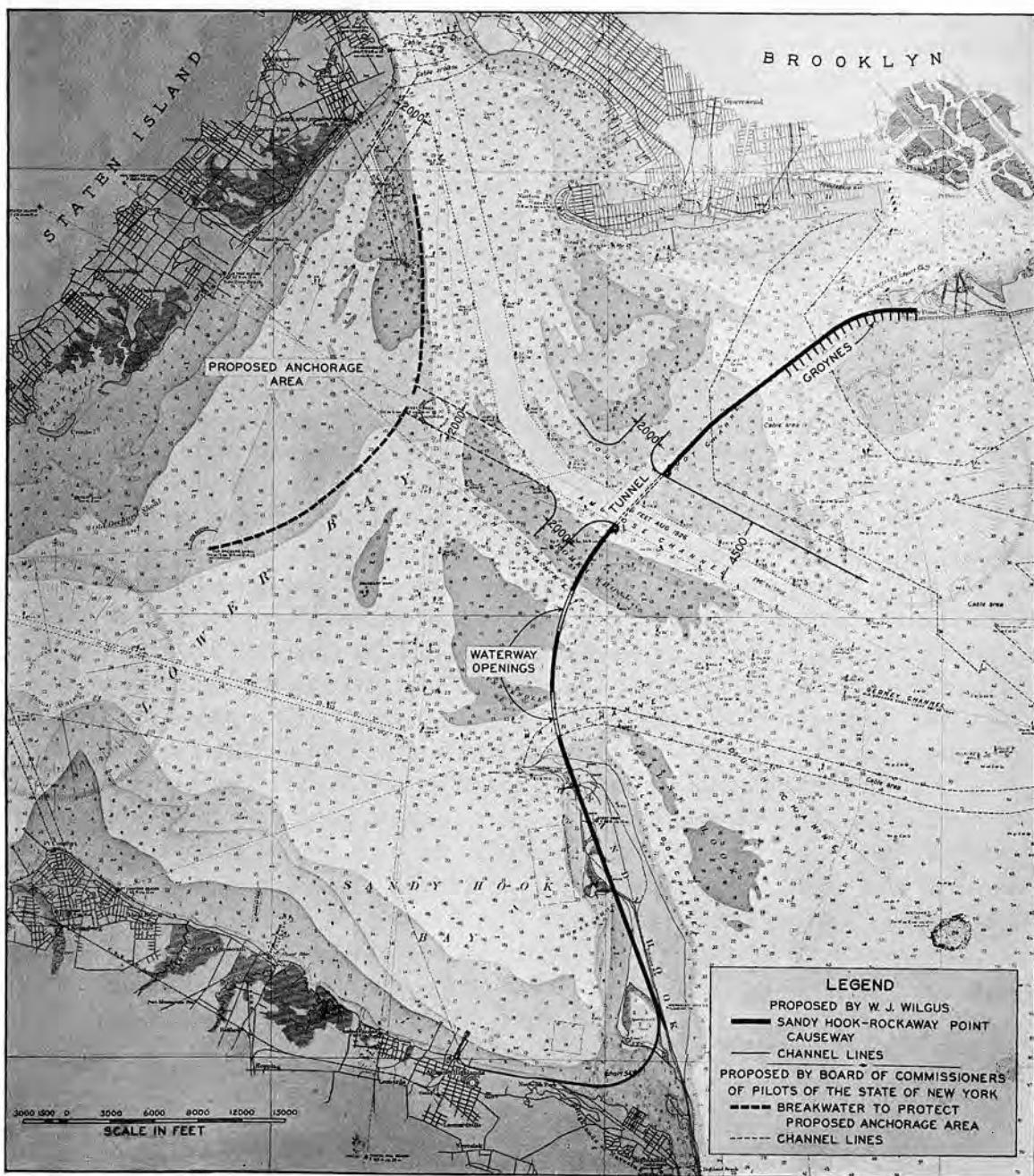


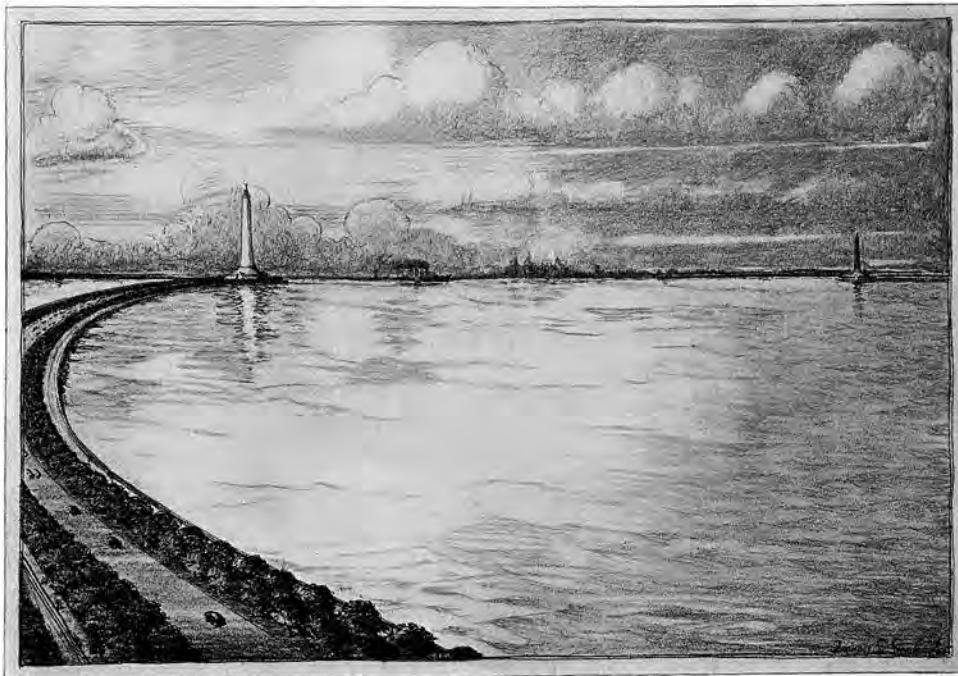
FIG. 27
LOWER NEW YORK BAY, SHOWING RECENT PROPOSALS

IMPROVEMENT OF TERMINAL FACILITIES

Colonel Wilgus gives the following brief description of his project:

"In seeking a shorter pathway between the northeast and southwest sectors another need becomes apparent, namely, increased facilities for sea bathing and other recreations that should be conveniently near the great population that will occupy the portions of the Region directly bordering on the sea.

"There is the need for a breakwater in Lower Bay—the apex of the southeast sector—for the triple purpose of protecting: (a) the northerly shores of New Jersey and easterly shores of Staten Island from ocean storms; (b) barge canal operation between Upper and Jamaica bays; and (c) the ship channel



Francis S. Swales, Architect

THE CAUSEWAY PROPOSED BY COLONEL WILGUS

Looking toward the ship channel, marked by two great lighthouses, under which rails and roadway would be carried in a tunnel.

entrance to Jamaica Bay.¹ The constant silting up of the latter is a real danger, as Rockaway Beach for the past century has been progressing westward at the average rate of over a city block per annum.

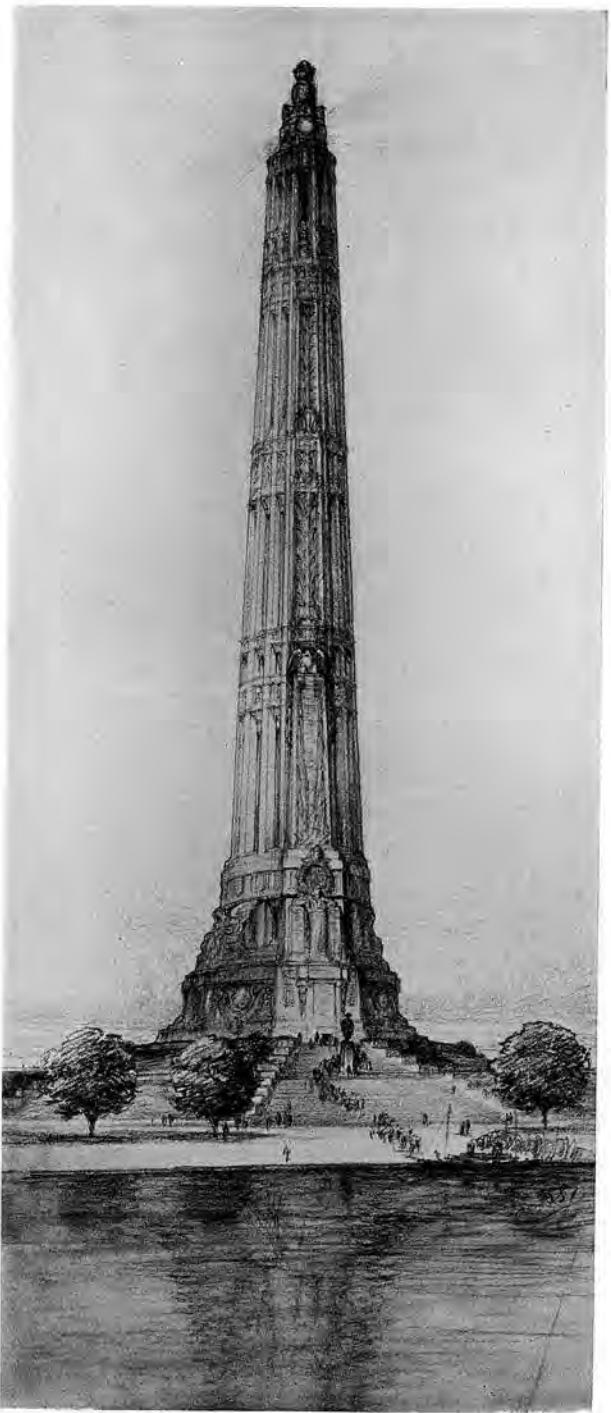
"It is evident then that there are pressing needs for a direct connection between Long Island and the mainland of New Jersey for the triple purpose of rail and highway access, bathing beach expansion and harbor protection.

"With these needs so apparent, what is the possibility of accomplishing the purpose?

"An inspection of the Coast and Geodetic Survey chart shows that the eight mile stretch of ocean between Rockaway Beach and Sandy Hook really is not such an obstacle to a connection between those points as would appear from a glance at the surface of the sea on a stormy day. In the main it is shallow water, the average depth of which is only from 18 to 20 feet. The filling of a causeway between the tips of the land projections already made by Nature is not beyond the bounds of practicability.

¹See Chapter XIV for reference to jetty proposed by the U. S. War Department.

GUIDANCE OF BUILDING



Francis S. Swales, Architect

Courtesy of Pencil Points

A CONCEPTION FOR THE LIGHTHOUSES AT THE HARBOR ENTRANCE

"The force of ocean waves against a barrier of this kind is, of course, not to be treated with scorn; but experience at Long Beach, Rockaway Beach, Coney Island and elsewhere demonstrates beyond peradventure that danger from that source may be avoided if a sufficiently flat slope is employed upon which the waves may gradually expend their force. In doing this, the very flatness of the slope on the ocean side of the causeway will produce some eight miles or more of additional bathing beach.

"In addition to the bathing beach a boulevard is proposed, 110 feet in width (an 80 foot driveway and two 15 foot sidewalks); also a commercial strip of made-land 100 feet wide facing the boulevard and ocean; also a sufficient space on the side facing the bay for four railroad tracks, two for through service and two for commuter and rapid transit service. The boulevard and railroad tracks would be carried under the entrance channel by tunnels constructed by the method used at Detroit, but varied therefrom, in the interest of economy, to meet this peculiar situation.

"The required width of the shipchannel and waterway in such a causeway is a subject for the most careful investigation of tidal currents and tidal flow throughout the entire port. For purposes of preliminary study a width of 4,500 feet is being used; this is in excess of the existing opening at the Narrows. On each side of the opening a monument of majestic proportions is proposed to mark the entrance to the nation's leading gateway and at the same time serve as a lighthouse and as a ventilating shaft for the tunnels beneath.

"The materials for this great fill would come from the excavations of government channel widenings and deepenings, and from new tunnel construction in New York and its environs—materials which otherwise perforce will be towed and dumped at sea some five miles beyond this site. Rock fill would be used for the exterior mounds and sand for the interior filling and top dressings.

IMPROVEMENT OF TERMINAL FACILITIES

"In this way, through the utilization of waste products, the entire cost of the project should not be greatly in excess of that of the subaqueous tunnels. As an offset to this comparatively moderate cost there are: (1) the value of the new beach; (2) the value of the made-land to be devoted to commercial purposes; (3) the enhancement in the value of the three-quarter million acres of most attractive land in Monmouth, Middlesex, Union and Somerset counties in New Jersey that will thus be put in convenient touch with Greater New York; (4) the tolls to be derived from the railroad tracks and boulevard; and (5) the savings effected at the East and North river crossings and along the thoroughfares in New Jersey, due to the diversion therefrom of this inter-sector traffic.

"It will be seen that in the interest of decentralization of population, by-passing of traffic, savings of cost, protection of channels and harbor, and bathing beach expansion, a link is urgently required between the two horns already created by Nature, known as Rockaway Beach and Sandy Hook; and that, properly planned, such a Giant Causeway has excellent prospects of being shown to be physically and economically practicable. The needs certainly are so compelling as to warrant a detailed inquiry before dismissing the dream as unrealizable.

"Should the outcome of such an investigation be adverse to the project, there will at least be comfort in the knowledge that a tentative plan for the achievement of a highly desirable end has not been lightly set aside."

It is interesting to note that the length of the breakwater proposed by the Pilot Commissioners in January, 1930, is about three-quarters of that part of Colonel Wilgus' proposed causeway between the tip of Sandy Hook and the Rockaway Peninsula. The average depth of water is about the same in each case. The feasibility of constructing either one of these projects is indicated to some extent by the success of the Dutch Government in its construction of a much longer breakwater as part of a reclamation project in the Zuider Zee.

The character of the Dutch project, however, is more comparable to the filling in of the shallow waters of the Upper Bay in front of Bayonne, an undertaking which would be smaller, simpler and less expensive per acre than the Zuider Zee undertaking. It would also be more profitable, owing to the immense value of the filled land. The Zuider Zee project involves the reclamation of 550,000 acres, which is over 30 times the size of the Hackensack Meadows, and equal to 10 per cent of the present usable land in Holland. The ultimate cost of the project is estimated at over \$250,000,000, and it is anticipated that the values it will produce will yield a profit.

Methods of Freight Distribution

One of the greatest problems in connection with transportation, and one which invites attention from the points of view of the need of coordination and of improved terminal facilities, is that of freight distribution. This matter was carefully considered in developing proposals in the Graphic Regional Plan for a trunk line railroad system including outer and inner belts, connecting and waterfront lines, and union terminals. The outer belt would be of importance both for passengers and freight, but especially

GUIDANCE OF BUILDING

for freight; the waterfront lines in most cases entirely for freight; and the inner belts primarily for passenger traffic. It is desirable to discuss briefly some broad principles and methods of freight distribution that are related to port and industrial development and that could not be illustrated in the Graphic Regional Plan.

In the Regional Survey¹ it was pointed out that about one-fifth of the total freight (railroad and steamship) handled in the port is interchange freight which is routed through the Port via the railroads, and that about two-thirds of the total tonnage is inbound as a result of the large consumption within the Region. Due to the geographical situation of New York in relation to the rest of the country and the sources of supply, and the further fact that the main railroad terminals are on the west, or New Jersey, side of the Port, a large amount of inbound freight has to be redistributed within the Port after reaching its rail terminals and before getting to its final destination. For outbound freight the reverse is the case, much of it being collected over long distances by various methods before it is assembled at a rail terminal. In the Regional Survey there was included a summary of the various plans for new trunk line freight facilities and for local distribution of freight within the various sections of the Port.

GENERAL FACTORS AFFECTING THE PROBLEM

The gathering and distribution of freight in large cities, from goods in small quantities to large carload lots, involve many very difficult questions. A variety of methods are in use in different cities of America and Western Europe. While the situation on Manhattan Island is different from that in other metropolitan areas, by reason of its congestion and isolation from the mainland, fundamentally it is not so very different. It differs only in degree and intensity from that found at London, Chicago or Paris.

In the United States the cost of the long distance movement, or what is called the "road haul," has been lessened by an increase in the carload and trainload units. But in spite of every effort the cost of gathering and distribution at freight terminals has steadily mounted. The principal reason for this—and it applies to waterborne traffic as well—is that, while wages of employes have increased steadily, there has not been developed any corresponding and effective method of increasing the actual number of units or tons handled per man hour.

Summarizing the case very briefly, and admitting that there are exceptions to any generalization, it appears that:

- (1) The cost of wages for terminal services has increased in the last twenty years to a much greater degree than is offset by the savings due to improvement in mechanical equipment.
- (2) The "road haul" of various kinds of freight expressed in cost per ton, or per car, for distances up to 100 to 300 miles, is frequently less than the cost of gathering or delivering at terminals.

¹See Regional Survey, Volume IV, pages 86-101 and 126-128.

IMPROVEMENT OF TERMINAL FACILITIES

(3) Switching or sorting cars can be done economically only on a large scale with a switching plant of very considerable size—say three to five miles in length.

(4) The existence of grade crossings, or any other interruption to free movement, is a serious impediment to economic distribution.

(5) As the cost of breaking bulk from and to the railroad vehicle is very expensive because it usually involves much hand labor, rehandling has to be avoided wherever possible.

In every port these facts have to be faced in seeking a solution of the problem of collection and distribution of freight.



Courtesy of Mr. Albert V. Sielke

FACTORS IN FREIGHT DISTRIBUTION

A winter view of traffic on West Street, Manhattan, at King Street in 1924. The elevated Miller Highway now traverses this section; the railroad tracks will be removed under the West Side reconstruction plan of the New York Central Railroad.

Methods That Can Be Eliminated from Consideration.—It is desirable in the first place to eliminate from any discussion of proposals those methods which are manifestly impracticable or improper. Among such methods are the following:

(1) The suggestion, frequently made, that there should be continuous railway tracks along the waterfront for reception and distribution of cars. However practicable and satisfactory this might be where continuous quay development exists, as in Antwerp, any such plan on the New York waterfront, however reinforced by special machinery, would still involve the movement and sorting of cars on the present grade level where it would be crossed at frequent intervals by traffic to and from the docks. This would be clearly inadmissible, and even if it were possible to separate the grades, would involve great difficulties.

GUIDANCE OF BUILDING

(2) The sorting of cars must not be done at the point of final delivery of the contents, but in a switching plant especially designed for the purpose. A long lead track with switch tracks leading from it is a very old but an extravagantly expensive method of sorting cars under present day conditions.

(3) Any scheme involving the handling of railway cars on the margin of Manhattan Island is undesirable unless there is a certain amount of sorting in advance, followed by an unloading in terminal warehouses, and finally a movement by street traffic vehicle to its final destination. The distance of the switch movement, or the street traffic movement, is not after all the chief difficulty. It is the time required and the hours of service that count up. It might be that a well adapted railway switching yard 10 or more miles away from the terminus would prove sufficiently economical to justify the intervening motor truck movement. In the same way a collecting and distributing system of warehouses outside the intensively developed parts of the city might avoid much of the handling, rehandling and resorting which now goes on in streets where movement for one block is more costly than movement for a mile or more on an uncongested highway.

Need of Consolidation of Facilities.—In a region served independently by as many trunk line railroads as enter the Port of New York there is bound to be a duplication of facilities. Since its organization in 1921 the Port of New York Authority has been striving actively for a consolidation of certain types of facilities for handling freight within the Port. A unification of railroad effort, both in terminal operation and in rail lighterage and carfloat movement, offers the best opportunities for economic savings. Such savings would enable reductions in terminal charges that would lead to corresponding reductions in the cost of commodities to the consumer.

Union passenger terminals have been created in many cities and as a rule have proved advantageous. It is probably easier, however, to arrive at working arrangements for the joint handling of railroad passengers than of railroad freight. Further improvements in methods of the joint handling of passengers within the Port of New York would undoubtedly assist in arriving at suitable arrangements for the pooling of freight-handling equipment and facilities.

One of the most obvious losses through the duplication of present facilities occurs in connection with the lighterage problem. The Port Authority and the railroads made a joint study of the situation in 1924. In the annual report of the Port Authority for 1923 it was pointed out that the waterfront yards of railroads on the New Jersey shore occupied approximately 50 per cent of the entire linear frontage between Bayonne and Weehawken. A system of consolidated carfloat and lighterage stations to supersede the present expensive and uneconomic rate methods was recommended as follows:¹

"If there were one or more consolidated carfloat stations, easily reached by all the roads, where all cars bound for the same destination, irrespective of their original source, could be loaded on the floats, a much better load factor could be obtained, a reduced number of carfloats would suffice, and a reduced number of tugboats would be needed. There would be a saving in the total expense, a reduction in the congestion which frequently obtains, especially in the Hudson and East rivers, and less capital

¹Port of New York Authority, ANNUAL REPORT, January 19, 1924, pages 19 and 20.

IMPROVEMENT OF TERMINAL FACILITIES

investment in equipment would be required. The belt line systems in New Jersey, connecting all the roads, will make possible the approach to such consolidated carfloat stations and bridges. A large amount of freight is, under existing methods of operation, also lightered by the various roads. In this operation cars from the break-up yards are taken to the waterfront yard, where the contents are loaded upon lighters, which are towed to the destination. This method largely obtains in the handling of export freight to foreign and coastwise steamers, the lighterage limits extending around most portions of the port so far provided with shipping piers.

"This is a more expensive operation than floating the cars themselves; it involves more labor in the transfer of the commodities to and from the lighter; the lighterage units involved are much smaller and many more in number than in the case of carfloats, and finally many lighters require the tugboat service. It frequently happens that many or all of the railroads have incoming freight bound for the same steamship piers, and frequently the quantity which each road has to deliver is much less than the full capacity of the lighter. This results in a great many small or underloaded lighters being separately moved to the steamship piers, where they congest the slips, and where they are often tied up for considerable periods. Much shifting is required in getting out the unloaded, and placing the loaded ones within reach of the ship's tackles, and returning them when discharged.

"Consolidation of this business at appropriate points would substantially reduce the number of lighters, the number of tugs, the time lost in shifting, and prove of economic benefit to the rail carriers and the steamship operators. The consolidation of carfloats and lighterage service would effect substantial savings. The mere pooling of equipment under one management would in itself result in substantial savings, and this step could be taken without awaiting the effectuation of the belt line systems in New Jersey and provision for consolidated carfloat stations."

There are available undeveloped sections of waterfront in the central part of the Port which would be suitable for the development of large scale consolidated stations such as are suggested. The larger proposed industrial areas shown on the Graphic Regional Plan include such available sites.

Incidentally the provision of improved marketing facilities for the city involves the creation of regional markets with joint freight yards and direct rail connections. The development of large regional markets with such connections and improved terminal facilities was advocated by the New York State Conference of



Courtesy of the Port of New York Authority

VIEWS OF FREIGHT HANDLING IN THE VICINITY OF
THE WEST SHORE RAILROAD FREIGHT TERMINAL,
PIER 23, MANHATTAN

Below—in 1918. Above—in 1928, with trolley tracks removed and West Street and the marginal way repaved.

GUIDANCE OF BUILDING

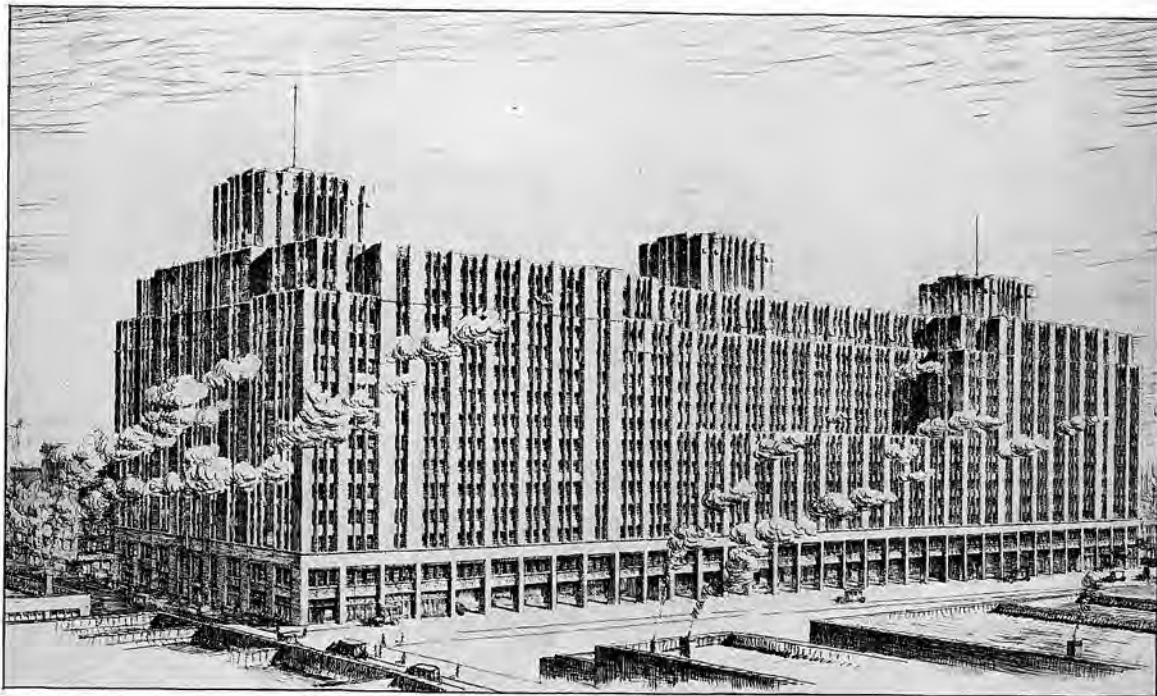
Mayors.¹ There is probably no finer site for a great regional market to assemble and distribute the immense food supplies of New York than that which would be obtained by reclaiming and developing the land under shallow water fronting on the Bayonne Peninsula on the Upper Bay. (See Fig. 26, page 229.)

GENERAL METHODS PROPOSED

Eight of the 11 trunk line railroads entering the Port of New York must reach Manhattan Island from the New Jersey shore. Even if it were practicable, at any reasonable cost, for these railroads to deliver their railway cars by direct rail connections to the congested Borough of Manhattan, the resulting congestion would make the remedy worse than the disease. The solution which experience and study suggest would be realized by the adoption of the following procedure:

- (1) Create ample facilities in New Jersey for sorting the railway trains.
- (2) Deliver the cars to large terminal warehouses (preferably union freight stations) where the facilities for handling the cars and their contents can be reduced to the lowest figure.
- (3) Supply in the upper stories of those warehouses rentable facilities which will enable every merchant consignee or consignor of freight to receive from or deliver to any railway at a minimum of cost, with the object of creating there a clearing house for less-than-carload freight which will avoid

¹*The American City*, March, 1930, pages 117 and 118.



THE PORT AUTHORITY'S FIRST UNION INLAND FREIGHT TERMINAL
Under construction in 1931 between Eighth and Ninth avenues, 15th and 16th streets, Manhattan.

IMPROVEMENT OF TERMINAL FACILITIES

handling between such a union station and Manhattan any freight not needed for local consumption in Manhattan.

(4) Greatly improve the ferry services and their approaches and, where necessary, create trucking routes from these warehouses to the shippers' places of business which will permit prompt, frequent, rapid, and therefore cheap means of communication. It is proposed that this shall be set up on the store door delivery principle, because in no other way can street vehicles be reasonably sure of loading in both directions.

(5) Develop the container system so that some if not all kinds of freight can be transferred from the railway vehicle to the street vehicle, and *vice versa*, with little manual labor.

(6) Develop the store door delivery system by creating an independent company which shall be owned on some cooperative basis jointly by the carriers and the chief shippers. This organization should facilitate cooperation and improve service by making better use of existing facilities. The pooling of trucking service and the utilization of streets in off hours will accomplish much, and postpone for some years extravagant improvements.

Inland Union Terminals.—The Comprehensive Plan of the Port of New York Authority included a series of inland union terminals in the Borough of Manhattan. Studies and plans relating to such terminals were presented in the Port Authority's annual report for the year 1924. In September, 1929, it was announced that the plans and specifications had been completed for one such terminal to be constructed on the west side of Manhattan. The site selected was bounded by Eighth and Ninth avenues, 15th and 16th streets. This building will occupy the entire block and will be 14 stories in height, the upper stories to be rented for storage or light manufacturing. The estimated cost of the project was approximately \$15,000,000 including acquisition of real estate. In announcing this project it was stated that it had been approved in the following terms on September 4, 1929, at a conference of presidents of the 11 trunk line railroads leading into New York and New Jersey:¹

"That railroads willing to use inland freight stations for the handling of less-than-carload non-perishable merchandise freight advise the Port of New York Authority that, if it will construct a universal inland freight station as proposed and have it ready for use within approximately one year, such railroads will use it in accordance with an appropriate agreement in which shall be set forth satisfactory conditions of usage and a definite commitment on the part of the Port of New York Authority to construct two additional inland universal freight stations if and when desired by the railroads.

"That investigations pertaining to an optional collection and delivery service plan be concluded as quickly as practicable, but action contemplating adoption of such plan be deferred pending decision of the Interstate Commerce Commission in connection with Docket I. C. C. 19,715."

In 1930 the site selected for the first terminal was approved by the New York City authorities; existing buildings were demolished and construction started early in 1931.

The Port Authority reports have pointed out that while only one-half of the railroad traffic entering Manhattan is in less-than-carload lots, three-quarters of

¹ *New York Times*, September 6, 1929.

GUIDANCE OF BUILDING

the trucking effort measured in miles and hours is consumed by the handling of this less-than-carload traffic. Doubtless, too, far more than three-quarters of the total cost is consumed by the less-than-carload business. It is planned to connect these proposed universal inland terminals by motor truck routes with the present rail terminals of the trunk line railroads.

Under the general type of solution described above, such inland terminals would be useful primarily for package freight which would move in less-than-truck-load lots. It would also be useful for truck-load lots moving to or from manufacturing concerns located in the terminal building. Truck-load lots to or from receivers or shippers at other sites might be delivered or picked up without going through the inland terminal, an extra charge, in addition to the rail rate, being made for this service.

The railroad companies have in the past hesitated to endorse such union terminals on the ground that they still might have to maintain all their present car-float terminals on the Borough of Manhattan and that the inland terminal would thus result in additional expense. It is the contention of the Port Authority that the operation of such inland terminals will permit the release of much of Manhattan's waterfront from railroad purposes and permit it to be used for shipping terminals.

Transportation between Rail and Inland Union Terminals.—The plan of the Port Authority to depend on motor truck service for moving freight between their projected inland terminal and the present rail terminals of the railroads is a logical first step in developing a system of inland terminals in Manhattan. The motor trucks will have to use the streets of Manhattan and ferries or vehicular tunnels across the Hudson River. It is expected that motor trailers and containers will be utilized and that approximately full loads will be carried in each direction.

After the first terminal is placed in operation it can be determined whether a direct rail connection between the inland terminal and present rail terminals should be provided. It is advisable to design the inland station so that such a change could be carried out. Various proposals have been made for rail connections for freight purposes between the New Jersey railroads and Manhattan.

In his report to the Amsterdam Corporation in 1908, Colonel William J. Wilgus proposed that the principal New Jersey railroads be connected by a system of small bore tunnels with a series of union terminals in Manhattan, and also with large industrial buildings. These terminals were to be so located as to promote decentralization of traffic and so constructed as to afford means for the ready transfer of the small bore car body containers to and from truck chassis for that portion of the shipments that would require short radius, store door collections and delivery on the surface of the city streets. Transfer platforms and warehouse buildings were suggested at the points of intersection between the small bore subway line and the present railroad freight lines. An intermediate marshalling yard would be provided at which

IMPROVEMENT OF TERMINAL FACILITIES

the subway cars would be sorted and dispatched in suitable order for their various destinations.

Thus the journey of the large railroad car which carries Manhattan freight would begin and end in the outlying regions of the Port, where trans-shipment to and from the distributive vehicle could be made in one operation. Also the distributive movement in Manhattan would be carried on directly beneath the surface, ex-

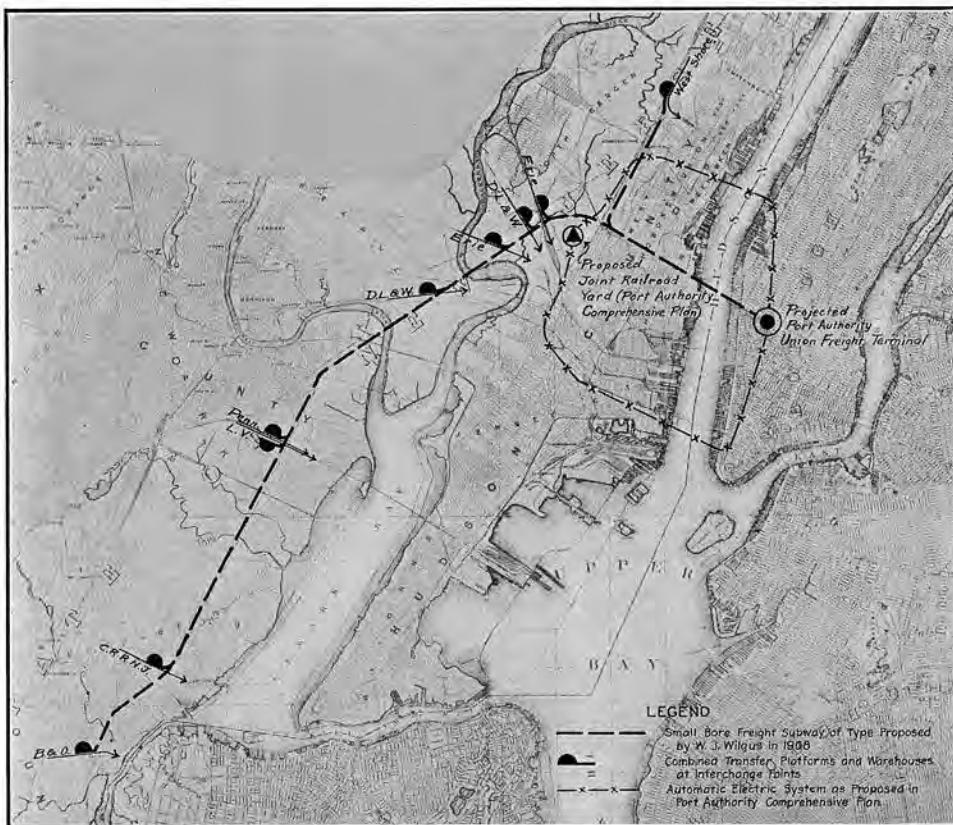


FIG. 28

DIAGRAM SHOWING POSSIBLE RAIL CONNECTIONS WITH THE UNION INLAND FREIGHT TERMINAL

cept for freight in containers calling for the completion of its unbroken journey without disturbance of contents, to be made on the city streets between the transfer points and the store door. With such a system it was believed the public and the railroad would enjoy savings in time and money and relief from street congestion on a marked scale.

The Comprehensive Plan of the Port Authority included a standard gauge automatic electric rail system in deep-laid tunnel connecting a union transfer yard on the

GUIDANCE OF BUILDING

meadows in Jersey City with a series of Manhattan union terminals. The construction of such a system has been deferred as not economically justifiable at this time.¹

In general the cost factor for distance of transportation in the Port of New York has been less than that for extra handling. Therefore, any system which has the least number of handlings has many advantages. Either a small bore tunnel connection or the automatic electric system would require two handlings of freight except for that which was destined to, or originated within, the union terminal building or an industrial building having a direct rail connection with the small bore tunnel system. A direct trucking service from the rail terminal to the shipper or consignee would eliminate one of these handlings.



Photo by Ewing Galloway, N. Y.

VIEW OF TRUCKING CONGESTION ON LOWER WEST STREET, MANHATTAN

The illustration in Fig. 28 shows how a single inland terminal such as that projected by the Port Authority might be connected by rail with the individual New Jersey railroads or with such a joint yard as is proposed in the Port Authority plan.

Use of Streets and Tunnels for Distributing Railroad Freight.—Under present conditions of freight distribution a great deal of use is made of streets, tunnels and bridges which would be eliminated if proper methods of freight distribution were introduced. There are two ways to lessen traffic congestion, one to increase space for traffic and the other to reduce traffic. There are limits to the former as a result

¹ See Regional Survey, Volume IV, pages 98-101, for discussion of these and other projects.

IMPROVEMENT OF TERMINAL FACILITIES

of the expense of street widening. The latter should be done only in the case of traffic that can be diverted without public loss and inconvenience. The removal of standing traffic from streets is one desirable means of reduction. It is of equal importance that as much railroad freight as possible be diverted from streets, and particularly from vehicular tunnels, bridges and their approaches.

Temporary expedients that have been tried to relieve street traffic, such as restriction to night delivery of freight, have not solved the problem. A voluntary experiment of such night delivery was tried in New York City in 1927 for a month, but was reported to be a failure, principally for lack of cooperation between the truck companies.¹

Perhaps, however, the most serious traffic problem that lies ahead is in connection with the use that is made of tunnels and bridges for motor trucks handling railroad freight. The congestion that is likely to occur as a result of this use will be unnecessary congestion, for it can be avoided by the adoption of more economic methods of distribution.

The building of the minimum crossings needed for vehicular traffic between Manhattan and New Jersey will involve enormous expense. The Holland Tunnel has been built and the 178th Street Bridge is being built. The Regional Plan proposed two more crossings, a tunnel at 38th Street, for which preliminary studies are now being made by the Port of New York Authority, and another connecting with the Harlem district. These crossings would provide 20 lanes of traffic, all of which will be required for efficient movement of general traffic between the New York and New Jersey metropolitan areas within the next thirty or forty years. The use of these vehicular crossings for railroad freight is uneconomic, and an interference with other traffic. Artificially ventilated tunnels in particular are an unnecessarily expensive type of facility for transport of railroad freight.

In 1926 the Interstate Commerce Commission authorized the Lackawanna Railroad to build a large freight terminal "within easy reach of the New Jersey portals of the Hudson River Tunnel." Referring to this proposal, the *Engineering News-Record* said² that it was "not beyond the bounds of possibility that it will become necessary

¹ Statement by Mr. W. L. Bull, Vice-President, Eastern Steamship Lines, *New York World*, November 16, 1927. See also page 259 of this chapter.

² Issue of October 28, 1926.



Courtesy of the Port of New York Authority
THE HOLLAND VEHICULAR TUNNEL UNDER THE HUDSON RIVER

View in westbound tube showing lanes for fast and slow travel.

GUIDANCE OF BUILDING

to limit passenger car traffic to certain hours of the day in order to permit slow-moving haulage traffic to use both lanes of travel. We may even hear in a few years of the Holland freight vehicle tunnel."

It was also announced before the tunnel was opened that "with the tunnel entrance virtually in the Erie's freight yards, the present time consumed in the transfer of freight between Jersey City and New York, Brooklyn and Long Island will be considerably shortened. Much of the freight now lightered will be diverted to the vehicular route."¹

It has been estimated that the pressure of freight traffic upon the tunnel may be such as to require the whole capacity in a few years. This pressure can be avoided only if and when a more economical method of crossing, other than lighterage, is provided.

Colonel William J. Wilgus, formerly Chairman of the Board of Consulting Engineers of the Holland Tunnel, showed the significance to be attached to its use for railroad freight transport in an address before the New York Section of the American Society of Civil Engineers on February 13, 1924. He said then that a small bore electrically operated tunnel, designed exclusively for the handling of freight, could be built at but little over one-third of the cost of a large bore ventilated tunnel designed for the handling of miscellaneous gasoline propelled vehicles of the general public and used for a variety of purposes that cannot be systematized as in the case of freight.

Simply stated, railroad freight traffic using the tunnel is occupying space that is required for other traffic and that costs almost three times as much as is required to build tunnels for freight traffic alone.

In reporting on the same matter to the Regional Plan, Colonel Wilgus added the further point that "the more that the use of the surface of the city streets is invited for the distribution of freight, to just that extent is existing congestion intensified and the proper growth of the community thwarted." If the railroads do the collecting and delivering, they can, as in London, adjust the hours of using the streets to avoid much of the present congestion.

It is too late to prevent the use of the Holland Tunnel, and it may be impracticable to prevent the use of further tunnels, for gasoline propelled auto-truck delivery. But the very fact that this extravagant method of distribution has to be followed to relieve existing conditions presents the strongest kind of argument in favor of providing an economic solution of the problem of freight distribution.

Store Door Delivery.—A type of store door delivery was for a while furnished by certain railroads in the Port of New York through the use of a "constructive delivery" station. Such a station was simply a designated point to or from which the cost of transportation was included in the New York freight rate. Between the "constructive

¹Port of New York, November, 1926.

IMPROVEMENT OF TERMINAL FACILITIES

delivery" station and the shipper or consignee, transportation was paid by the shipper or consignee. The railroad employed a truckman and trucked directly between the merchant's place of business and the rail terminal, the cost being split as indicated above.

On August 15, 1929, the Interstate Commerce Commission ruled that the use of such a "constructive delivery" station must be suspended as being discriminatory and in violation of Sections 2 and 3 of the Interstate Commerce Commission Act. At the same time the commission declared that it was without power to require carriers to establish store door receipt and delivery. In July, 1930, the Baltimore



Courtesy of Mr. Albert V. Sielke

WEST SIDE FREIGHT YARDS, LOOKING NORTH FROM 68TH STREET

The site of a projected development of air rights. (See Chapter XII)

and Ohio Railroad resumed a system of store door delivery from its Staten Island Terminal, but after objections by other carriers and several terminal companies it was discontinued. In November, 1930, a comprehensive plan of store door delivery by railroads entering New York City, with the Railway Express Agency, Inc., as a medium, was proposed by a joint committee of railroad and express company executives.¹

A system of store door delivery should be established as part of any plan for rail connections by either small bore or large bore tunnels to Manhattan Island.

¹ In May, 1931, it was announced (*New York Herald-Tribune*, May 16, 1931) that 13 railroads operating in the southwestern part of the United States would establish an interstate store door delivery system by trucks operated by transfer companies under railroad contracts. A similar system had already been installed by three trunk lines serving Chicago.

GUIDANCE OF BUILDING

It has been approved as follows by Mr. Irving T. Bush, President of the Bush Terminal Company:¹

"I agree entirely with the theory of store door delivery, but I am not certain whether it should be made by truck from New Jersey or from Manhattan. Much of the congestion which now exists at the railroad terminals in Manhattan is due to the fact that arrival notices are sent to the receivers of freight, and time is lost before it is removed from the railroad piers. In addition there are a lot of trucks calling for small shipments which congests matters much more than would be the case if the shipments went directly to trucks operated by a terminal agent and usually loaded to capacity."

The importance of the use of the motor truck in facilitating freight distribution has been referred to also by Mr. Julius Henry Cohen, who has said:²

"Store door delivery is today receiving the earnest consideration of railroad executives and shippers' representatives, as well as ours. Store door delivery would mean quicker and better service to the shipper, with a great saving of time, eliminating of terminal congestion, consolidation of freight into fewer cars, and reduction in use of stations and cars for storage."

To secure effective use of the motor truck in assisting store door delivery in connection with any improved system, there will have to be much more drastic control of the use of streets in respect to long time parking of all classes of vehicles.

The transportation of an article extends all the way from its point of origin to its point of destination; but for only a portion of its journey—the rail movement—does it have the protection of such regulatory bodies as the Interstate Commerce Commission, the various state public service commissions, and the mediation commissions in respect of labor difficulties. Whatever the methods of transporting freight to and from the store door on Manhattan Island, it would therefore seem advisable that a common carrier agency be created to operate between the end of the trunk line railroad haul and such a store door. The railroads should probably own the controlling interest in such an agency, which would be to their advantage as well as that of the public at large. As it is, the very life of the community and the well-being of the carriers are at the mercy of trucking interests and employes not now subject to regulation.

Yard and Terminal Services.—The consolidation and coordination of yard and terminal services in connection with rail and water transportation, including the development of a food terminal, an effective carfloat service and classification yards for the proposed belt line railroads, would release large areas of waterfront space from present uses and add greatly to the efficiency of the Port. One result would be to remove all question as to the capacity of the present harbor to deal efficiently with any possible increase of shipping for an indefinite period.

But much effort and considerable expenditure are needed to apply the methods necessary to preserve and develop the Port.

¹Letter of November 2, 1928.

²Interstate Commerce Commission, Docket No. 18300.

IMPROVEMENT OF TERMINAL FACILITIES

The provision of modern terminal facilities in the main harbor must be met primarily by the State and City of New York. One alternative that has been suggested is to develop a great port terminal in Newark. General A. C. Dalton, President of the United States Shipping Board Emergency Fleet Corporation in 1926, is reported to have said¹ in that year that if New York did not build a modern terminal on Manhattan Island he would "go over to Port Newark and with the Army Base there as a nucleus develop a real modern export and import terminal."

It is inconceivable, however, that New York will fail, in time, to bring the port facilities up to the standards that will make its position invulnerable. As a transportation "plant" for international commerce the present Port has unequalled potentialities for further expansion and for developing coordinated terminal facilities. The soundest economic policy is to use methods that will promote this expansion and consolidation. What is most wanted is not an alternative plant for major port operations but the efficient development of the one which exists and has been created, at enormous cost, during the past hundred years. Next in importance, it is desirable to develop supplementary port facilities in Jamaica Bay, Newark Bay and elsewhere. These supplementary facilities will add to the value of the main Port, but their success will depend on making the main Port more efficient rather than on attempting to provide alternative harbor accommodation of the same kind.

Need of More Cooperation.—Obviously there is now a serious gap between the railroad freight terminus and the shipper's warehouse, whether for the delivery or the collection of goods. This gap should be bridged in the simplest, cheapest and best way available. The finding of such a method is of vital interest to the two states affected, the municipalities within the Port, the railroad companies serving the Port and also to shipping business and industrial interests. The best solution can therefore be secured only by an intelligent cooperation between: (a) the railroad corporations; (b) the merchants; (c) the municipalities; (d) the Port of New York Authority.

The object of this discussion of methods of freight distribution has been to indicate the character of the improvements needed in these methods and to emphasize the vital importance of more coordination of facilities. Definite plans must be worked out and adopted by the public authorities.

A CENTRAL FOOD TERMINAL AND MARKET

We return briefly to the consideration of the need of more unification of food terminals and markets, and improved handling of food products, as a matter of vital importance to the health of the population as well as to the stability of the Port. There is no matter regarding which it is more important to secure guidance and effective planning under the leadership of the Port Authority. In this particular field isolated community action will not provide an effective solution. In the

¹ *Port of New York*, November, 1926.

GUIDANCE OF BUILDING

Regional Survey¹ we refer to the want of proper planning of marketing facilities in New York City, and to the uneconomic methods of slaughtering animals.

The Port Authority has had evidence of the willingness of the poultry trade to cooperate in working out plans for a union terminal.² The whole question connected with the development of food markets and distribution of food products, including control of slaughtering and distribution of milk, should be dealt with as one problem. The matter interests the Federal Department of Agriculture as well as both the states of New York and New Jersey, and the City of New York.

We suggest that one great food assembling and distributing center for the Region be created on the most scientific lines on land to be reclaimed from the shallow waters of the Upper Bay fronting on Bayonne. With this as a main food distributing center, subsidiary centers should be developed so as to secure an efficient system.

Such a development would not be more ambitious in relation to New York's ability and needs than the creation in recent years of the great union market in Chicago,³ covering 25 acres of ground and costing about \$17,000,000. This new market was created because the Chicago Plan Commission's improvement along the Chicago River waterfront compelled the produce market to seek a new location. There can be no real improvement of the East River waterfront of Manhattan without removal of the slaughter houses, and coordination of all facilities for handling live animals. Probably there are no greater difficulties to be overcome in New York than in Chicago in persuading the owners of slaughter houses and the produce merchants to move, if they are assured of fair terms and location in a scientifically planned market center. Great economies could be obtained with proper planning, and one of the chief impediments to improving the waterfront of the city would be removed.

Passenger Terminal Facilities

In recent years more progress has been made in developing great passenger stations with a comparatively high degree of unification and coordination than in the development of similar facilities in connection with freight distribution. Both problems of development are necessarily related, but are really distinct and involve the employment of entirely different methods in regard to distribution.

TRUNK LINE RAILROAD TERMINALS

The general question of passenger terminals of trunk line railroads has been dealt with in Plan Volume I. It is not possible to suggest any definite principles to govern location or unification of such terminals. Too many factors enter into the

¹Regional Survey, Volume I, pages 67 and 70; Volume VI, pages 51 and 52; Volume VIII, pages 125-133.

²Address by Julius Henry Cohen before the Brooklyn Chamber of Commerce, September 25, 1928.

³See Regional Survey, Volume VI, page 52.

IMPROVEMENT OF TERMINAL FACILITIES

problem of what is best to be done in each case, so that no general rule can apply. It may be said, however, that the degree of concentration should be such as to eliminate unnecessary street travel and wasteful competition, and should not exceed what will permit ease of movement to and from the terminals. For a city of the size of Washington, a single union terminal is ideal. For an urban region having the size and occupying such large territory as the New York metropolitan region, numerous terminals are needed, and unification should be obtained by connecting



Photo by Fairchild Aerial Surveys, Inc.

PRESENT AND PROPOSED TRUNK LINE PASSENGER TERMINALS IN MANHATTAN, QUEENS AND THE BRONX

(A) Pennsylvania Station; (B) Grand Central Station; (C) Proposed terminal over Sunnyside yards, Long Island City; (D) Proposed terminal over the 60th Street yards; (E) Proposed terminal over Mott Haven yards, The Bronx.

Other important terminals, not shown on this view, are proposed on the Graphic Regional Plan for northern Manhattan, Brooklyn, Staten Island and metropolitan New Jersey.

belt lines at the periphery of the most populous districts rather than by efforts to concentrate the terminals near the center.

Manhattan now has two great terminals in the Grand Central and Pennsylvania stations. Additional terminals will be needed, but they should be scattered so as to disperse rather than to further concentrate traffic and population densities. New railroad passenger connections with New Jersey should therefore continue to Long Island to serve the 3,640,000 people in Brooklyn and Queens.¹

¹For map and description of a complete system of proposed union passenger terminals, see Regional Plan, Volume I, Figure 3 (page 184), and pages 190 and 191.

GUIDANCE OF BUILDING

The fact that there exists the large area of yard space, now used entirely for freight, at what is known as the 60th Street yards of the New York Central on the Hudson River waterfront, Manhattan (see illustration, page 249) suggests the desirability of another terminal at that point. These yards are 18 blocks north of 42nd Street and five avenues west of Seventh Avenue, and are also at a point where accessibility can be obtained from the north and south without adding to the traffic of the

more central avenues. A new passenger terminal at 60th Street would be beneficial as a means of relieving the pressure at existing railroad centers. The opportunity for a great central station on the site of these yards is illustrated on page 220. We also propose that a union passenger terminal be established at the Manhattan end of the 178th Street Bridge.

Another important project from the point of view of securing a better balanced development of the city is that of creating a great sub-terminal at Mott Haven in The Bronx. In the proposals submitted for the Harlem River Valley (Chapter XIII) illustrations are given of the architectural possibilities of developing such a terminal. A new terminal at the Sunnyside Yards in Queens is included in proposals in Chapter XIV.

Brooklyn and Staten Island¹ also should have their own union passenger terminals, as indicated on the Graphic Regional Plan. During 1930 the Brooklyn Chamber of Commerce organized a committee to promote the establishment of real trunk line service in that borough, which is in itself a city of about 2,600,000.

In New Jersey six union passenger stations are proposed upon an inner loop which would pass through the main business centers in metropolitan New Jersey. No specific proposals are submitted herein in regard to the architectural treatment of or detailed approaches to these New Jersey terminals. One of them, however, in the southeast part of the Hackensack Meadows, would correspond to the Meadows Transfer Terminal proposed by the North Jersey Transit Commission and dealt with in considerable detail in their reports. The general approaches to this terminal are indicated in our plan for the Hackensack Meadows, Chapter XV.

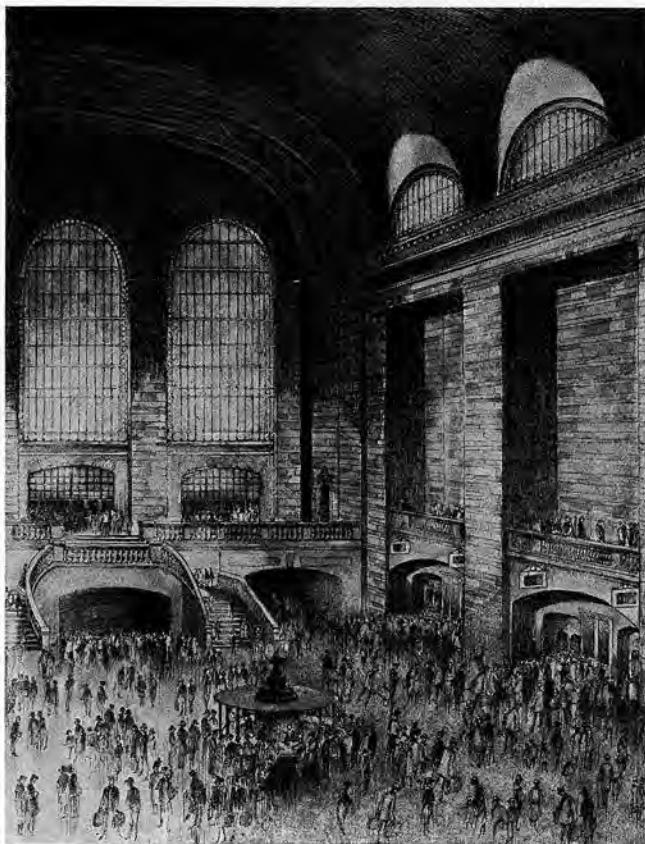
¹ A plan for the Staten Island terminal is shown in Fig. 75, page 519.



Drawn by Louis Weirter
PENNSYLVANIA STATION
Entrance to concourse.

IMPROVEMENT OF TERMINAL FACILITIES

One suggestion that is worthy of consideration as a supplementary project to those put forward in the Graphic Plan is Mr. Frederic A. Delano's proposal for the building of a new connecting line from New Jersey terminals to the Mott Haven district via 130th Street, Manhattan. The topography of Manhattan Island would permit of such a connection being made and it would fit in with proposals of the Regional Plan for belt line communications, street improvements in the northern part



Drawn by Louis Weirter

GRAND CENTRAL STATION

The concourse.

of Manhattan, development of the Harlem River Valley, and the proposed new terminal in The Bronx.

These projects have their bearing upon the efficiency of long distance travel as well as on commuting facilities.¹

A separate distributing system for railroad commuters is an important part of the Regional Plan.² In this case distributive loops passing through the main busi-

¹ See also pages 257 and 258.

² Regional Plan, Volume I, pages 192-207.

GUIDANCE OF BUILDING

ness centers are proposed in place of large terminals, which for this highly concentrated movement would lead to serious local congestion. Through such loops it is expected that a large proportion of the railroad commuters would be brought to within easy walking distance of their places of work.

Sub-Stations Served by Buses.—Perhaps too little stress has been placed on the opportunities now presented, as a result of the development of the motor bus, to assemble railroad passenger traffic in numerous sub-central stations and transport them to suburban terminals.

What the Baltimore and Ohio Railroad has done in this direction has been illuminating. It has improved and increased the sub-stations for bus services to its



THE 42ND STREET BUS TERMINAL OF THE BALTIMORE AND OHIO RAILROAD

trains in the Jersey City Terminal of the Central Railroad of New Jersey. Its comparative success, considering the experimental period through which it has been passing, justifies the expectation that New York and its environs will, in time, have a complete network of sub-stations which will enable railroads to operate more efficiently than by building large stations in already crowded centers.

The breaking up of railroad stations into small units, spread over the city in strategic locations, will offer all the advantages in convenience and comfort of larger stations. There could be no better way to give long distance travel some of the elasticity that it needs and that is now enjoyed by motor bus services. These sub-stations offer all the advantages of rail terminals and provide a promising method

IMPROVEMENT OF TERMINAL FACILITIES

of improving passenger services. It is an extension of the method adopted for freight handling by the Erie Railroad and others, under which commodities are transported between the railhead and branch central stations.

The Central Railroad of New Jersey and the Philadelphia and Reading lines (also operating from the former's terminal) may in time find it profitable to install bus services and use sub-stations for long distance travelers.

The sub-station and bus service will probably come into use also as a means of connecting central districts with coastwise boat lines. The transfer of the waterfront terminals of the New England steamers to a suitable location on the east side of Manhattan, and the development of a bus station as part of the equipment, would greatly add to the convenience and popularity of travel by these lines.

TRANSIT SERVICES AND FERRIES AS LINKS IN THE TERMINAL SYSTEM

The Graphic Regional Plan deals comprehensively with transit facilities. We recur to them here, and to communications by ferry, merely to suggest their importance as links in the main terminal system. While, as we have indicated, the placing of stations at strategic points around the central districts may lead to greater convenience of accessibility than to concentrate more of them in Manhattan, the degree of this convenience will depend on the proper development of the transit services, especially in creating circumferential links.

There is no part of the problem of communication which suffers so much from lack of broad scale planning and unified development as that which relates to suburban transit. That there should be easier access provided between Long Island and New Jersey, Long Island and Westchester, and between Westchester and New Jersey, or in other words around the centers of New York, has been urged by the most competent authorities and is part of the Regional Plan. The solution of this problem must be found, if intolerable future congestion of Manhattan is to be prevented.

In regard to ferries, we have urged elsewhere that their equipment and services should be improved. When the costs of ferry services are set against the costs of bridges and tunnels they show an economy which is not usually recognized. There is too great a hesitancy in increasing communications by ferry and in developing improved types of boats. Important connections by ferry between Brooklyn and Jersey City and other parts of the New Jersey waterfront have been delayed too long. The investigations of the Port Authority in 1926 showed that such ferries would be



Courtesy of the City Housing Corporation

SUBURBAN STATION, FAIRLAWN, NEW JERSEY

GUIDANCE OF BUILDING

of great value, would relieve congestion in Manhattan, would cut out delays, and would provide a reasonable return on the capital invested. A ferry between Atlantic Avenue, Brooklyn, and Jersey City was placed in operation in 1929.

With the aid of efficient ferry services but without sub-stations served by buses in New York City, certain railroad terminals on the New Jersey side of the Hudson River compete satisfactorily with more central terminals in attracting passengers. The Delaware, Lackawanna and Western Railroad, by reason of its fine terminal on the New Jersey waterfront, its good ferry service and connection with the Hudson River tubes, has a convenience almost equal to that which it would have on Manhattan Island. It should be made clear, however, that such decentralized services are not adaptable for commuting traffic, for which a rail distributing service is essential.

The Erie and Lehigh Valley railroads have good connections by ferry and tubes, and the latter still operates, "probably temporarily," its passenger business from the Pennsylvania Terminal. Possible future termination of the use of the Grand Central Station by the New Haven Railroad, and of the Pennsylvania by the Long Island and Lehigh Valley railroads would be an incentive to the development of bus services.

So long as there is appropriate development of connecting facilities by transit lines, ferries and buses, new passenger terminals for long haul traffic may be created outside of the main business areas without causing any greater inconvenience to the public in reaching them from numerous central points than they would have in going to Manhattan terminals.

Supplementing the general scheme of a system of new terminals, presented in Plan Volume I,¹ we confine ourselves to the suggestions which follow² as to the possible treatment of the new centers that seem logical to develop in the first instance. The new station being erected by the Pennsylvania Railroad in Newark is an example of the type of large, new sub-terminal that is needed to relieve pressure in the main center and assist in giving added value and distinction to cities and neighborhoods in the environs.³

Terminals for Motor Vehicles

The railroad always has had to provide its own facilities for stations and yards, but, up to the present, the motor vehicle has been able to utilize the public street to secure most of what it needs for standing space, so that any proposal that owners of these vehicles should provide or obtain special space off the street presents a problem of serious difficulty. The difficulty is due not solely to the fact that the public authorities have permitted buses and other mechanically propelled vehicles gradually

¹Regional Plan, Volume I, pages 190-191. ²See Chapters XII, XIII and XIV. ³See illustration in Chapter XV.

IMPROVEMENT OF TERMINAL FACILITIES

to enjoy privileges in the use of public space that railroads do not and could not have, but also because the use of highways and streets by free-wheel vehicles is a long established use, and standing on the street is incidental to that use. The problem that presents itself is in large part how to distinguish between the use and the abuse of the public right of way. It is more than that, for it involves regulation of traffic, so as to facilitate freedom of movement, in directions that represent some interference with proper use. For example, to create a one-way street is to prevent what is logically a proper use in the interest of regulation of traffic. Then there are innumerable cases where the distinction between what is proper or what is improper cannot be determined. More loading and unloading facilities on private property will relieve the streets of congestion due to standing vehicles.¹ This relief is needed not only to enable through traffic to move more rapidly, but also to enable those engaged in business to obtain reasonable expedition and saving of cost in connection with delivery and shipment of merchandise.

SUB-STATIONS FOR RETAIL DELIVERIES

Some years ago Mr. Percy S. Straus, Vice-President of Macy's, originated a plan for general delivery of bulky products at night and has advocated that the system be made more general by order of the city authorities.

The method employed by Macy's involved the erection of a warehouse in Long Island City and creation of suburban sub-station delivery points. Such bulky commodities as furniture, carpets, housewares, and the like are kept in the warehouse, purchasers buying from samples permanently in the store. During the night trucks carry these bulky goods from the warehouse to the strategically placed sub-stations, and the following day house-to-house delivery is made.

Of the goods shipped to Macy's store from terminals or local manufacturers, over 10 per cent are moved after daylight or before dawn. Other department stores are following the lead of Macy's, but the system has not been widely adopted.

Whether or not it may be practicable to spread deliveries of bulky products over the twenty-four hour day, it is probable that all great department stores will erect buildings in suburban areas from which they can make deliveries to their customers in these areas.

PARKING FACILITIES

There is a parking problem not only in the largest business centers but also in many of the business and residential sub-centers in the smaller communities within the Region. The attitude of the public and of business interests toward parking has changed considerably during the past five years. Regulations which were

¹ Regional Survey, Volume III, pages 139-142. See also recommendations for intermediate areas on page 176 of this volume.

GUIDANCE OF BUILDING

previously considered excessively stringent are now not only accepted but welcomed by both the motorist and the business man.

One of the first comprehensive studies of the traffic problem was that made by the First National Conference on Street and Highway Safety, held in December, 1924, under the auspices of the United States Department of Commerce. The Committee on City Planning and Zoning of this conference made the following recommendations in regard to the parking problem:

"So far as concerns the central business district of the very large city, street capacity and automobile storage or parking space adequate to accommodate a very general use of the private passenger automobile cannot reasonably be provided. This is not saying that such facilities could not have been provided if they had been planned for when the city was originally laid out. But the expense would now be practically prohibitive. Probably the best that can now be done is to provide large automobile storage stations near the edge of the congested districts, from which places persons can either walk to their destination or transfer to subway, street car, bus or taxicab.

"With the exception of these few very large cities, however, all communities can provide, more or less adequately, for a very considerable use of the private passenger automobile for shopping and business calls and for getting to and from work within the central business district. The city in which such facilities are unavailable will be at a serious disadvantage.

"Failure to deal comprehensively and constructively with the automobile storage problem is responsible for much of our traffic trouble. Adequate storage space is an essential part of any transportation system. In order that the automobile may perform efficient service for the community, it is almost as necessary that convenient and adequate provision be made for short-time stops as that adequate roadways be provided for movement. Facility for stopping and facility for movement are both important, and in a complete traffic plan neither can be ignored. The failure to recognize responsibility for dealing with the problem of automobile day storage or parking has led generally to haphazard parking arrangements in ill-chosen locations with almost a maximum interference to traffic movement."

A statement of the parking problem and a survey of the methods of its solution have been presented in the Regional Survey.¹ It was there pointed out that, while it is probably illegal to occupy street space by parked vehicles, it would cause an unnecessary hardship and probably be impracticable to forbid such use where no interference results to neighbors or the traveling public. On the other hand, the private use of space needed for moving traffic on an important thoroughfare obviously causes a public hardship. Ordinances limiting parking time or prohibiting it entirely have therefore been generally enacted and public opinion has demanded additional parking facilities accessible to business districts. The construction of terminal garages and the compulsory provision of loading and unloading spaces within property lines for certain types of establishments were recommended.

Recent Developments in Restrictions.—A strike on the rapid transit lines in New York City in July, 1926, led to the temporary prohibition of parking within certain hours on some of the main Manhattan avenues south of 59th Street. The advantages

¹ Regional Survey, Volume III, pages 96-98.

IMPROVEMENT OF TERMINAL FACILITIES

were so obvious that these restrictions were made permanent and they have since been extended to many other main highways. In October of the same year it was stated in an article in the *American City*¹ that one of the principles in regard to parking should be:

"That the right to *move* a car is superior to the right to *store* a car on the public ways, and that when or where parking causes a net economic loss to the public through hindrance to safe and convenient travel, there should be limitation—or in extreme cases, at certain hours, total abolition—of parking, both commercial and private; and that in some cities, the complete prohibition, during certain hours, of private motor and horse-drawn vehicles from congested downtown districts, and limitation of commercial vehicles to consolidated service, is to be regarded as an ultimate possibility."

This statement also recommended that such regulations might be supplemented by the provision of by-pass routes for through traffic, the provision of storage garages or other off-the-street parking and loading facilities and for the widening, arcading or double decking of existing downtown streets to the extent that property owners would be willing to pay benefit assessments for such improvements.

On January 10, 1928, the City of Chicago instituted a complete prohibition of parking in the entire Loop district. This naturally aroused much criticism, but after a few months it was generally admitted that its enforcement had led to many benefits for everyone concerned and that both traffic moving through the Loop and that destined for points therein, as well as the business concerns located within the Loop, were enjoying these benefits. The regulations are now accepted as one of the biggest accomplishments toward solving the traffic problem in Chicago. It is doubtful whether these accomplishments would have been possible of attainment if it had not been the case that a large area in Grant Park, east of the Loop district, was available for parking cars at little or no cost.

The parking restrictions instituted in the theatre district of New York City in the spring of 1929 by Mr. Grover Whalen, then Police Commissioner, were first considered extremely drastic measures. They consisted in the elimination of both parking and right and left hand turns within the entire theatre district during certain evening hours. Some adjustments were found necessary and changes were made to take care of these, but in general the restrictions were found to offer a great improvement and have been gladly accepted as permanent.

This experience and that in Chicago have demonstrated the necessity and the advantages of drastic action in dealing with certain special cases of the parking problem.

The Citizens Street Traffic Committee was organized in 1929 under the auspices of the New York Board of Trade. The parking sub-committee of this committee has made some constructive suggestions for dealing with the parking problem in New York City. These have included the following recommendations, which we endorse:

- (1) That the Police Department issue summonses to violators by notices attached to their cars instead of summonses served personally.

¹ Issue of October 4, 1926.

GUIDANCE OF BUILDING

(2) That facilities should be provided in various congested areas for the storage of automobiles off the streets and that the zoning ordinances should be so amended as to permit the erection of such facilities where needed.

(3) That each traffic precinct should have a separate mobile inspection squad to assist in enforcing the parking laws.

(4) That "For Sale" parking be prohibited.

(5) That parking be prohibited in any place where there is insufficient space for a moving automobile to pass between a parked car and a street car or pillar of an elevated structure or any other object permanently fixed in the street.

(6) That parking should be prohibited from 7:00 A. M. to 6:00 P. M. on certain streets in the congested areas on account of their narrowness and other special conditions.

Terminal Garages.—Rapid strides have been made in the development of types of storage garages suitable for construction in office districts and free from the nuisance features of the old time garage and much more efficient in their use of space. In some cases these have formed a part of a large office building.

The first types of special multi-story garages to be developed utilized ramps for access to the various floors. One of the earliest of these to be erected in New York City was the spiral ramp garage in East 104th Street, Manhattan. Another type of ramp garage is the D'Humy Ramp Garage, in which the building is divided into two sections, the floors of one section being placed intermediate in height to the floors of the adjoining section. More recently several types of elevator garages have been developed, in which the car is left by the owner in a receiving section on the first floor and delivered from another section of the same floor, all of the handling within the building being by machinery. One of the first garages of this type to be built in New York City was the Kent Garage on East 44th Street, Manhattan.

It is not a function of the Regional Plan to specify the type of storage garage which should be constructed;¹ it is sufficient to state that it should meet the requirements of efficiency, avoidance of nuisance and a low cost of operation which will permit low rates for short time or all day storage.

The design of skyscraper garages of different kinds, elevator and ramp, has been occupying the attention of many engineers. It is now in a state of transition, in regard to testing of different inventions, and some plan will evolve as a result of experience that will commend itself as best.

A Composite Solution Required.—A solution of the parking problem lies in a combination of police regulation, public education, better planning of street systems in undeveloped areas to provide for curb-side parking where feasible and the construction of suitable facilities strategically located for the storage of automobiles off the public streets. Mr. Edward M. Bassett says that the best way to prevent parking in public streets is to force parking on private space, and any adequate solution must include the maximum possible provision for off-the-street parking.

¹For illustration of some types, see Regional Survey, Volume VI, pages 138 and 139.

IMPROVEMENT OF TERMINAL FACILITIES

In the most densely built-up areas it is impossible to add sufficient street space to give all the curb-side parking and unloading facilities that have been customary in the past. In such localities the terminal garage, coupled with anti-parking restrictions, offers the only real relief. In the unplanned areas and suburban areas which are not yet intensively built up, the problem should be solved by a combination of proper street planning and the provision of off-the-street storage facilities. In such areas local business centers should be provided with extra roadway space, a portion of which could be set aside for short time parking. The additional value which such facilities will give to the fronting business property will surely make up for the loss in area available for private development.

The high cost of land and the concentration of traffic in Manhattan are responsible for the attempt being made to provide parking garages in the form of high buildings. We have already referred to the necessity for these garages and the dangers incidental to their development.¹ We believe that any over-centralization of parking in garages will not really lessen street congestion in their neighborhood in the long run. Except where existing congestion makes the skyscraper garage a necessity, it is better to have low garages of two or three stories, and the ideal condition is to provide the parking space on the ground. Outside of the central areas there is no lack of ground space, and artificial methods of creating overground space because of overcrowding the land with buildings are uneconomic.

Adequate facilities must be provided in two ways for two types of traffic. Each building should be required to provide a reasonable amount of space for the parking incidental to its use, and simultaneously public garages must be erected for parking of transient cars.

BUS STATIONS

In discussing the need of public garages we have to consider the need of stations for bus terminals. The bus is likely to increase greatly as a passenger carrier, to the full extent that space on streets will permit sufficient rapidity of movement. There seems to be no doubt that the trolley is doomed as a permanent method of travel in crowded central districts. In the suburbs, where there are fewer demands on main thoroughfares, trolleys can still operate with advantage. In open districts, they remain an effective means of travel when given special rights of way. But it is in the suburbs and open country that there is most abandonment of trolley lines for buses. In central districts, where the former are least appropriate, they have the advantage of possessing a high earning power under conditions of partial monopoly. Buses are certainly more flexible and fit in better with other types of vehicles, and the capital cost required to operate them is less than for trolleys. But the relative speed and efficiency of either kind of vehicle depends on whether or not conditions are

¹ Regional Survey, Volume VI, page 140.

GUIDANCE OF BUILDING

favorable to their operation. One highway or street may be better for one or for the other. It remains true, however, that the development of bus travel has been progressing rapidly in recent years, while much trolley operation has been abandoned.

It is of interest to note that in London, with an extensive trolley system under municipal control, there were no less than 5,953 motor buses licensed during the year 1930. The number of buses operating in New York City in 1931 is estimated at 1,900, with perhaps an additional 1,500 operating in the rest of the Region.¹

With the coming of more buses there must be adequate development of suitable bus stations.



J. M. Arrelano, Architect

DESIGN FOR A BUS TERMINAL

Bus lines are divisible into three groups. One of these, that which is ancillary to railroad services, we have already referred to. The railroads will take care of the terminal problems of these lines. There are two other groups, namely:

(1) Local transportation lines which furnish, within municipalities, service similar to that provided by local trolley lines.

(2) Suburban motor bus lines which provide service between the metropolitan center and outlying suburban districts.

The first of these classifications could not be expected to provide terminals any

¹ Figures supplied by *Bus Transportation*.

IMPROVEMENT OF TERMINAL FACILITIES

more than does the ordinary street car. They pick up their passengers at frequent points along their routes. They require storage and repair garages corresponding to existing trolley car barns. It is important that these garages should be located so as to avoid serious congestion on the bounding streets.

The second group of lines now use hotels or department stores or special stations for their terminals. This has the advantage of distributing the terminals in small units. Probably the concentration of such facilities in larger terminals would place a very serious burden upon the street system in the neighborhood of terminals, unless they are well distributed in conformity with a proper plan.

There is great need for special bus terminal facilities in suburban districts and in small cities in the environs where buses operate from focal points to surrounding districts. We show a simple design for a small terminal for such points. The important thing is to have a dignified building with convenient internal arrangements away from but near the crowded business street. Passengers prefer to walk a short distance to a suitable terminal rather than to face the discomforts of getting on and off buses in crowded streets.

Where buses are used as feeders to suburban railroad stations, the proper place for the central terminal is within railroad stations. Even if distributing loops connect all railroads with the most convenient rail terminals, there will still be room for bus operation for large areas not served by rapid transit lines.

Airports

In Plan Volume I we dealt with the question of the location and arrangement of a system of airfields. We submitted proposals that were based on a reasonable estimate of probabilities. No one can foresee the extent of improvements in airplanes and predict uses that will depend on these improvements. It seems likely however that airplane travel will always be something of a luxury and will never seriously compete with railroad travel or be used as a regular form of local transit. Nor will it be used for freight in any bulky form, but only for express and mail. It may be capable of transporting a large amount of small articles on which high rates can be paid, but it will never affect, in any great degree, the trade of the railways.

In considering the design of airports, the same considerations apply. An airport should be part of a unified terminal system and should provide for from 300 to 500 aircraft and have a dignified group of terminal buildings, including an arrival and departure station and offices, and a modern hotel having 200 or 300 bedrooms. The more distant the landing field is from the center of the city, the more necessary it will be to provide adequate hotel accommodations and other features that will make the traveler feel that he has all the social conveniences he wants, immediately he

GUIDANCE OF BUILDING

gets on the ground. The hotel should have an uninterrupted view of every part of the airport and may well include an observation tower for visitors. It is of great importance that a landing field should not be interrupted by building and should have as large a free space as possible.

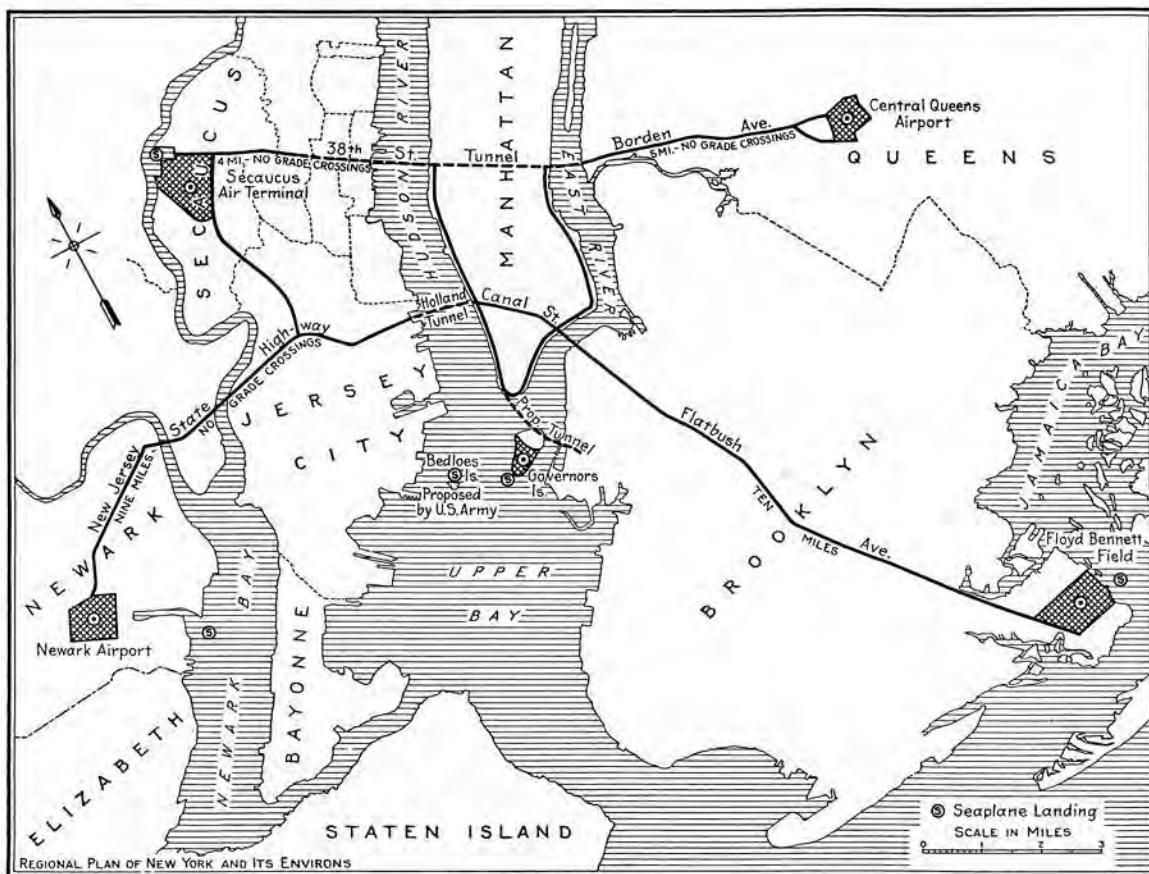


FIG. 29

IMPORTANT AIRPORTS, EXISTING AND PROPOSED, THAT WOULD SERVE THE METROPOLITAN CENTER
Showing express highway and other main highway connections. The Glenn Curtiss Airport, equally accessible, has been developed on Flushing Bay north of the limits of this map; it is illustrated on page 272.

The next and probably the most important feature of all is the need for rapid transit between the airplane field and the center of the city, both by road and rail. Well arranged garages should be provided and ample facilities for hiring automobiles.

It has always to be borne in mind that airplanes are subject to more wear on the ground than in the air, and this suggests the importance of having landing fields properly planned.

IMPROVEMENT OF TERMINAL FACILITIES

It is believed that there can be no ideal design for an airport or any specific principles that can be considered as applicable to all designs in the same degree. The studies made by the Regional Plan staff confirm the view expressed to them in a communication from Mr. Archibald Black, of Black & Bigelow, Inc., Air Transport Engineers, when he said that he did not believe that it was possible to establish any single design which could properly be called an ideal airport layout. Just as every city or village plan has to fit in with its local conditions, so should every airport design be made in harmony with the surrounding district and with due regard to existing obstructions and transportation facilities. For instance, the question of whether or not the airport is to provide for transport flying, private flying and other types will have an important bearing upon the design; so also would meteorological conditions, type of soil and other elements.

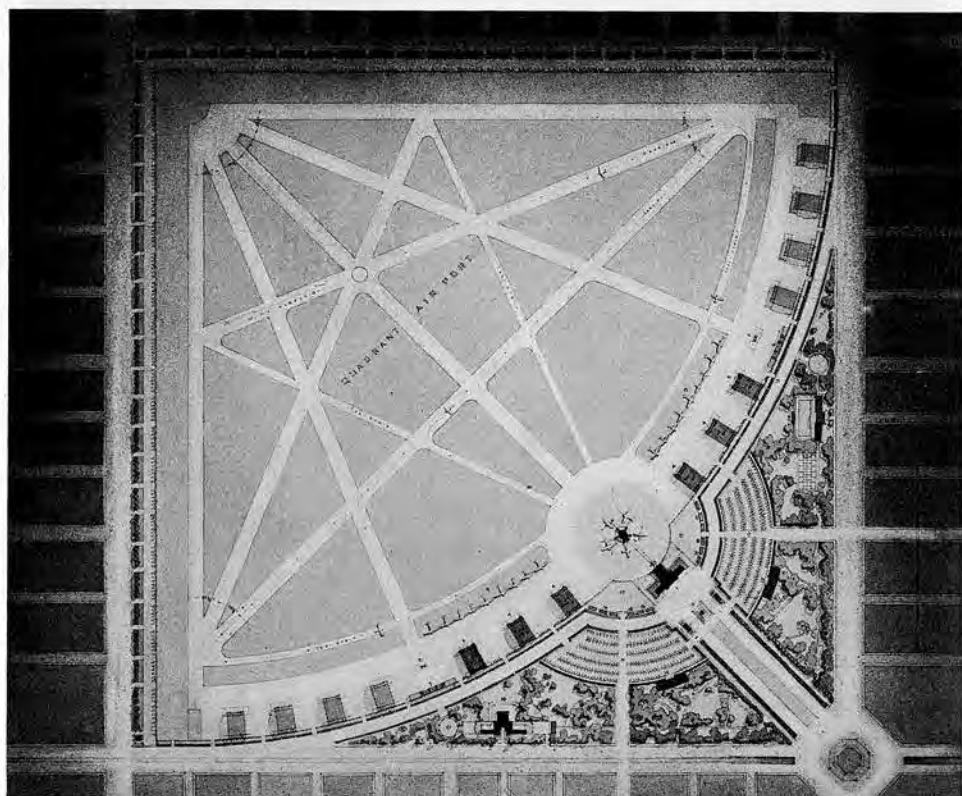
During 1929 a competition was held by the Lehigh Portland Cement Company, with a view to securing a practical design to be incorporated in modern airports. Two hundred and fifty designs were submitted and four of these were awarded prizes. The winning design is reproduced herewith as an illustration of possibilities. The requirements of the competition were generally regarded as satisfactory, but Mr. Archibald Black, in the *American City* for January, 1930, pointed out certain deficiencies.

It is considered desirable in any design to have a total distance of 4,200 feet across the airdrome, providing for 3,500 feet for landing and take-off purposes and a marginal strip 350 feet to 600 feet wide on the outer edge. Any buildings within this marginal strip should not exceed in height one-seventh their distance from the edge of the landing area. The paved runways should be 100 feet wide.

The land acquired for fields should be large enough to insure that planes may rise on an angle of one in 10 or even one in 15. This means that the area acquired must be sufficient to permit the reservation of strips of open water or land surrounding the actual landing field. Such strips of land should be used for public open space or developed with low buildings.

Airports should be designed so as to express fitness to purpose and order and dignity as centers of an important transportation service. The hotels and administration buildings should be of good architecture for purely utilitarian reasons. The openness of the airfield gives opportunity in a special degree for display of good buildings or for showing up bad buildings as a blot on the landscape. As one writer puts it, the indispensable nucleus of an airport is a park, and the buildings about it should be an ornament instead of an eyesore in the landscape.

Either land must be acquired that is accessible, or the conditions of accessibility must be created by construction of rapid transit and highway facilities. Adequate parking for cars is a need of major importance that must be met. There are European airfields that cannot be approached within a mile on days devoted to exhibition flying, for lack of parking facilities.



Designed by A. C. Zimmerman and William H. Harrison

AIRPORT DESIGN

Entry winning first prize in Lehigh Portland Cement Company competition.

IMPROVEMENT OF TERMINAL FACILITIES

The changes that take place in the development of cities as the result of any new method of transport are usually gradual. It takes long enough to perfect modes of transport or other inventions to permit adjustments to be made in physical structures and civic growth by a process of evolution. It was fifty years after the railroad was introduced before it was put to its full use—and it took over twenty years to perfect the automobile. The airplane and seaplane will probably need another twenty years from now to become effective as a means of travel for any large number. Air travel will develop enormously, but it will take time. Anticipations based on the assumption that it can be used immediately on a great scale in substitution for rail services will lead to waste and disappointment. It will not replace the railroad, the motor, or the ship, but will supplement land and water services. Those who visualize flat-topped cities and landing areas on the buildings are assuming an intensity of air use that is neither likely nor desirable to be realized.

We may anticipate changes of the same kind that new forms of transportation have created in the past; for example, changes in the situation of centers. Railroad stations did that. The motor car is now doing it. The airplane will result in new towns growing up near the best places for landing fields, probably to as great an extent as it will force existing towns to make adjustments in their structures.

It is likely that the development of adequate airports will continue to be slower than the development of the efficiency of the airplane. The cost of landing fields is still high in proportion to returns. An airport on the waterfront has the advantage not only of providing for two kinds of planes but also of providing the cheaper port facilities that seaplanes require in comparison with land planes, thereby reducing the landing field costs.

New York, with its ample water areas, is especially adaptable for seaplanes, and it is probable that coast services will be conducted by these as equipment improves.

The New York region has the most wonderful opportunity to develop airplane and seaplane landing places without abandonment of its skyscrapers in existing high building districts. Its extensive water areas and the nearness of level areas on Long Island and the Hackensack Meadows, give it ample space for fields within easy reach of the center. Only one thing may injure New York's opportunity to take advantage of air travel in future, and that is unwillingness to control adequately the height of buildings so that safe landings can be made near the center of the city.

The airplane is introducing a new element in connection with city building. As it may be impracticable to restrict building heights merely to facilitate air transportation, it is probable that air transportation will have to suffer from restriction

GUIDANCE OF BUILDING

because of high buildings. But city authorities and owners of property may find it desirable to agree upon restrictions in the building heights in certain areas so that air services may not suffer unduly from this cause.

One of the districts where control of building heights is especially needed is adjoining the site proposed by the Regional Plan for a major airport in the neighborhood of Maspeth.¹ In this connection it is of interest to note that the Pennsylvania Railroad started in 1930 to run boat trains through Maspeth to connect with the Hamburg American Line steamers.

The use of Governors Island as a small central airfield, in preference to the flats in the Lower Bay, is desirable not only because of its greater accessibility, but also because the more northerly site has clearer atmospheric conditions.

Governors Island could be enlarged by filling in part of the surrounding water areas. Its present size of 165 acres could be increased so as to provide a small and convenient landing field with room for such military needs as are considered essen-

¹See Chapter XIV.



Courtesy of New York Air Terminals, Inc.
AIRPORT PROJECTED ON THE HACKENSACK MEADOWS AT SECAUCUS

IMPROVEMENT OF TERMINAL FACILITIES



Photo by Fairchild Aerial Surveys, Inc.

FLOYD BENNETT FIELD

Airport developed by New York City on Barren Island.

tial to maintain. If, as has been proposed, it should be connected with Manhattan and Brooklyn by vehicular tunnels, this would make it highly accessible.

We do not put forward any proposals for utilizing the air rights above buildings or large railroad yards, like the 30th Street yards or Pennsylvania Station, for landing places. The difficulties of using such central places surrounded by high buildings are insuperable under present conditions of landing. Even if vertical landing becomes a possibility, as appears likely, there will always be great disadvantage and danger in having a landing field in the midst of a forest of high buildings.

The most appropriate places for creating air terminals over stations are over the Sunnyside Yards in Queens and the Mott Haven Yards in The Bronx, if and when these yards are developed as great new terminals. The location of these yards is such that the surrounding development will probably continue to be more open than in Manhattan, but such towers as we suggest above as features in the new stations would have to be abandoned if airplane landing fields are to be provided on the roofs of the stations. In the event of the towers being erected they would be more appropriate for dirigible landing places than the tops of skyscrapers like the Empire State Building. For airplane purposes an area about 1,500 feet square could be provided over the Sunnyside Yards between Honeywell Street and Harold Avenue, but such a field could not be developed without much drastic restriction of heights of building in the vicinity. In any event, the Sunnyside location is little nearer to the center of

GUIDANCE OF BUILDING

the city than the proposed airport site in Juniper Valley, which can be acquired and developed at much less cost than would have to be incurred to roof over railroad yards, and is in a district where adequate restriction of building heights is more practicable.

Construction of airports may be deferred pending actual requirements. But the spaces most suitable for them should be selected and acquired long before they are needed. These spaces can be temporarily used for public recreation fields. Their



Courtesy of Curtiss-Wright Flying Service

AERIAL VIEW, SHOWING ULTIMATE DEVELOPMENT OF GLENN CURTISS AIRPORT—A COMBINED LAND AND SEAPLANE BASE ON FLUSHING BAY, LONG ISLAND

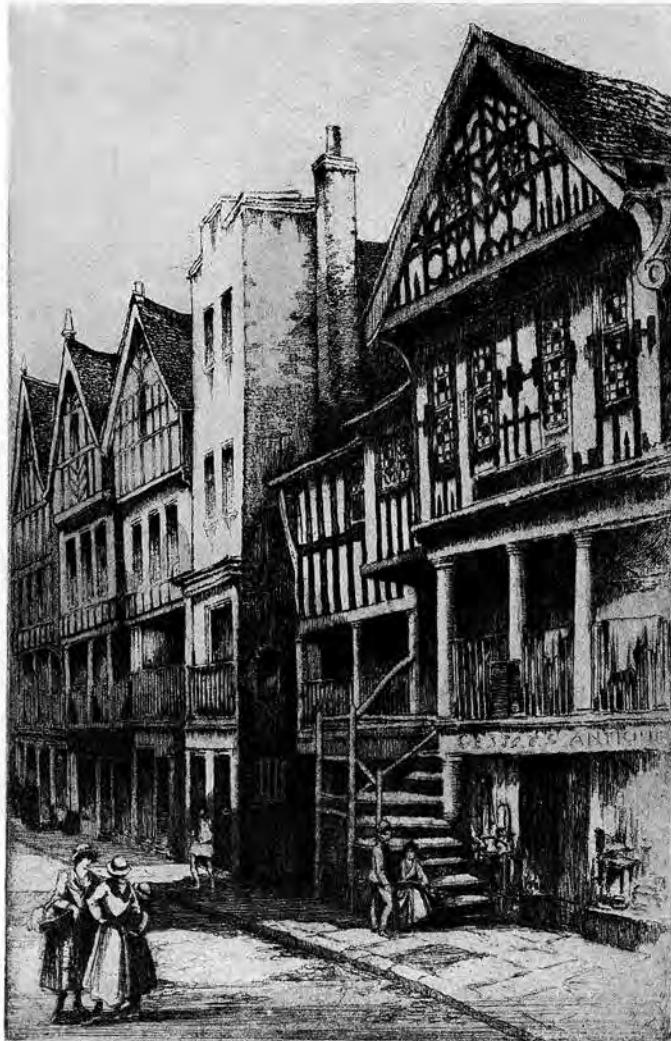
acquisition will provide permanent open areas where they are probably desirable in any case, and enable the city and property owners to plan future building developments with knowledge of the locations chosen. Without this knowledge building developments that are unsuitable in the neighborhood of an airport will take place in vicinities where it is not anticipated that fields will be located. This development will have to be changed or abandoned later with much loss of capital if an area adjacent to it is selected for a landing field. Then the cost of the land for fields and of

IMPROVEMENT OF TERMINAL FACILITIES

removing structures that are erected between the time the land might have been acquired and the time when it is acquired will add enormously to the cost of purchase. The different types for which proposals are submitted in the Graphic Regional Plan comprise principal airport and ancillary terminals for both airplanes and seaplanes, training centers, and service bases. Terminal airports should be publicly or municipally owned and leased for private operation as recommended by the United States Department of Commerce. This will not interfere with the establishment of flying fields by air service operators and manufacturers of aircraft, both of whom have their own purposes to serve in locating and designing these fields.

Interesting opportunities are presented by the airport for the employment of modern architectural forms. There is no reason why airports should not have beautiful buildings, but their primary purpose as airway termini should never be lost sight of either in the design of individual buildings or in their general arrangement.¹

¹For fuller discussion of airports see AIRPORTS, THEIR LOCATION, ADMINISTRATION AND LEGAL BASIS, by Hubbard, McClintock and Williams, Harvard University Press, 1930.



SHOPS ON TWO LEVELS IN CHESTER, ENGLAND
Arcaded walks give access to the second level.

X. FITTING STREETS TO THE BUILDINGS

Needs and Principles of Street Expansion

IN guiding the building of the city we have seen how important it is to plan the principal street and highway systems so as to serve the needs of the prospective uses and densities of buildings.¹ We have seen also how necessary it is to adjust building uses and densities to established street areas by means of zoning restrictions. Without adequate restrictions on height and bulk, such as we have proposed, street expansion may be futile to improve traffic conditions.

It is well to repeat that height and bulk restrictions must be based on consideration of uses and on the average traffic demands of a normal combination of buildings of different kinds. Mr. Ernest P. Goodrich has estimated that in a rectangular street system consisting of 100 foot avenues, 600 to 700 feet center to center, and 60 foot cross streets, 260 feet center to center, the heights to which buildings for various uses may be erected without overtaxing the street facilities are 21 stories for office buildings, 12 stories for loft buildings, and four stories for retail business buildings. Assuming that these uses are of equal extent in a district free from through traffic, the average height could be a little over 12 stories. A study of the relation between building bulk and highway traffic in Manhattan led to the following conclusion:

"If the present street system is to serve the buildings within the business sections, some way must be found of keeping the average height within those areas well below that now legally possible."²

Whatever is or can be done by means of zoning, however, a time comes in every city when the original street system is inadequate to serve both buildings and the needs of through traffic, because of the universal failure to obtain a perfectly balanced relation between the bulks and uses of buildings and the capacity of the existing street system. By planning cities in advance we get much better balance than with haphazard growth, but it is not possible, even with a well conceived plan, to anticipate all changes or to prevent overbuilding on land in certain places.

Continuous planning is necessary in every growing community and to a large extent it must consist of re-planning areas already built upon. Such re-planning inevitably has to concern itself with the problems of readjusting and expanding the street system to meet changes in methods of locomotion or to overcome defects due to overbuilding on abutting land. The main problem in this connection is how

¹The word "street" as used in this chapter may refer to any kind of thoroughfare, including both important local streets and main highways, although the latter are specifically mentioned in places.

²Regional Survey, Volume III, page 149.

GUIDANCE OF BUILDING

to expand the capacity of the streets so that they may serve existing and potential building densities. In this chapter we consider the general principles that have to be borne in mind in dealing with this problem by different methods, and in later chapters we present some concrete proposals for increasing street capacities in particular areas.

INADEQUACY OF STREETS IN THE NEW YORK REGION

Where streets have become inadequate for traffic in the New York region it is more frequently due to failure to adjust the building development to the streets than



VANDERBILT AVENUE AT GRAND CENTRAL TERMINAL
Showing elevated street attached to building.

the streets to a reasonable density of building. While the real solution in such cases is to reduce or prevent the increase of the density, the difficulty of obtaining adequate restrictions of density makes it necessary to find the solution in adding to street capacity. There are numerous cases where main highways pass through crowded business sections of cities and are bottle-necked into narrow streets. In these cases the primary defect is not overbuilding, but the fact that the road is wholly inadequate in width for through traffic alone, although it has to serve an intensive local need as well. The solution of this special problem in most instances is to provide a by-pass thoroughfare around the business district as well as to limit drastically building densities within it.

FITTING STREETS TO THE BUILDINGS

Streets in the business centers of New York City were adequate for both local and through traffic when buildings were low and the concentration in the center was not so great as it is now. Congestion of earlier days in these central areas was mainly due to slowness of movement of traffic and to lack of good paving in the majority of avenues and streets. Today we still have congestion, although traffic can move quickly where it has room to move, and good paving is universal. Street congestion may result also from insufficient coordination of freight distribution, defective distribution of transit lines, and lack of comprehensive planning and development of main highways. One of the chief causes of modern congestion is the conversion of residential to business uses, with a higher density of building accompanying the change. The effect of this combination is seen at its worst in the cross streets of Manhattan, where 60 foot residential streets have been converted to business streets without widening and with greatly multiplied bulk of building. Standing vehicles in many of these streets make traffic movement more difficult than in the north and south avenues. Another of the causes is the serious interruption of traffic at intersections, which greatly reduces the effectiveness of comparatively wide streets. Any proposals for improvement must take these and numerous other causes into consideration.

If, as is assumed in this chapter, we must continue to have building densities as great or even greater than at present, the problem with which we are mainly concerned is what are the opportunities available for increase of street space. In other words, what additional space is needed and can be given to existing streets at reasonable cost to the city and property owners? Apart from the question of cost, any addition to street space that a city requires for any conceivable density of building can be made, but cost must be the governing factor in considering the practicability of enlarging the street area.

In the past many have advocated expensive projects for widening and double decking streets in areas occupied by skyscrapers as a means of giving more traffic space, and have claimed simultaneously that crowded skyscrapers do not cause traffic and transit congestion. There is a curious inconsistency in this attitude. If in areas where skyscrapers are built closely together it is considered essential to pull down valuable buildings for purposes of wholesale widening of streets; to build up roads and sidewalks in two or more tiers to obtain elevated street space because of insufficiency of ground space; and to concentrate transit lines much more than elsewhere, then it is obvious that those who advocate these things are proving indirectly that the traffic and transit demands grow in proportion to building bulk. And yet it is a common thing to hear the same voice say at the same time that high buildings do not create more traffic than low buildings and that streets in areas occupied by high buildings should be doubled in capacity.

For our part we accept the situation that where there is congestion of both building and traffic, some palliative measures involving expensive widening and ele-



AN EARLY PROPOSAL FOR A TWO LEVEL STREET IN MANHATTAN

FITTING STREETS TO THE BUILDINGS

vation of streets are necessary; but we deprecate proposals which involve applying such measures as a means of creating opportunities for larger buildings which may bring added or new forms of congestion.

That such projects can be justified economically in already congested areas is due to the fact that their cost is less than the expense of the continued congestion. But this very fact should cause the city and property owners, who have to pay for such expensive remedies, to remove the need for their being carried out as far as practicable. They can do this, to some extent at least, in central areas by limiting building bulk and use to the degree necessary to prevent the congested condition from keeping up with the increase of street space. They can do it even more effectively in suburban areas by planning and zoning so as to secure from the beginning a proper balance between building bulk and uses, on the one hand, and sufficient street space to enable adequate traffic facilities to be provided on the surface of the ground, on the other hand.

Proposals to create two levels of streets in central business areas may be justified in some cases because a degree of concentration has been permitted which is excessive in relation to a one level street system. Streets in such areas, having been made for a former low density of building and character of use, have become inadequate for the higher density and different use. Proposals for elevating main thoroughfares over railroad tracks, or along marginal ways, or at important junctions of highways, come in a different category. They may be an essential part of a constructive plan and not merely a remedy for some established evil. So far as the proposals of the Regional Plan involve the building of streets or sidewalks on two levels, they are put forward either to remedy an existing condition for which no better remedy is possible or as part of a plan to secure separation of grades between railroads and highways or at junctions of main highways; or because the natural topography suggests a two level treatment as the most economical plan.

PRINCIPLES OF STREET EXPANSION

The proposals for developing a highway and street system for the Region, which we have already published in the Graphic Regional Plan, show the necessity for a widely diversified system embracing, in addition to the ordinary type of highways, such special types as express roads, parkways and boulevards. If such a pattern were adopted, and adequate widths established for the regional routes, and the minor street system laid out in accordance with the planning and zoning methods we propose, there should be no necessity in future for resorting to extravagant measures for expanding streets in suburban areas.

Single and Two Level Streets.—Railroads and rapid transit lines within a city should not utilize the street surface and should preferably be below the street level. The streets as a rule should be fitted to buildings on one level, and should be on two

GUIDANCE OF BUILDING



Courtesy of the Queens Planning Commission

SKETCH SHOWING FUTURE DEVELOPMENT OF QUEENS BOULEVARD

As a highway type, the boulevard lies between the ordinary thoroughfare and the parkway, embodying some of the characteristics of each.

levels only where separation of grades is essential for traffic needs or public safety. For example it is desirable to obtain grade separations at important crossways of major thoroughfares, and places along waterfronts where topographical conditions and combinations of commercial and other uses suggest a two level arrangement as economical and otherwise desirable. Again, in some places the fact that rail transportation should be conducted below the street level may mean that the streets should be elevated above the original ground level, for when railways cannot be depressed below this level the streets should be raised above them, rather than the reverse.

In parks and parkways where there are no buildings abutting on the traffic ways, as in Central Park and the Westchester County parkways, grade separation may be employed with great advantage. The basic pattern of streets, however, should be a one level system. This is a sound principle both in planning and re-planning.

Superficially it might seem that the lighter pedestrian traffic should be located on a level above ground, the free wheel traffic on the surface, and the rail traffic below ground; but there are three reasons which make this unsound in practice. In the first place, vehicular and pedestrian traffic are interchangeable and to a large extent are one form of traffic. They cannot be independent of one another as long as so great a proportion of vehicles are used for movement of people. Secondly, it is

FITTING STREETS TO THE BUILDINGS

easier to make mechanically propelled vehicles use different levels, or to change levels constantly as a result of having a two level street system, than to make people climb up and down. Hence the usual difficulty of getting pedestrians to use subways or bridges at congested crossings. Thirdly, custom and values have for centuries adjusted themselves to the single level for business and traffic.

Control of building densities and uses should be such as to prevent the necessity for multiple level streets as a means of serving buildings. Such necessity as occurs should arise from the demands for rapidity of movement of through traffic. This is conceived to be best not only for general welfare but also the most economical arrangement for property owners, because the cost of providing adequate land for movement, if provided in good time, is sure to be less than the cost of constructing street space up in the air or below ground.

The necessity for departing from a single level system arises where land is too costly and too overcrowded with building to permit the original level to be developed so as to provide sufficient capacity, or where a two level system effects such economy in time and energy as to justify its extra cost. There are places where this is the case, but they are exceptional and do not affect the soundness of what should be the rule for general guidance.

It is obvious that this principle can no longer be applied to areas where excessive density exists. Wherever land has been, or may be, covered over more than 50 per cent of its area by buildings of greater average height than 10 stories, it may be found necessary to build on two levels to provide the buildings with the traffic facilities necessary for their efficient use. This necessity will depend largely upon the use to which the buildings are put. We might go further and suggest that if an average of 20 stories were permitted on land occupied to an extent of over 50 per cent, then three or four level streets might be necessary, and so on.

Property owners who demand the right to overcrowd the land with building do not escape the liability of providing adequate street space. They merely defer the time of meeting this liability, and increase its amount because of the greater cost of making up the deficiency after the buildings are erected than of providing ample space beforehand.

The fact that the Regional Plan frankly accepts the situation that exists in certain skyscraper districts as one which cannot be solved by zoning, as indicated in Chapter VII, means that it must also accept the two level street system and other costly remedies as palliatives for the overbuilding in such districts. It is not denied that fascinating architectural possibilities go with the planning of a two level system or with the continued upward growth of high buildings. It is our belief, however, that these possibilities are not so great with a crowded as with a spacious building development. If money is wasted on costly engineering remedies that can be avoided, obviously less money will be available for architectural quality.

GUIDANCE OF BUILDING



Courtesy of the Chicago Plan Commission

WACKER DRIVE, CHICAGO
Raised street along the waterfront of the Chicago River.

Thus the basic plan of highways and streets in general should be a one level system with occasional and perhaps frequent separations of level wherever these can be justified for the needs of long haul traffic and to meet special circumstances. Where grade separation is resorted to it should be properly designed in harmony with a good general plan.

Provision for Through and Local Traffic.—A second guiding principle is that all street improvements should be made to meet the demands of local intercommunication as well as long distance travel.

In making street improvements we must consider all kinds of traffic and not alone local traffic, on the one hand, or through traffic, on the other. Most districts have to be planned to serve to a considerable degree both kinds of traffic. The lower tip of Manhattan is an exception in respect to the degree to which it is free from through traffic. Many false conclusions have been drawn from the fact that the financial district of Manhattan has a high building density and less traffic congestion than areas with a low building density. We have already cited the substantial reasons that exist for this exceptional condition.

On the other hand, the area between the Grand Central Terminal district, the Times Square district, and the Pennsylvania Terminal district is utilized by three kinds of traffic—the immense volume of traffic entering and leaving these areas for

FITTING STREETS TO THE BUILDINGS

business, theatre and transportation purposes; the internal circulating traffic connected with these three purposes; and the traffic passing north and south and east and west through the area. Street enlargement and building restriction must be considered together in relation to these different traffic needs. Probably it would be safe to say that given the same building density in the area between 34th and 42nd streets and between Lexington and Seventh avenues as exists below Fulton Street, at least 50 per cent more traffic space is needed to give the same facility of movement. If this is not given on the ground, either it must be provided in some form above or below the ground or the buildings will suffer from serious lack of accessibility.

It is not conceived to be practicable in the New York region to plan or re-plan any system of streets, or to secure adjustment of building densities to them, so that traffic congestion will be entirely eliminated during periods of peak loads. This may be practicable in small cities, but not in very large cities because of the prohibitive cost.

In enlarging streets or building new arterial highways we have to consider also the relationship between the width and character of the highway and the general layout of the city and the values of property. Thus no street or highway is an isolated thing; it is part of the whole system of communications, and this in turn is part of the physical and economic structure we call a city.

While it is obvious that the needs of long distance motor traffic require speedways and parkways, some of great width, and all with a high degree of separation of grades at intersections, it is obvious also that such ways may be too wide and create too much separation, as well as too narrow and too much obstructed by cross traffic. It is a mistake to assume that the great arterial highway should be designed like a main railroad. The greater flexibility and smaller units of vehicle on



Drawn by Charles Delmont

Courtesy of the Queens Planning Commission

ONE TYPE OF GRADE CROSSING ELIMINATION AS PROPOSED IN QUEENS

GUIDANCE OF BUILDING

the highway require greater flexibility of communication between the highway and cross streets and between vehicles and pedestrians.

Superhighways should not be designed to break up the unity of cities, or to make it impossible for part of the cost to be met out of increased property values along the frontages of the highways.

Proposals for Improving Street Capacities

The immense cost of building highways and streets makes it essential that they should be planned and built so as to provide the maximum service in connection with movement in the city and give the highest aggregate values to property abutting upon them. The capacity of a street may be limited either because of insufficiency

of traffic lanes for the traffic it needs to carry, or impediments to rapidity of movement that prevent an adequate lane capacity from being properly used. One street that is free of cross traffic may be too narrow, while another may have its traffic seriously impeded at numerous crossings or at the exits and approaches to bridges, although it is of ample width.

Again street capacity may be lessened by reason of the extent to which it is used for parking, or for different kinds of vehicles that interfere with each other, or to the overlapping of vehicular and pedestrian use.

VIADUCT CARRYING PARK AVENUE OVER 42ND STREET AT GRAND CENTRAL

Thus any proposals for improving the main arteries of travel must take into account primarily the combined factors of space and rapidity of movement, as well as numerous other related factors. It may be of little value to widen a street if it is so blocked at intersections that the traffic is made to move more slowly in proportion as it increases in volume.

The character of any improvement must be determined not only to suit the physical condition in any particular locality but also to accord with an improvement plan for the region or city. It is probably true that a community never has adequate financial resources to do all that is desirable in street improvement. The distribution of the expenditures which it can afford to make over various localities is a matter for careful judgment, and this judgment cannot be exercised without the aid of a comprehensive plan. The great difference in cost of improvements in different places has a bearing on the question of which improvement will yield the greatest value.

FITTING STREETS TO THE BUILDINGS

In this connection we may note the immense differences in cost of street widening and elevation in the most central as compared to the suburban areas.

Taking a few recent examples, we find that the Sixth Avenue Extension in Manhattan cost \$14,000,000 per mile and varies in width from 100 to 210 feet, while the widening of Kings Highway in Brooklyn (including the paving of the central roadway only) cost \$740,000 per mile for a width of 160 feet. The section of the West Side Elevated Highway in Manhattan south of West 23rd Street cost \$4,300,000 per mile for a width of 70 feet even though no cost had to be incurred for right of way; while the Hutchinson River Parkway in Westchester County was built during the same period at a cost of \$370,000 per mile with a width of 200 to 1,000 feet, although the whole right of way had to be purchased. We thus see the immense cost that has to be incurred to improve highways after intensive building is permitted as compared with the cost of making them in advance of such building.

Notwithstanding the great cost of making improvements in the central areas, the need of them may be so great as to justify the expense. It is where the cost is greatest that the need usually is greatest, and in making a choice of the locality for carrying out an improvement the extent of the need has to be considered along with relative cost. On the other hand, the local advantages to be derived from an improvement may be fewer or of less importance than the general advantages to the city as a whole. Also the indirect benefits may be more substantial than the direct benefits. For example the building of great parkways and boulevards in the environs may be more beneficial in relieving congestion in the centers than in the help it gives to local movement.

Proposals for expanding street capacity in built-up areas may be divided into three main groups as follows:

- (1) Construction of new streets or widening of existing streets and provision of pedestrian walks.
- (2) Construction of two level streets or sidewalks.
- (3) Provision of ample space for entering or leaving bridges, tunnels and ferries.

NEW STREETS AND WIDENINGS

Whatever difficulties there may be in constructing new streets or widening existing streets in built-up areas, on the average they are the best and most economical methods of adding to street space. But the effectiveness of these methods usually depends on the extent to which they reduce impediments at road intersections as well as add to lane capacity between them. A new diagonal street may assist both in reducing distance between two points and in getting a route with fewer intersections than a street in a right-angled pattern. If, however, such a diagonal has many awkward intersections, its value in reducing distance may be lost.

GUIDANCE OF BUILDING



STREET WIDENING IN PARIS

Rue des Deux Ponts, looking toward the newly widened Pont de la Tournelle.

tant than the limited widening that is practicable within them.

Proposals to cut several 360 foot avenues across Manhattan have little to commend them as practicable schemes from the point of view of relieving traffic. As means of supplying additional open space they would be desirable, but as they cannot be obtained at reasonable cost they lie outside the range of practical policy. Our proposals for Manhattan in a later chapter indicate the practical opportunities that should be seized to facilitate movement and add to open spaces. Some involve street widenings, others the opening of new diagonal streets and others the construction of by-pass and sunken streets especially for through traffic.

Diagonals.—Suggestions have been made for cutting many diagonals across the larger blocks in Manhattan. But to begin now and make any extensive system of diagonal streets in the island or other central areas would not be generally desirable even if financially practicable.

The two outstanding examples of new diagonal streets in Manhattan are the extension of Seventh Avenue, completed in 1919, and the Sixth Avenue Extension, which was opened to traffic in 1930.

Long established usage has confirmed the practice of street widening in the ordinary forms of purchasing frontage land and reconstructing buildings on a new line. The various methods are well known and probably capable of little change, except in the respect that each widening should be made a part of a general city plan to a greater extent than is now the case.

Because of failure to consider each street improvement in relation to the plan of a city, widenings are sometimes undertaken where the real need is the enlargement of intersections to permit continuous movement of traffic or possibly the cutting of a new diagonal street for the purpose of diverting traffic. In any comprehensive plan for improving traffic circulation in congested districts the enlargement of the street system surrounding the districts is more important than the limited widening that is practicable within them.

FITTING STREETS TO THE BUILDINGS

An analysis of the effect of the former project on adjoining land values appears in the Regional Survey.¹ While the resulting increases were comparatively low, amounting to 6.4 per cent from 1907 to 1923, the project was in an area of decreasing values. The land values in the entire tax section of Manhattan within which it is located decreased 21.1 per cent within the same period. An objectionable feature of this project is seen in its effect upon the improvement of adjoining property. Due to its diagonal route and the fact that only property within the street lines was acquired, a large number of small triangular and other odd-shaped lot remnants were left in private ownership. As a result the new frontages still present a ragged appearance and have not been developed in accordance with the importance of the thoroughfare. Gasoline stations and billboards detract from the beauty of the city along this street, whereas adequate building sites along its frontages would have resulted in substantial and attractive improvements.

In the extension of Sixth Avenue excess condemnation was employed to the extent of acquiring remnants of lots where this could be done without additional cost. The results should lead to a better disposition of the frontage than was obtained in the Seventh Avenue extension, although the treatment did not go far enough to insure this. To do so it would have been necessary to acquire not only all remnants but also such additional plots as would be necessary to reconstruct lots of adequate size.

Both these improvements are important measures of traffic relief and without them adequate approaches to the Holland Tunnel under the Hudson River would not have been obtained. But wherever possible such street improvements should be combined with adequate plans for the use of new frontage to be created. The purchase and resale of excess property offers a logical procedure, which has been successfully carried out in American cities, and still more extensively in European cities. It has the disadvantage of increasing the capital and interest charges and of temporarily removing from the tax lists the excess property taken. On the other hand, it has been shown in many cases to have reduced greatly the ultimate cost of the improvement and in some cases to have actually returned a profit. Where possible, excess purchase by negotiation should be used, but where this fails, excess condemnation offers a logical alternative.²

¹ Regional Survey, Volume II, page 161.

² See a symposium on "Excess Condemnation in City Planning," TRANSACTIONS, AMERICAN SOCIETY OF CIVIL ENGINEERS, Volume 89 (1926), pages 791-840.

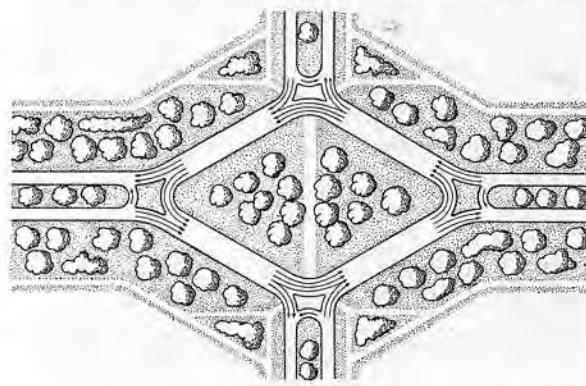


FIG. 30

MR. MALCHER'S PLAN FOR FACILITATING MOVEMENT AT INTERSECTIONS WITHOUT GRADE SEPARATION

GUIDANCE OF BUILDING



A SIDEWALK ARCADE IN LONDON
The Ritz Hotel.



SECOND STORY ARCADES, CHESTER, ENGLAND
(See also page 274)

opened. It may be used as a preliminary solution pending the justification of a grade separation.

The value of a diagonal street is in proportion as it succeeds in diverting traffic away from crowded intersections or assists in giving more space at such intersections.

Enlarging Intersections.—It will often be found that the congestion of a street is entirely due to delays at crossings, and in such cases, where separation of grades may be impracticable, it is better to spend money in increasing the open space at the points of convergence than to widen the street between them. In areas where buildings are not permanent or are likely to undergo reconstruction the most effective thing to facilitate traffic would be to provide plazas and circles at main junctions of streets. We will refer later to the methods of dealing with the chief intersections by separating grades; but in many cases the junctions of important cross streets can be planned and enlarged so as to permit flexible and easy movement of traffic on one level. An interesting plan for accomplishing this without grade separation, suggested by Mr. Fritz Malcher, is illustrated on the preceding page.¹

The equivalent of an enlarged street intersection may be gained by creating a multiple intersection through the use of adjacent streets. Such a solution may readily be applied to sections on the outskirts of New York City where many of the mapped streets have not yet been

¹ See also *The American City*, September and October, 1929.

FITTING STREETS TO THE BUILDINGS

If the streets immediately adjacent to the intersection could be opened up and traffic crossing the intersecting road in each direction would use one of these new streets as well as the arterial route, about twice the amount of traffic could be passed through the intersection within the same interval of halt upon the cross street.

As a general rule, such expedients, utilizing existing street space on the ground level, should be exhausted before more expensive projects, such as the separation of grades at important intersections, are undertaken.

Arcading.—Where permanent buildings are erected on a street that needs to be widened, especially if the buildings are high and very costly to reconstruct, the most economical way to obtain the widening is by acquiring an easement inside the buildings on the ground level. Nearly the whole of the sidewalk can be placed within the building by this method, and the result is to add the equivalent of two or more lanes for vehicular traffic in the roadway, and to provide a covered sidewalk where shopping can be carried on in comfort in all weather. This is a desirable operation to carry out wherever it is impracticable to set back the front walls of buildings.

There are serious practical difficulties in obtaining easements for arcades because of the variety of buildings and ownerships of property in every street and the fact that so much value is attached to shop fronts on the street line. Arcades should be architecturally treated, and when they are designed as part of an original building they can be made aesthetically attractive as well as useful. Their attractive appearance is shown in the accompanying views of the Rue de Rivoli in Paris and the Ritz Hotel



ARCADES IN PARIS

Three views along the Rue de Rivoli and adjoining streets.

GUIDANCE OF BUILDING

in London. The process, however, of cutting arcades through a row of buildings of different character, used for different purposes, and owned by many different people, is not only costly, but presents unusual difficulties in getting the unity of design which is possible where they are incorporated in a new group of buildings.

It is becoming so essential, however, for more roadway and more sidewalk space

to be obtained in streets where setting back the buildings is no longer practicable that arcading must be resorted to as the only available means of expanding the street areas. Dr. Miller McClintock estimates that when pedestrian traffic reaches a point of 800 persons an hour per foot of sidewalk width "pedestrians leave the sidewalks and begin walking in the streets."¹ As a remedy he advocates the construction of arcaded sidewalks, especially in new buildings.

An important advantage of arcaded sidewalks on the street level as compared with elevated sidewalks is that the former are more convenient for pedestrians, who normally object to climbing between two levels. Moreover, arcades can be provided in short sections by a gradual process, whereas elevated sidewalks must be built throughout whole blocks with bridges across abutting

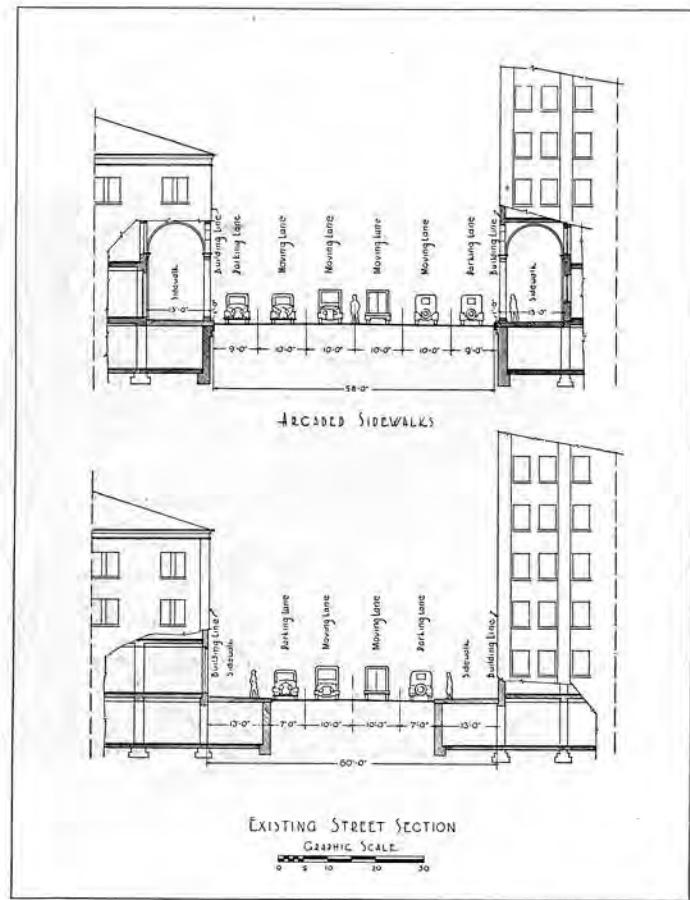


FIG. 31
DRAWINGS SHOWING METHOD OF ARCADED A 60 FOOT STREET,
AND RESULTING INCREASE IN TRAFFIC CAPACITY

streets. With steel frame construction arcading can be easily and cheaply carried out. The accompanying cross section shows the method of arcading in a 60 foot street, and the increase in traffic capacity to be obtained thereby.

In a report of Mr. Arthur S. Tuttle, then Chief Engineer of the Board of Estimate and Apportionment of New York City, dated October 14, 1924, it was stated that:

¹ *New York Times*, August 4, 1929.

FITTING STREETS TO THE BUILDINGS

"Through the installation of arcades in the northerly and southerly arterial streets in the Borough of Manhattan, it would be practicable in most instances to substitute eight in place of four moving lanes of vehicular traffic or, in other words, to double the present street capacity, and that arcading also offered an opportunity to secure much needed traffic relief at a cost far below that which would obtain through any other method. It was then stated that while objection had been raised to the use of arcades on the ground that they would deprive the lower floors of buildings of natural light, this objection could not be considered a serious one in the sections where arcades would be needed, as these areas were almost invariably developed in such a way as to depend wholly upon artificial light."

"The Board subsequently endorsed the plan for arcading Vesey Street on its northerly side in the block between Washington and West streets. Title to the arcade rights has been vested in the city and the construction of a modern 30 story building, to be used as a telephone exchange and for office purposes, is now well advanced."



Courtesy of Arthur S. Tuttle

EXTERIOR AND INTERIOR VIEWS OF ARCADE PROVIDED IN THE NEW YORK TELEPHONE BUILDING ON THE NORTH SIDE OF VESEY STREET

The report went on to refer to objections made by owners of property to the effect that arcading would depreciate values because of diminishing opportunities for show window displays. Reference was made to the Rue de Rivoli with its two and one-quarter miles of arcaded sidewalks. These sidewalks are 17 feet wide, of which width two feet are occupied by columns set back three feet from the curb. Other examples cited were the Rue Castiglione and Rue des Pyramides. Mr. Tuttle's conclusion was that these arcades were not harmful, but on the contrary were beneficial to business. The accompanying illustrations of Paris examples and of the Ritz Hotel in London are taken from Mr. Tuttle's report, which concluded with these words:

GUIDANCE OF BUILDING

"The modern type of steel frame office and loft building lends itself readily to arcade introduction, with little structural change, and with no other method does it seem possible to bring about an increase in street width with as little encroachment upon taxable values.

"In view of the necessity of determining upon some policy whereby traffic relief may be assured and of the desirability of accomplishing this with a minimum disturbance of business or destruction of taxable values and without incurring a prohibitive expense, and at the same time of securing the support of the public essential to the success of any such plan, it would seem desirable to interest representatives of business and real estate in the question and with special reference at this time to the introduction of arcades in the more congested sections. With a few well located examples of arcades



ARCADES IN INTERIOR OF APARTMENT BLOCK AT 270 PARK AVENUE

provided, it is the belief of your Engineer that their advantages would be quickly recognized and that resort to them would become general."

With arcading, reasonable limitation of parking, and the removal of trolley lines, trolley poles and electric lighting poles, the traffic capacity of many streets could be more than doubled.

Arcading should be carried out by skilled architects and should be done as far as possible when new buildings are erected. The uniformity they give to groups of buildings will be a desirable uniformity if proper design is used. The utmost architectural freedom should be given. There are arcades that are ugly and dark because

FITTING STREETS TO THE BUILDINGS

of bad design and lack of appreciation of the importance of lighting. With good lighting, a store fronting an arcade may be as well located from the point of view of display of goods as one on the street line. Arcading should not be confined to the principal streets. Some of its chief benefits can be obtained in narrow streets and in the opportunities it gives for connections between wide streets.

Arcading through the middle of buildings has already been carried out in many places in New York City. Examples include the arcades through the Metropolitan Life and New York Life buildings between Madison and Fourth avenues. These should be introduced wherever buildings of great size cover large plottage. In our proposals for improving circulation in Manhattan we suggest arcaded sidewalks both on the street level and on the second story level of buildings, and not only along certain streets but through the middle of blocks as well.¹

Pedestrian Walks.—Apart from arcading, as a method of providing space for pedestrian traffic off the open street, there is need for more attention to be given to location and arrangement of walks for such traffic. It has become a convention that the pedestrian way shall always be on the edges of and parallel with the roadway.

This convention has been an encumbrance to original design in laying out street systems. In shopping districts it is essential to have sidewalks adjacent to frontages. Some form of narrow sidewalk is essential also in residential streets, but the planning of Radburn has proved that it is better to provide walks in many cases at the rear instead of on the street front of houses. The least that can be said is that sidewalk planning is capable of much more flexibility than has been given to it.

In main highways of great width there should be a center walk as well as sidewalks and there may be cases where the occasional construction of a foot bridge would prevent the necessity for separating the grade of the whole highway and give the maximum degree of safety.

In commercial streets where the use of abutting property is mainly industrial and involves continual coming out and backing in of vehicles, the sidewalk provision should be subordinated to the vehicular use of the street. It should be limited to what is required by users of the buildings and a center walk should be provided for other pedestrians.

The accompanying drawing (Fig. 32) shows a suggested arrangement for a center walk in a commercial street. Its intent is to subordinate pedestrian traffic to the dominant functions of the street, namely, the loading and unloading of vehicles. The sidewalks are primarily doorsteps to the building entrances; they could well be used as unloading platforms for light service. They would keep the curb and gutter away from the buildings as well as prevent vehicles from scraping the buildings.

The pedestrian is in the habit of using the part of the street that is most easy and convenient for him to use. When merchandise is being unloaded on the sidewalk

¹ See pages 411-415.

GUIDANCE OF BUILDING

next to the building it will be much more convenient for the person walking to use a center walk. If there were no trucks in the way and he had to go only three or four doors away he would certainly continue to use the sidewalk; he would understand, however, that trucks coming in and out of unloading spaces within the buildings would have the right-of-way and for that reason he would be safer on the center walk.

It will be noted that on a 60 foot street only 16 feet are suggested for sidewalks and center walk combined, which represents about 27 per cent of the total width of the street, whereas the usual proportion is between 40 per cent and 50 per cent. This provides for one moving lane of traffic each way instead of one moving lane only one way, and also gives the pedestrian a passage free from the annoyance incident to loading and unloading of trucks. Such an arrangement would also tend to relieve the truckmen of the necessity of stopping work to let people pass.

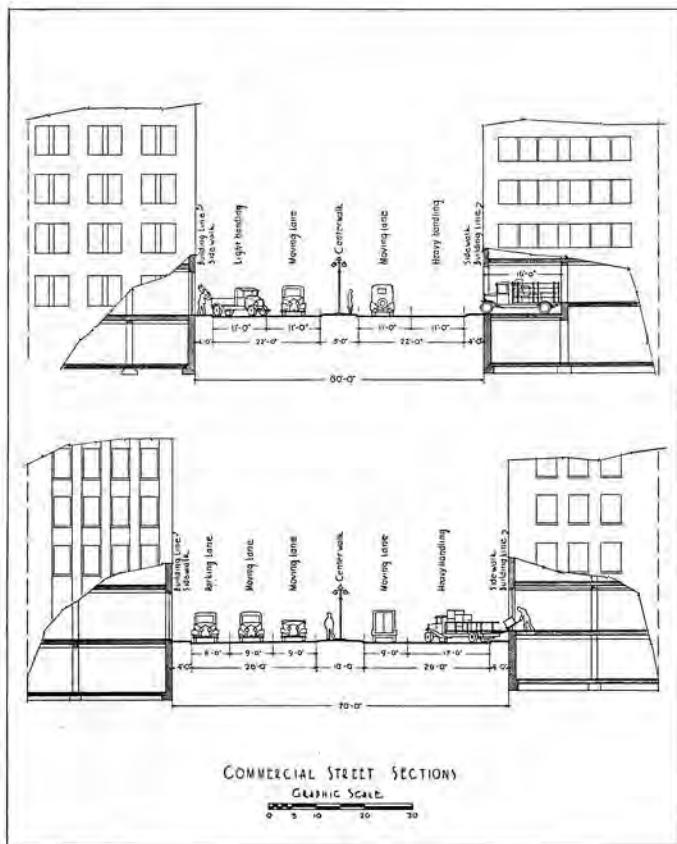


FIG. 32
SUGGESTED ARRANGEMENT FOR A CENTER WALK IN COMMERCIAL STREETS 60 AND 70 FEET WIDE

practicable the paved streets on both sides of the center walk should be widened to 35 feet.

We shall presently refer to proposals for constructing elevated and underground walks as a means of supplementing facilities for foot passengers in central areas.

HIGHWAY GRADE SEPARATIONS IN SUBURBAN AREAS

As already indicated, the planning of streets on two levels is most logical where it is desirable to separate grades in neighborhoods that have fixed railroad tracks on

FITTING STREETS TO THE BUILDINGS

the ground level, where the natural topography suggests a two level system as the most economical arrangement, and where it is of importance to expedite movement at intersections of main thoroughfares. The separation of grades at highway intersections usually presents the greater difficulty.

The best type of highway grade separation for any particular site will depend upon local conditions of topography, drainage, ground-water level and use of adjoining property, as well as upon the relative traffic importance of the intersecting streets and the type of traffic carried by each.

From the point of view of general appearance, safety and the effect upon adjoining property the ideal solution generally would be to depress a central roadway in the main thoroughfare and let side roadways connect at grade with the intersecting street. Such a solution was used at the intersection of the Grand Boulevard and Concourse with Fordham Road in The Bronx. This was completed in 1925 at a cost of \$150,000.

Due to the ample width of the Grand Boulevard and Concourse, 182 feet, it was not necessary to acquire additional right-of-way to carry out this grade separation. In general, however, it will be necessary to acquire additional width along one of the thoroughfares for a certain distance each side of their intersection. It is important that this be done early, preferably before congestion has reached the point where construction is justified. Appreciating this need, the engineer in charge of the Topographical Bureau of the Borough of Queens has stated:¹

"It is therefore the policy of the Topographical Bureau to advocate acquiring a width of right-of-way of from 130 to 160 feet for a distance of from 300 to 500 feet on each side of the highway intersection, for the road which is to be depressed, so that grade separations can be effected at a later date. Foresight in planning years ahead for grade separations and in acquiring the necessary land while it is cheap will not only save thousands of dollars of taxpayers' money, but will make possible such separations after the area has been built up, which would be entirely out of the question if the city had waited for values to develop and buildings to cover the land required for the separation before authorizing the acquisition of the necessary strip."

To raise the major highway above the intersection may prove the most practicable solution and often will be less costly than the reverse. In this case, also, service roadways might connect at grade. A study for a solution of this type is shown in the plan and perspective given in Fig. 33. Trolley tracks are indicated on both streets; the central roadway and the trolley tracks on the arterial highway are carried over the intersecting street. Trolley stations on the former are indicated on the upper level. Those streets immediately adjacent to the main cross streets do not have a roadway connection across the boulevard, but vehicles wishing to turn off the central roadway would cross to the side roadways two blocks away from the main intersection, avoiding any congestion at the tops of the ramps. The under-crossing is

¹ Powell, Charles U., "Grade Separations at Arterial Highway Intersections," *The American City*, August, 1928, pages 137-139.

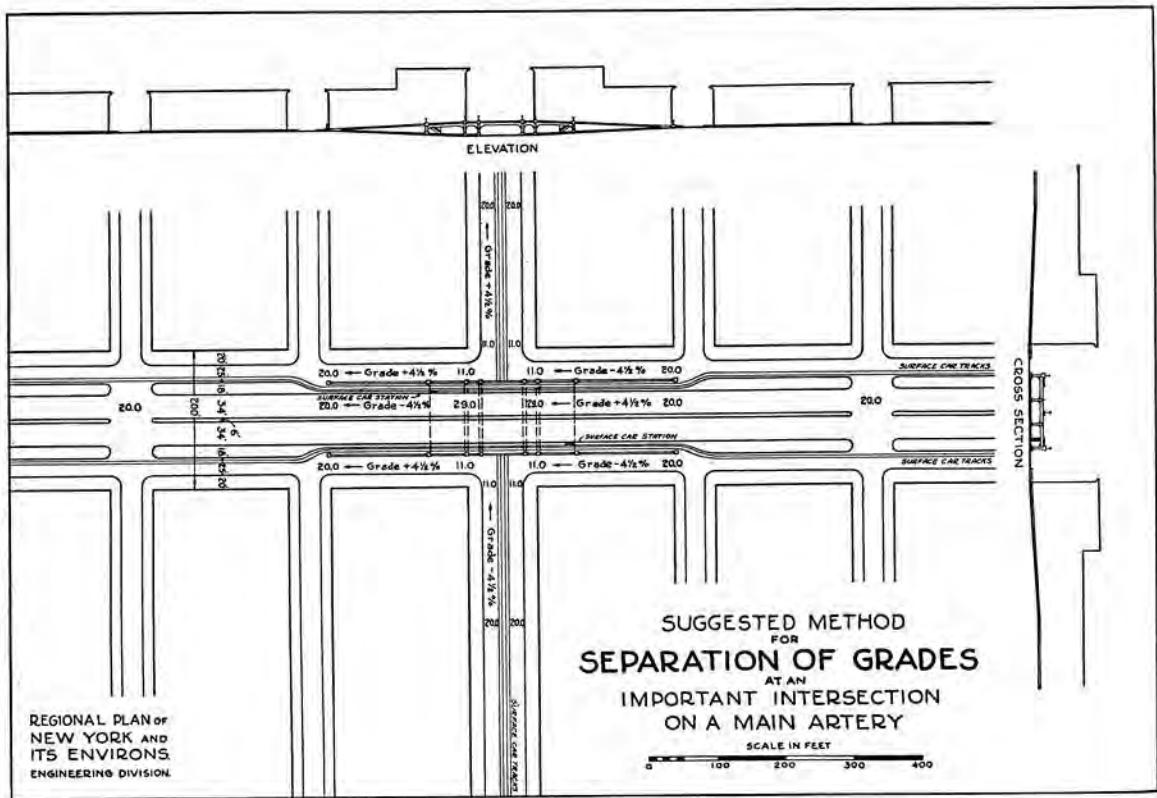
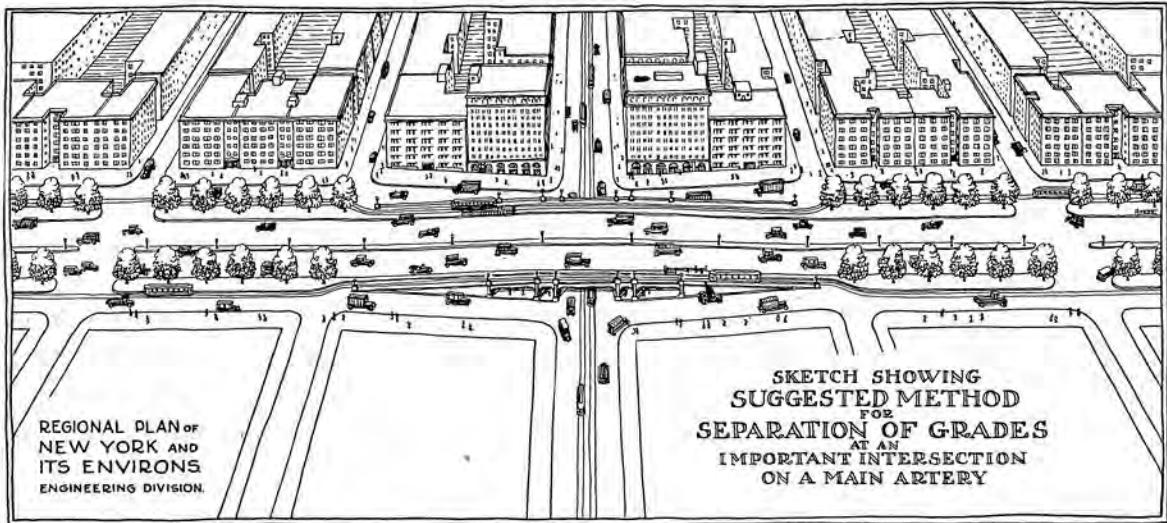


FIG. 33
THIS PLAN AND SKETCH SHOW ONE OF SEVERAL DIFFERENT ARRANGEMENTS WHICH MIGHT BE PROPOSED FOR THE SEPARATION OF GRADES AT AN IMPORTANT INTERSECTION

FITTING STREETS TO THE BUILDINGS

left open for about 50 feet beyond the street lines of the cross street so as to permit, from both the service roadways and intersecting thoroughfare, an unimpeded view of all vehicles approaching the intersection.

What is known as the "clover-leaf" intersection gives complete separation of not only grades but all traffic turning right or left. It is applicable where ample space can be used on all sides of the intersection and where both highways affected are of major importance. It consists in supplying diagonal connections at each corner for traffic turning to the right from one route to another; and within these providing loop connections for traffic turning left, which would in each case pass the intersection and then turn right to join the cross route to the right of the main intersection where grades would be separated.

The "clover-leaf" method was used several years ago in some of the lakefront parks in Chicago and was first used in the New York region by the New Jersey State Highway Commission at the intersection of State Highway Routes 4 and 25 in Woodbridge in Middlesex County.

The general principle of the "clover-leaf" intersection may also be employed by utilizing adjoining streets for the turning traffic. This is illustrated in Fig. 34. It shows the arterial route carried above the intersecting thoroughfare, and a system of traffic regulation prohibiting left hand turns but making use of adjacent roadways so as to provide uninterrupted traffic on both the principal streets and for vehicles wishing to turn from one into the other. The proposal includes the complete change in grade of both intersecting streets, and not a viaduct on the arterial highway. The buildings at the principal corners could readily conform to the proposed levels on both streets. Such a solution might naturally follow the temporary use of multiple intersections described in the preceding discussion on enlarging intersections.¹

On those highways serving as exits and entrances to the metropolitan district which have an excessive rush hour traffic, most of which is in one direction in the morning and in the reverse direction in the afternoon, the total capacity might be greatly increased by having the roadway divided into three parts, so that two of these

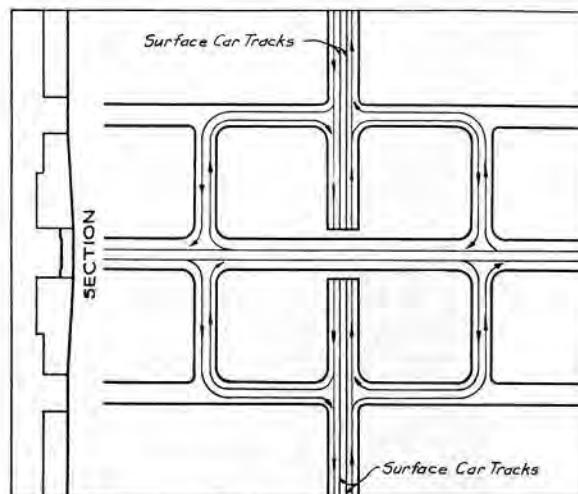


FIG. 34
ILLUSTRATING USE OF ADJOINING STREETS TO SECURE
CONTINUOUS MOVEMENT OF TRAFFIC AT THE INTERSEC-
TION OF TWO MAIN ARTERIES

¹ See page 288.

GUIDANCE OF BUILDING

might be used for the direction in which the rush hour traffic is going. In order to do this readily there would have to be either three or six moving lanes of traffic. The actual method of subdivision of course would have to be varied in accordance with the total number of lanes available.

Interference from cross traffic on a boulevard with one or more strips of parkway might well be confined to the more important streets by having the parkways so arranged as not to furnish a direct crossing except at such streets. A scheme of this kind is applicable to all areas but is applied more easily in proportion as it precedes intensive building use.



Designed by Samuel B. B. Nowlan

A TWO LEVEL ARRANGEMENT PROPOSED FOR BROADWAY IN 1870

TWO LEVEL STREETS IN CENTRAL AREAS

The problem of getting more traffic capacity in streets in the areas of greatest building density by means of elevated or depressed streets involves much more elaborate and expensive treatment than that of separating grades at occasional intersections. Manhattan presents us with this problem in its most acute form, both in regard to the extent of the need and the difficulty of meeting it.

The elevation of Park Avenue from 40th to 46th streets around the Grand Central Terminal, and the building of the elevated highway on the West Side are

FITTING STREETS TO THE BUILDINGS

beginnings in two level construction that are likely to lead to similar developments in future. We have to consider to what extent this form of street expansion is practicable or desirable.

Ideas for elevating streets in cities have been discussed at different times since Leonardo da Vinci put forward his plan for a model city in which there were to be highways on two levels—one elevated on a slope, "elegantly ornamented and perfectly clean," for pleasure vehicles, and a lower or subterranean roadway for vehicles carrying supplies.

In the planning of new cities, however, no extensive building of two level roadways has ever been much favored in practice. Force of circumstances lies behind any proposals for introducing them in Manhattan. It is of interest to note the suggestion made for an arcaded railway under Broadway in 1870 as illustrated herewith. In this case the lower level would not have been used for vehicles but for rapid transit, pedestrians and entrances to an additional tier of shops.

At this point we shall refer to some general considerations regarding street elevation in that borough, specific proposals being reserved for a later chapter.¹ These proposals will include plans for constructing new roadways for through traffic below as well as above the existing street level.

Naturally it is where buildings are most bulky and concentration of traffic is greatest that both the need and cost of obtaining grade separations are greatest. The question of whether or not the need can be met must depend on the relation between the benefits to be obtained and the cost involved in obtaining them.

We have to recognize as guiding assumptions that the street capacity of Manhattan should be increased to the fullest extent that is practicable, that this increase should be provided in forms that will do most to expedite movement surrounding and away from the most congested areas, and that to secure this expedition some double level streets are essential, especially on the margin of the island.

EARLY ENGINEERING STUDIES OF THE REGIONAL PLAN

During the making of the physical survey of the New York region from 1921 to 1923 the late Nelson P. Lewis, then Director of the Engineering Division of the Regional Plan, developed proposals for erecting elevated streets in Manhattan. The governing proposal in his plan was the construction of an elevated street around the margin of the island, from 72nd Street south to the Battery on the West Side and proceeding north to 57th Street on the East Side. The proposal is shown on the accompanying map (Fig. 35) and airplane view. As we shall see presently, a similar proposal was made by a committee of architects in 1923.

A connection between the proposed west and east elevated ways was planned along the line of Canal Street, linking the upper level system with the Manhattan

¹ See Chapter XII.



FIG. 35

[300]

FITTING STREETS TO THE BUILDINGS



Photo by Fairchild Aerial Surveys, Inc.

AIR VIEW OF SOUTHERN MANHATTAN, SHOWING RAISED WATERFRONT BOULEVARD PROPOSED BY NELSON P. LEWIS IN 1922

Bridge.¹ Another raised street was suggested on Chrystie Street and lower Second Avenue as a connection between the bridge and the East Side route. It is of special interest to note on the sketch (Fig. 36) that Mr. Lewis proposed the reservation of several blocks between Chrystie Street and the Bowery as an open space. The corresponding blocks east of Chrystie Street have now been cleared of building by the city with the intention of using them for rehousing. The suggestion of the Regional Plan is that they be developed as a parkway with a depressed road in the middle for through traffic. This would connect at Houston Street with a proposed depressed speedway in Second Avenue, extending all the way to the Harlem River, and replacing Mr. Lewis' proposal for an elevated speedway in this part of Manhattan.²

Although not entirely adopted in the Regional Plan, these preliminary proposals have been found, in subsequent studies, to constitute the essential basis for a skeleton system of two level streets that would meet the minimum requirements of the future. Commendable features of Mr. Lewis' plan were that it suggested increase of street

¹ Our final recommendation is that this be constructed as two one-way raised driveways and is described in Chapter XII, page 407.

² See page 393.

GUIDANCE OF BUILDING

capacity where it was most needed and most practicable to carry out. Mr. Lewis did not live to develop his proposals in relation to a complete plan for the island.

Studies made in 1924 by Mr. Frederic A. Delano and members of the Regional Plan staff indicated that what Mr. Delano properly conceived to be a completely logical and satisfactory solution of the traffic problem in Manhattan was probably out of reach.

Mr. Delano investigated the possibility of raising the 14 north and south avenues so as to cross the 200 cross streets, and a number of suggestions were worked out which showed the advantages of grade separation over street widening and arcading in securing added traffic capacity of streets. The proposed plan involved the construction of numerous ramp connections between cross streets and the raised avenues. It provided for subways to be constructed in shallow cuts with stations between cross streets and under the upper level roads. Foot passengers were provided with special facilities for protection and movement. Part of the plan included mezzanine floors for pedestrians under the elevated avenues. It was found that there were no insuperable engineering difficulties in carrying out such a plan. The chief hindrances to its execution were discovered to be the immense cost involved in overcoming the difficulties of maintaining local intercommunication, in adjusting the system to existing conditions of use of streets and underground services, and in meeting the probable demands of owners of property for compensation.

While it was found that the wholesale separation of grades in Manhattan was probably beyond attainment, the studies led to the development of proposals which,

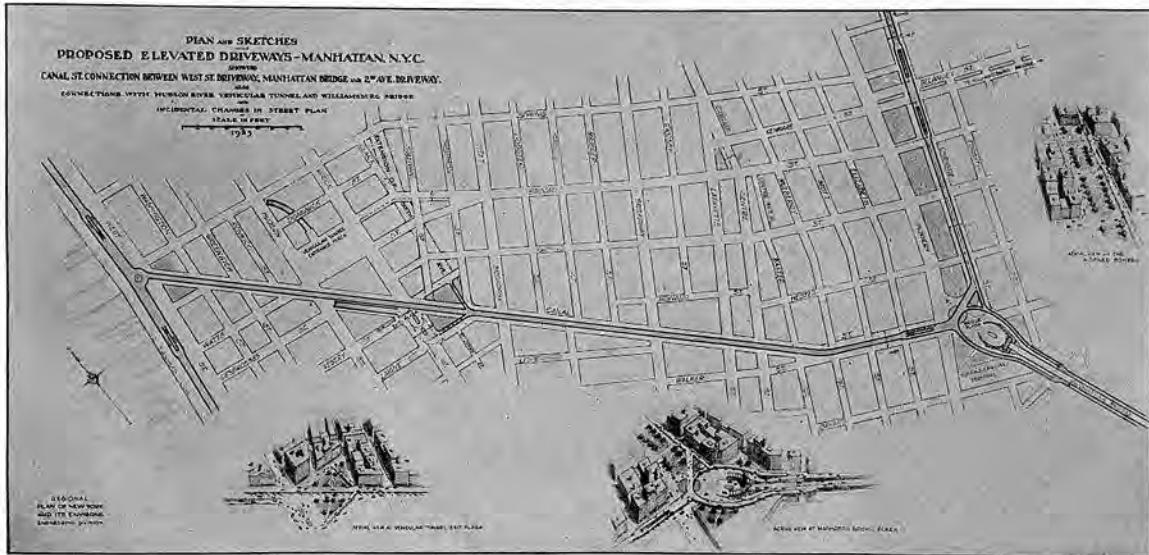


FIG. 36

ELEVATED DRIVEWAY FOR CANAL STREET, TOGETHER WITH IMPORTANT CONNECTIONS, PROPOSED BY NELSON P. LEWIS IN 1922

FITTING STREETS TO THE BUILDINGS

if carried out, will go a long way toward solving the problem of traffic congestion in Manhattan.

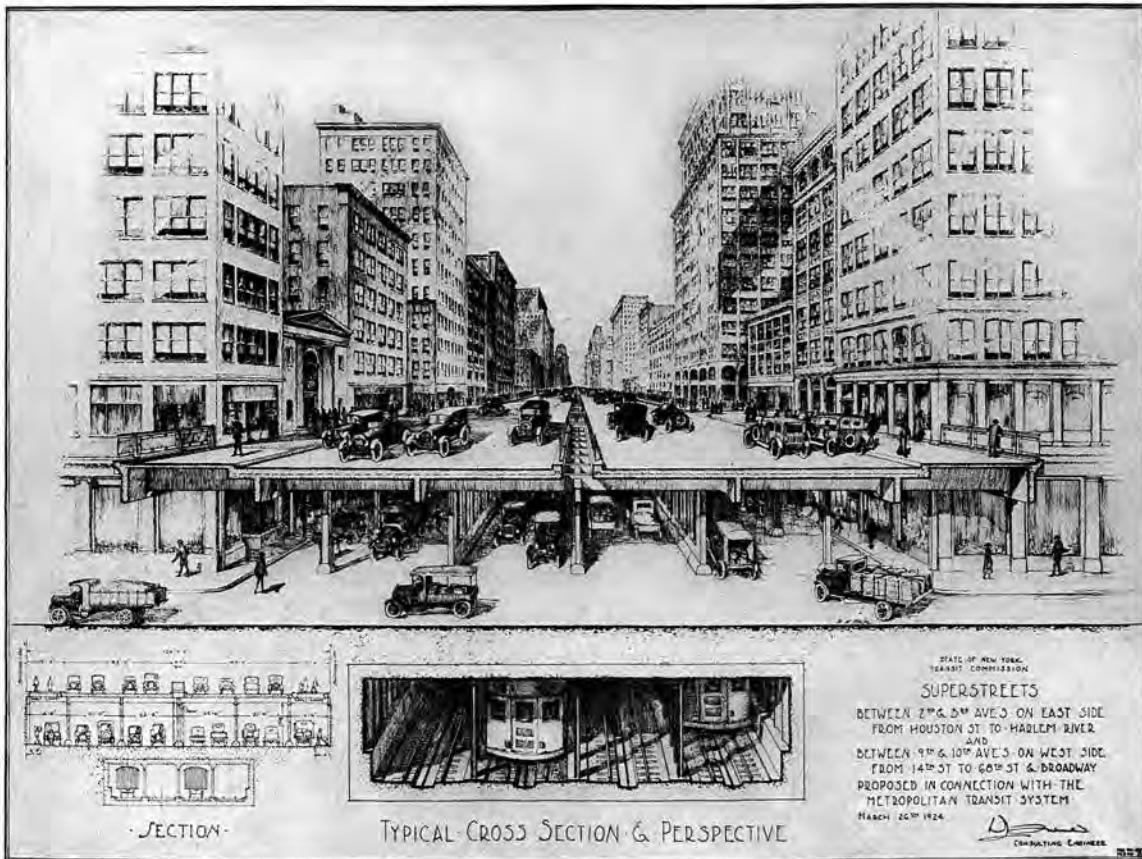
In all proposals to improve circulation there is the ever present problem of how to get space and rapidity of movement for through traffic and at the same time preserve the functions of streets to serve the numerous short haul movements in different districts and between adjacent centers.

We repeat that it is essential to preserve the flexibility and freedom of inter-communication between intersecting streets for purposes of local traffic as well as to provide for rapidity of movement of long haul traffic. As a rule, this freedom of local intercommunication for short movements on the ground level for pedestrians, buses, taxicabs and delivery trucks is not sufficiently emphasized in planning improvement of street systems. The maintenance of the flexibility and freedom of movement in Manhattan for purposes of business in that borough is of vital importance even if it results in some curtailment of the speed and volume of through traffic.

The extensive inquiries made in the Regional Survey have not resulted in getting a satisfactory answer to the question of what is the relative proportion of different kinds of traffic that should be provided for in different areas to secure the maximum service for the economic activities of the city. It is doubtful if such an answer can ever be obtained because of the factors that must remain unknown. What is not doubtful is: first, that more street space is needed both for facilitating local communications and rapid movement for long-haul traffic; and second, that the growth in the demand for more street space in future must be limited to a greater extent than at present by restricting densities of buildings and encouraging recentralization.

To the extent that separation of street grades can be obtained at reasonable cost and without unduly hampering local movement, it is undoubtedly desirable that it should be carried out in Manhattan. The conclusion arrived at as a result of the studies referred to was that street elevation should not be carried out in any wholesale degree, but rather in a few places, especially at the more important intersections and along the margins of the island. We repeat that any proposal for two level streets should be related to a general plan for improving street capacity. Such a plan will include specialized thoroughfares for long haul traffic, in addition to an adequate network of streets and amount of street space to serve all local needs. One conclusion that emerges from this brief discussion of principles that underlie proposals to add to traffic capacity is that once a city has neglected to take effective preventive measures by planning its street system and adjusting its building densities to its street capacity, as well as providing space for through traffic, no subsequent remedies can be employed that will provide a complete solution of its traffic problems.

GUIDANCE OF BUILDING



NEW NORTH AND SOUTH AVENUES OF THIS TYPE, TO BE CUT THROUGH THE MIDDLE OF BLOCKS, WERE PROPOSED
BY DANIEL L. TURNER IN 1924

PROPOSALS OF MR. DANIEL L. TURNER

The practical difficulties of carrying out any proposal to elevate north and south avenues applies also in some degree to proposals to construct new avenues on two or three levels through the middle of blocks. Such a proposal was made by Mr. Daniel L. Turner in a report to the Transit Commission¹ and is illustrated on this page. He suggested the building of two new express thoroughfares, one midway between Second and Third avenues on the East Side and the other between Ninth and Tenth avenues on the West Side of Manhattan. The saving in construction due to placing the new route off the line of an existing avenue would go a long way toward paying the cost of acquiring the necessary property. To be of value for through traffic such elevated streets would have to extend over the greater length of the island. Their enormous cost would have to be justified by reason of the advantages to through traffic. In the positions suggested they would not seriously impede local inter-

¹ SUBURBAN TRANSIT PROBLEM, April 23, 1924.

FITTING STREETS TO THE BUILDINGS

communications. As in the case of the general proposal for elevation of avenues, this scheme is based on a logical consideration of needs, but the same question arises as to its financial practicability when consideration is given to the high value of buildings erected on the blocks and the immense sums that would have to be paid for compensation to owners of property.

Other proposals that are commendable in principle, although probably prohibitive in cost of execution, include those that have been made to "basket weave" such intersections as those that exist at 34th Street and 42nd Street on Fifth Avenue. Indeed there is no end to the plans that could be made to afford great improvement to traffic movement if only they could be carried out at reasonable cost.

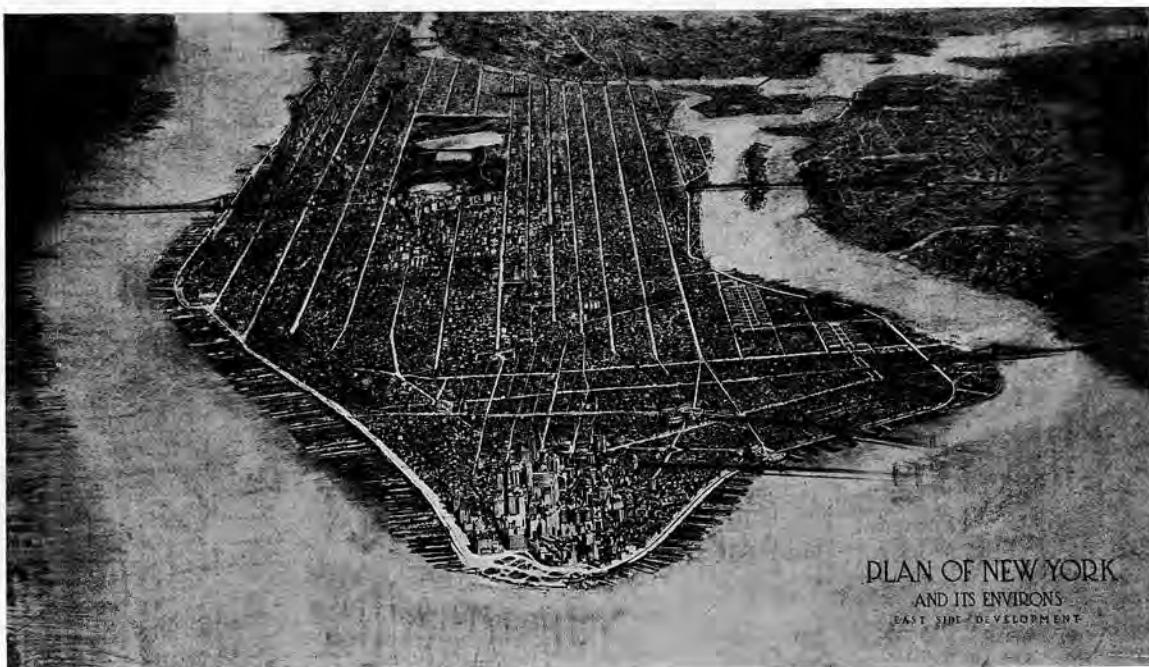
One fact that seems to be overlooked by those who stress the need for more traffic capacity in the north and south avenues of Manhattan is that the east and west streets, although so much more numerous, suffer from congestion as much as the avenues. Undoubtedly this is due partly to the fact that the necessity for maintaining the traffic on the avenues greatly hinders the movement on the cross streets as well as *vice versa*. But in some places, for example in the area between the Grand Central and Pennsylvania Terminal districts, the chief cause of obstruction of the cross streets is that the buildings on these streets are more industrial in character and thereby lead to more extensive use of these streets for standing vehicles. There can be no adequate improvement of circulation on the island that involves any loss of capacity to the east and west streets in order to benefit the north and south avenues.

PROPOSALS BY COMMITTEES OF ARCHITECTS

In a series of early studies made for the Regional Plan by committees of eminent architects, with respect to the possibilities of re-planning certain areas in Manhattan, there was revealed in a significant way the importance of the traffic problem in relation to buildings. Although these architects' studies were intended primarily to present pictures of possibilities in the building of Manhattan referred to in Chapter XII, they all contained proposals for improving traffic facilities. Indeed, in one or two cases the enlargement of the street system was the dominant feature in the reports and plans. A committee headed by Mr. Cass Gilbert stressed traffic as of paramount importance, recognized the connection between traffic congestion and slow handling of freight, but declared that street widening alone would not relieve the congested areas. It argued that there should be wider distribution, more diagonal avenues where practicable, removal of elevated railroads and more recreation grounds in the city. Manhattan should have broad parkways extending across the island from river to river at intervals. Air rights above railroads should be used for streets and buildings and there should be segregation of light and heavy traffic.

Two other committees of which Mr. D. Everett Waid and the late Thomas Hastings, respectively, were chairmen advocated methods to get the traffic out of

GUIDANCE OF BUILDING



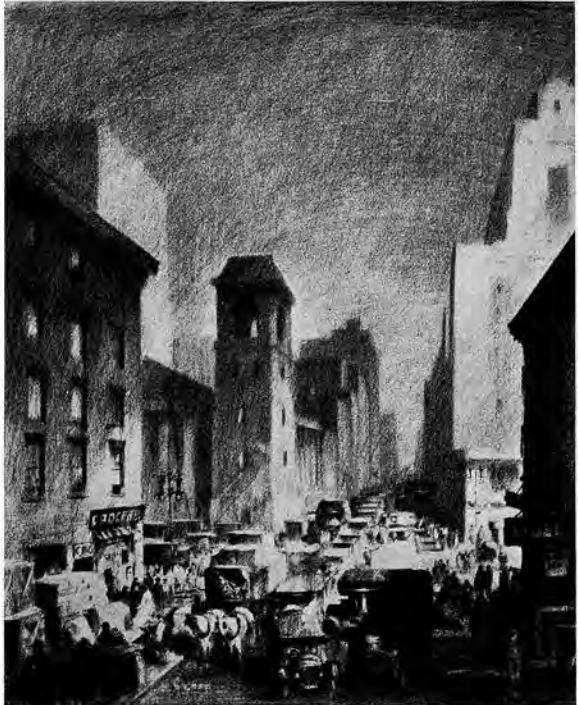
SKETCH PLAN PREPARED BY COMMITTEE OF ARCHITECTS STUDYING THE EAST SIDE (D. EVERETT WAID, CHAIRMAN)
In addition to other proposals, there is shown an elevated waterfront highway around the lower part of the island.

the center of the city to the sides of the island, and re-planning the small parks of the city. Mr. Waid's committee concurred in Mr. Lewis' earlier recommendation to construct an elevated highway on the bulkhead line around the lower part of the island, as shown on the sketch plan above. On the other hand, Mr. Hastings deprecated any proposal to erect new elevated structures.¹

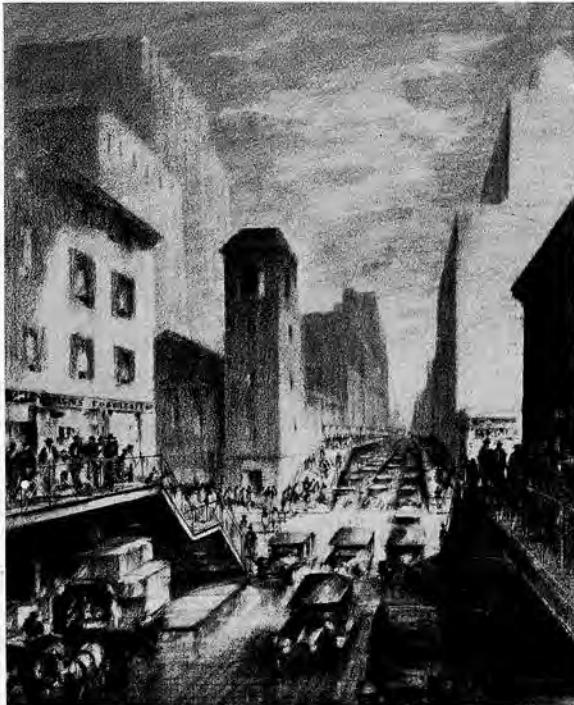
Elevated and Arcaded Sidewalks.—Interesting proposals were put forward by a committee under the chairmanship of Mr. Harvey Wiley Corbett, involving the elevation of sidewalks, the arcading of buildings, and putting all rails underground so as to obtain greatly increased capacity at the present street level.

The proposals of this committee are well illustrated in the accompanying perspectives and cross sections. The committee accepted as basic principles that further growth of the city was necessary and desirable, that circulation was essential to healthy growth, and that elastic growth of streets was essential to maintain circulation. It propounded the theory that the needed elasticity could be obtained effectively only by dividing traffic into three levels: foot, wheel and rail; and that this division logically required the lighter foot traffic to take a higher level, the medium weight wheeled traffic to take a middle level and the heavier rail traffic to take a lower level. Therefore it proposed that foot traffic should go up one story to ele-

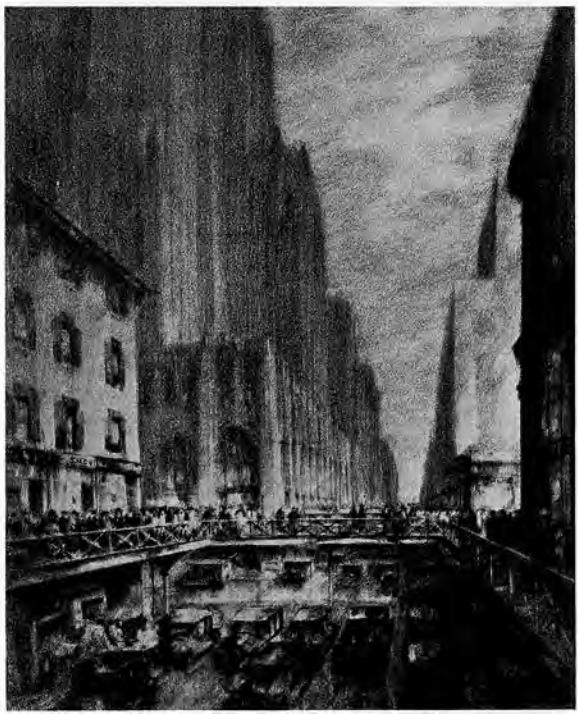
¹ See page 349.



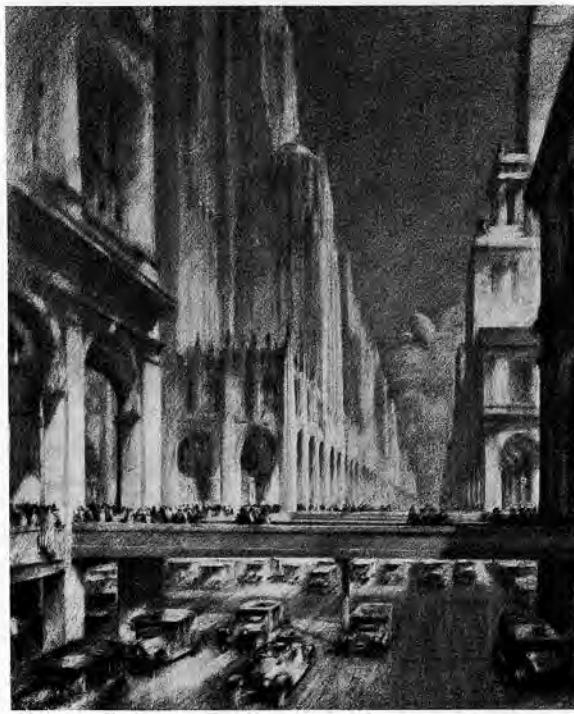
Typical conditions in a commercial district.



First step—an elevated sidewalk of temporary construction.



Second step—arcades on the ground level for standing vehicles.



Third step—pedestrian arcades provided on the upper level as a feature of permanent construction.

THREE STEPS IN THE REALIZATION OF INCREASED STREET CAPACITY AS PROPOSED BY COMMITTEE OF ARCHITECTS
(HARVEY WILEY CORBETT, CHAIRMAN)

GUIDANCE OF BUILDING

vated sidewalks and small parks, that wheeled traffic stay on the street level with the present streets expanded into buildings by means of arcading, and that all rail traffic be placed underground. A part of its plan was to eliminate interruptions to cross traffic by the ultimate "basket weaving" of street crossings.

Since they were submitted to the Regional Plan in 1923 these proposals have given rise to very extensive public discussion and have been lauded or condemned as they appealed to different persons who examined them. Unfortunately a great deal of error as to what the proposals meant has entered into this discussion. On one side extravagant assumptions have been made as to their possibilities and the ease with which they could be accomplished, and on the other side they have been criticized as involving the ultimate double decking of the whole street system of Manhattan. In fact, they do not lead to raising any streets for vehicular traffic except at intersections where "basket weaving" is proposed.

The chief error, however, in the consideration that has been given to the proposals has been the assumption that they were offered as a constructive method for building a city *de novo* in places where it is still practicable to have a one level street system, instead of being a remedy for congestion in the intensively built up area of a city where existing conditions have already forced the adoption of some multiple level systems.

The question before the architects was not how to build a new city but how to amend the defects of a city already built and unbalanced in its building. It is true that the scheme was presented and its results visualized as if it were adaptable for general application to all parts of a city. We believe, however, that this general application would neither be practicable nor desirable, although it has great merit as a means of remedying conditions in the most congested areas.

Another erroneous assumption has been that the proposals were based on a conception of growth that did not recognize the need of height and bulk limitations on building growth. The contrary is the case. In the "code of doctrine" submitted with the proposals it is set forth that as a precedent to any scheme of street expansion it was of primary importance to impose more stringent zoning of height and bulk of building, to improve the methods of "zoning for use" so as to secure better distribution of industrial and residence zones; to promote extension of zoning so as to encourage the removal of certain types of manufacturing from Manhattan; to space theatres and other places of public assembly over wider areas; to increase small parks; and to improve greatly the control and regulation of traffic.

With these governing qualifications in mind we can look upon the proposals in their true perspective.

Visualizing the result, the committee said:

"We see a city with sidewalks, arcaded *within the building lines*, and one story above the present street grade. We see bridges at all corners, the width of the arcades and with solid railings. We see

FITTING STREETS TO THE BUILDINGS

the smaller parks of the city (of which we trust there will be many more than at present) raised to this same sidewalk-arcade level (public parking space for autos being provided underneath) and the whole aspect becomes that of a very modernized Venice, a city of arcades, plazas and bridges, with canals for streets, only the canal will not be filled with water but with freely flowing motor traffic, the sun glittering on the black tops of the cars and the buildings reflecting in this waving flood of rapidly rolling vehicles.

"From an architectural viewpoint, and in regard to form, decoration, and proportion, the idea presents all the loveliness, and more, of Venice. There is nothing incongruous about it, nothing strange.

"The New York of the future thus adapted to the requirements of a far greater population is no stranger than the New York of today. But it will be infinitely more convenient and harmonious. Venice is the adaptation of a city to the necessities of the terrain on which it is built. The New York of the future will be an adaptation of the metropolis to the needs of traffic, freeing the city from the unsightly congestion and turmoil of the present. Pedestrians will move about through the arched streets, out of danger from traffic, protected from the snows of winter and the glare of the summer sun. Walking would become a pastime (it is now one of the most hazardous occupations). Shopping would be a joy. The overwrought nerves of the present New Yorker would be restored to normalcy and the city would become a model for all the world.

"This seems worth while, worthy of a great effort, and certainly warrants a trial—provided, of course, that it accomplishes what we started out to accomplish, viz.: a system of traffic division so perfected that the city can continue to grow and the streets can still take care of the increasing traffic.

"If street capacity is to keep pace with the increasing bulk of buildings we must provide an elastic method of enlarging the street capacity. How can this be done if streets are neither to be widened nor increased in number? We find in certain sections of New York, where buildings are now up to and beyond the bulk limit set by the zoning law, that traffic (in spite of one way direction and many other stringent police regulations) still moves, although it moves haltingly. We believe that if the existing capacity of such streets could be increased, say, several hundred per cent, the process being gradually applied, only then we would be safe in assuming that sufficient capacity is assured for all time. Can such an increase of capacity be secured?

"Let us now take the first step in this contemplated change of levels, and build a raised sidewalk the length of the block on both sides. (This could be constructed on piers built a foot or two from the building line, and carrying a cantilever beam with the short end in the building wall for a shoulder.)



ARCHITECTURAL POSSIBILITIES OF SECOND LEVEL
PEDESTRIAN WALKS AND ARCADES

GUIDANCE OF BUILDING

The old sidewalks become additional street space, the necessary room for loading and unloading vans and parking autos is provided, and the portion of street left free for moving traffic is increased from 10 feet to at least 30 feet, an increase in capacity of 200 per cent!

"Let us assume that this in turn becomes crowded in time. What is the next step?

"A law is passed, a building act similar to many already on the statute books, regulating the height of the second tier of beams of all future buildings in certain zones, also a fixed spacing of column points, and a certain clear arcade height on the second story level. When a block has been rebuilt (not so long a time as one might imagine when one sees the rate at which buildings change in New York) the temporary cantilever sidewalk is removed, the new arcaded sidewalk opened, the space under the sidewalks opened for vans loading or unloading or motor parking. The street available for moving traffic has widened to 60 feet, an increase of 300 per cent more, making a total of 500 per cent.

"Supposing even this becomes crowded, what is the next move? Additional space under the buildings is taken for all motors at rest, the space under the arcaded sidewalks is taken for slow moving traffic and the street has increased in capacity by another 200 per cent!—and the process can continue (thanks to the fact that the foot traffic has been raised) ad infinitum. In fact, it could continue until the entire surface under the buildings is available for traffic if ever such a condition demanded it.

"We have been considering only a narrow cross street and have shown a method of gradually increasing its effective traffic capacity up to and even beyond 700 per cent! This all applies with equal or greater force to the wide north and south avenues of the city. Their traffic capacity could be increased to the same extent by the same gradual process."



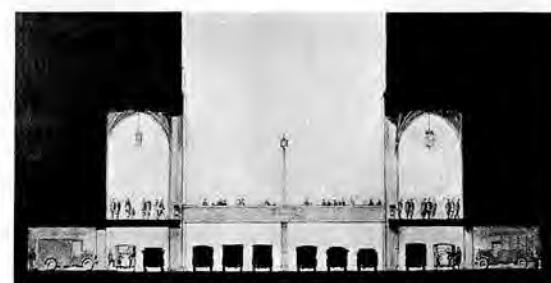
Present conditions—one moving lane.



With elevation of sidewalks—three moving lanes.



With arcades for standing vehicles—six moving lanes.



Deeper arcades provided in permanent construction—eight moving lanes.

CROSS SECTIONS SHOWING INCREASED STREET CAPACITY SECURED WITH EACH STEP

FITTING STREETS TO THE BUILDINGS

The committee did not favor the elevation of the north and south avenues in order to solve the problem of slow and fast moving vehicular traffic, except along the marginal streets of Manhattan. They proposed, instead, that the streets be "basket weaved" at important intersections following the process of raising the foot traffic and the resulting raising of store-front level and the business level under their plan.

They argued that by raising the foot traffic and the shops there was only the vehicular traffic to deal with, and that basket weaving the crossings would become comparatively simple, and permit a motor to move from any point in the city to any other point without a single stop.

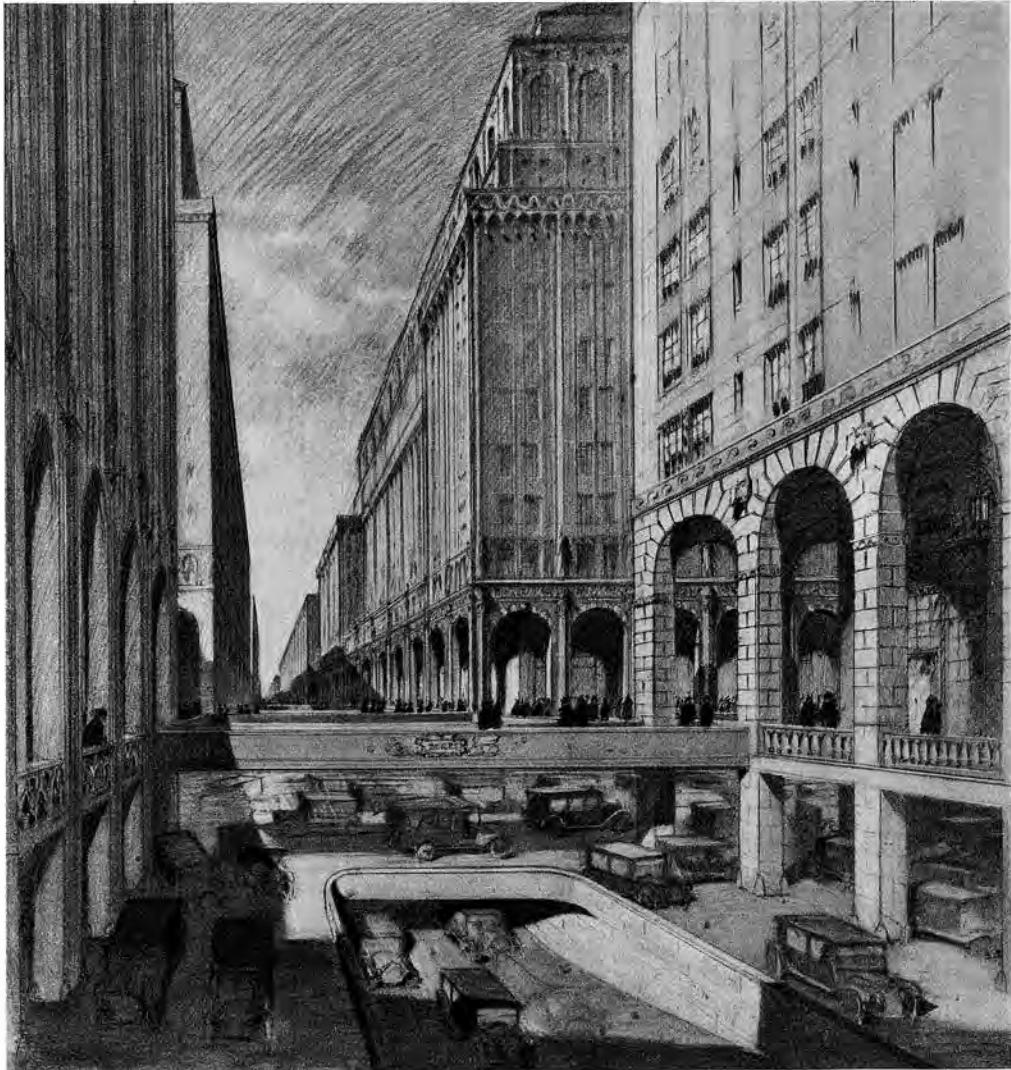
Application of Foregoing Proposals.—In our general plan for Manhattan, we have suggested certain places where this plan of elevating sidewalks, arcading buildings and some basket weaving of streets may be adopted. It is only in these limited places, such as Times Square, where the need of increasing traffic capacity is greatest and there is no possibility of securing this increase in an adequate degree by any other method, that the immense cost of both elevating sidewalks and arcading the buildings would be justified. But even in these places there should be subways for foot passengers as well as elevated walks. The extension of the kind of passenger subways that exist in a limited form in the Grand Central and Times Square districts would be an excellent way to assist in the division of foot from vehicular traffic.

It is generally assumed that such subways would be of little benefit because such little use is made of some of those already in existence for crossing of streets. But the existing subways are either indirect or have entrances so blinded that people get no encouragement to use them. If the approaches and openings of such subway walks were properly arranged and gave direct connections between different points they would be used much more. At the Grand Central Station great crowds pass from 42nd to 43rd streets through the station rather than along the streets. The provision of an underground walk from Grand Central to Times Square and in a few other places would be of great value in relieving surface traffic.

The chief difficulty in applying the proposed system of elevated sidewalks to existing buildings would be in reconstructing the façades of the buildings, with their different story heights. The cost of overcoming this difficulty and of meeting claims for compensation might be prohibitive. Where the need is as pressing as in the Times Square district, however, it would be well worth while to pay a high price for the improvement. Even there, the practicability of carrying it out would be dependent on a large degree of collaboration of owners of property.

It is in principle, however, and not in detail of execution, that the greatest objection exists to the proposals for anything more than local application to meet excep-

GUIDANCE OF BUILDING



SEPARATION OF GRADES AT INTERSECTIONS IS A PART OF THE PROPOSAL

tional conditions. The premises on which they are based do not appear to be sound. Traffic normally is not divisible into foot, vehicular and rail traffic, however logical this division may seem to be in theory. The proper division is: (a) foot passenger and slow moving vehicular traffic; (b) fast moving vehicular traffic; and (c) rail traffic.

We agree that the rail traffic should always be underground and that trolleys should be replaced with buses in central areas. But the very fact that subways should be used for transit services means that the foot passenger level should not be separated from these services by two levels. The transit services should be as near as

FITTING STREETS TO THE BUILDINGS

is practicable to the passenger and store levels, and should include some facilities for direct underground crossings at important street junctions.

Much the greatest degree of intercommunication between different forms of traffic exists between the foot passenger traffic and the slow moving surface traffic on the one hand and the foot passenger traffic and the subway train on the other hand. This means that whatever disadvantages may result from using the surface level for both foot passengers and vehicles it is the best use for the convenience of the majority and for facilitating the essential interchanges between pedestrians, vehicles and subway use.

Whatever separation of passenger and vehicular traffic is made must be accompanied by some disadvantages. The only justification for elevating the sidewalks would be that its disadvantages would be less than those now existing with a one level system. To us, it seems obvious that they would be as great. What we suggest is that the closest contacts be preserved between the three forms of traffic that passengers use—the subway immediately underground, the sidewalk, and the street on the surface.

This, however, still leaves unsolved the removal of hindrances to rapid vehicular movement and the problem of safety for pedestrians at grade intersections. To solve these problems, to the degree that is practicable, it is desirable to construct some high and low level streets for fast moving vehicles. These need not be many in number compared with the streets that are needed for all local intercommunications. We shall include in our proposals for Manhattan some two level vehicular ways that we consider to be essential for through traffic, in addition to proposals for elevated and underground sidewalks in special places where existing congestion demands that this remedy be applied.



PHOTOGRAPH OF A MODEL ILLUSTRATING THE ESSENTIAL FEATURES OF THE SCHEME OF ELEVATED WAYS



Ernest Flagg, Architect

**PROPOSAL FOR THE SEPARATION OF LOCAL AND THROUGH VEHICULAR TRAFFIC, AND OF
PEDESTRIANS**

Perspective view, taken from a park looking toward a street intersection in a part of the city showing application of Mr. Flagg's plan. Note the automobile runway on the axis of the avenue, the elevated sidewalks bridged across the streets, and the type of building expected to result.

FITTING STREETS TO THE BUILDINGS

THE PROPOSALS OF MR. ERNEST FLAGG

Another interesting and suggestive plan for elevating streets and sidewalks was put forward by Mr. Ernest Flagg, the well known architect, in 1927.¹ We show illustrations of this scheme because of its value in indicating what might be done in certain locations, although its execution on any wholesale scale would not be desirable unless as a means to encourage the increase of heights and densities of buildings. The illustrations are self-explanatory. Mr. Flagg divides traffic into fast vehicles, slow vehicles and pedestrians, and his plan therefore is based on a right conception of needs. His proposal for special automobile runways for fast traffic has great merit in providing a special right-of-way for through vehicular traffic to move rapidly, independently of slow moving vehicles and without danger to pedestrians. Under these runways he proposes that parking space be provided for standing traffic. He would not cut off the use of the existing street level for pedestrians and shops, except that he would narrow the sidewalks. In addition he would create elevated sidewalks and shops on the third story level. This would be done by setting the buildings back 25 feet from the street at the third story, so as to provide more light for the buildings and streets, protection against spread of fire and space for the sidewalks. As in the scheme previously discussed, these sidewalks would be connected across streets with bridges, and the buildings would have two levels of shops. The fact that the sidewalks are proposed to be on a third story means that elevators or escalators would have to be used. This also means that if it were desirable for some reason to have the elevated sidewalks higher than the third story it would be approximately as convenient as on the third story. Mr. Flagg's scheme would provide both added traffic capacity and means of increasing speed. As, however, it depends for its efficiency on removing elevated transit lines and street car tracks, a large part of the increased capacity would be taken up by the buses that would be needed to supplement any possible extension of the subways.

Mr. Flagg acknowledges that the city cannot be rebuilt, but claims that every new building should be designed so as to permit the ultimate accomplishment of his plan on an extensive scale.

It is probably true, as is claimed by the authors of the different schemes we have been discussing, that property would benefit rather than lose as a result of their

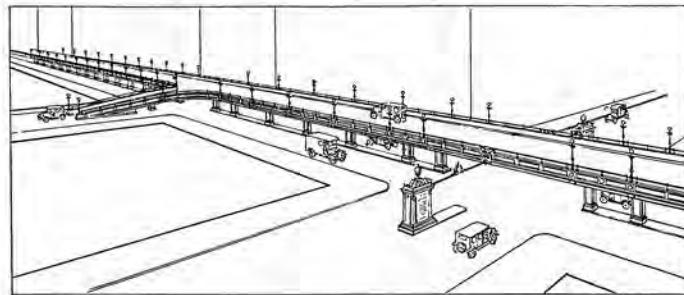


FIG. 37
SOME DETAILS OF THE EXPRESS AUTOMOBILE RUNWAY PROPOSED
BY MR. FLAGG

¹ Article in *Scientific American*, September, 1927.

GUIDANCE OF BUILDING

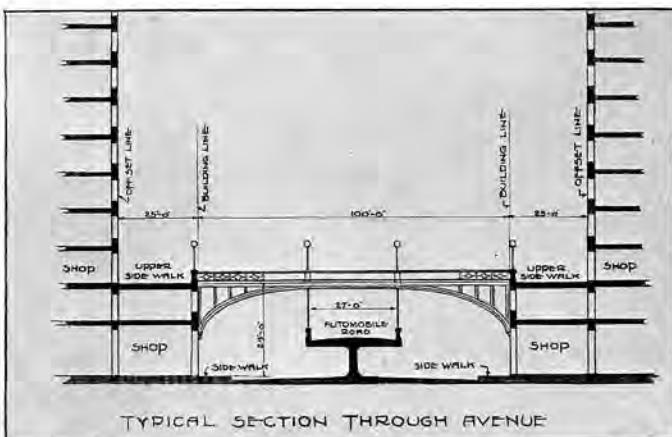


FIG. 38
TYPICAL SECTION THROUGH AVENUE

Ernest Flagg, Architect

The central runway for fast automobiles indicated would not interfere with the usefulness of the roadway below, because of its central supports. Space for the upper sidewalks is obtained by offsets from the building line above the second story.

creates a serious problem in regard to the design of the approaches to these traffic facilities. The immediate approach to a bridge, tunnel or important ferry terminal may be as great a converging point for traffic as a large railroad terminal. Witness the concentration that occurs at the entrances to all four East River bridges between Manhattan and Long Island.

The great need is for the provision of sufficient open space at these approaches so that there will be no obstruction at the land terminals at both ends to the movement of whatever volume of traffic the cross river facility can carry. No proposals for improving traffic conditions in Manhattan will be adequate which do not provide for making the utmost use of the existing and projected bridges, tunnels and ferries, and this use cannot be obtained where movement is obstructed at the entrances.

In general the existing ferry approaches are ample in size, and with proper improvement of the waterfront, ample provision can be made along the marginal ways and quays for new ferry terminals.

The terminals of bridges and tunnels are more inland than those of ferries and present greater difficulties in acquiring space because of existing buildings and high property values. The enormous cost of providing means of access to the new Hudson River Bridge illustrates these difficulties, particularly at the New York end. (See illustration on page 461) The more ample provision that is being made for approaches in New Jersey is due to the fact that the bridge terminus is on open and less valuable land.

Comparatively good approaches have been provided to both ends of the Holland Tunnel and at the Manhattan end of the Williamsburg Bridge. Perhaps the most

execution. But owners of property would never make this admission or fail to present a case for heavy compensation for disturbance. This is a difficulty that has to be faced whatever plan of reconstruction is proposed.

APPROACHES TO TUNNELS, BRIDGES AND FERRIES

The extent to which it is necessary to link up the main lines of communication in New York City by numerous bridges, tunnels and ferries, over or under the waterways,

FITTING STREETS TO THE BUILDINGS

defective approach in Manhattan is to the Queensboro Bridge. Illustrations of opportunities to improve these approaches will be given in later chapters. Here it is sufficient to say that there appears to be insufficient appreciation of the need of providing spaces of adequate size for multiple approaches to bridges and tunnels so as to enable traffic to disperse rapidly from cross river structures and facilitate its distribution over large areas beyond the terminus of the bridge or tunnel.

RESPONSIBILITY FOR COST

It might seem that, in equity, where the densities or uses of buildings give rise to the occasion for enlarging the street system so that the buildings may function properly, a large share of the cost should be charged against those who have so built upon or used the land that the enlargement is made necessary. In practice however it is found that the greater portion of such costs has to be met by the city at large. It is not possible to appraise the responsibility of individual buildings or groups of buildings for causing traffic congestion, or the financial benefit that will accrue to them from relieving this congestion. The need of street enlargement may be due in one district to the high average height of the whole district, or in another district to the predominant uses without regard to height.

As an instance of the latter we have the Times Square district, which would be congested even if its buildings were restricted to three or four stories in height. The congestion that exists is due primarily to the concentration of theatres, and this has been both a cause and effect of exceptional concentration of transit facilities. The cost of remedying this situation should be considered as a liability against the theatres rather than against traffic as such, but there is no practicable way by which it could be equitably assessed.

The safety of the public in attending theatres is a reason for enlarging the traffic facilities at the cost of the business concentration that requires this enlargement. Writing in 1928, Mr. Augustus E. Thomas refers to the desperate situation that now exists in the theatre district¹ as a result of having theatres too closely packed together in a small area. (See Fig. 39) Discomfort, by jostling and hustling, destroys the pleasure of many whose object in going to the district is to seek relaxation. When the weather is bad, taxis cannot be obtained. Some two level arrangement of street space for pedestrians is essential in this district, and it should be done by collaboration between the city and owners of property.²

There are other cases where the need for street enlargement does not arise either from building density or from special uses. An instance of one is where a subway requires space that involves the widening of a street. The cost of this widening operation is a necessary part of the cost of transit. For instance, in connection with such proposals as the widening of Smith and Schermerhorn

¹ *New York Times*, February 26, 1928.

² See sketch on page 414.

GUIDANCE OF BUILDING

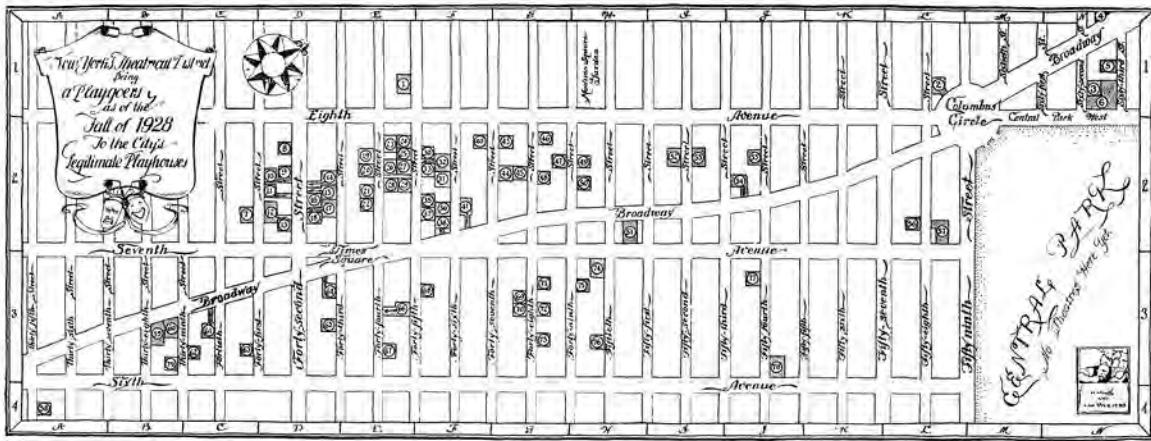


FIG. 39
CLOSE GROUPING OF NEW YORK'S THEATRES IN THE TIMES SQUARE DISTRICT

Courtesy of the New York Times

streets in the Borough of Brooklyn, it has been pointed out that a subway has forced the city to make the widening, at a cost of about \$800,000. Property is not assessable for any part of the cost of the improvement and the rest of the street is left narrow.

An essential thing in street re-planning, therefore, is to consider all the elements that create traffic: uses of buildings, heights of buildings, subway and railroad terminal developments and through traffic. When this is done, it will probably be found that in the average case the responsibility for the cost of improvements will have to be met out of the general city funds, and that even where these improvements have a high potential value to property owners, claims for compensation will to a large extent, if not entirely, offset the assessable benefits.

METHODS OF CARRYING OUT MAJOR STREET IMPROVEMENTS

There does not seem to be any better way to carry out major street widenings or building of elevated streets than for the city to undertake the work and assess as large a proportion of the cost on the adjacent property as is practicable.

The special difficulties which confront the city in carrying out improvements in areas of high building density have given rise to proposals that these should be undertaken partly by private enterprise. For example, it has been suggested by Mr. Robert E. Simon that it would be desirable for limited dividend corporations to be created and given powers of excess condemnation to carry out improvements for elevating or widening the main avenues or streets where needed. The proposal is that such corporations would condemn and purchase properties and hold them for a period till the city is prepared to take them over and repay the cost plus six per cent.

FITTING STREETS TO THE BUILDINGS

It is contended that such a plan could be made profitable enough to attract capital. It is doubtful, however, that this would be the case. Even if it could be made profitable it has the legal defects that excess condemnation could not be employed by private corporations without a constitutional amendment, which would be hard to obtain, and that the contract of the city to take at a subsequent period would be subject to the constitutional debt limit. The plan depends for its workability on real estate in Manhattan continuously increasing in value, which is not a certainty. It would result to an undesirable degree in perpetuating old buildings. It seems better to revise the procedure of the government authorities so as to make such public improvements more economical and effective than to employ a method involving the introduction of private enterprise into a field that is especially appropriate for rightly directed public enterprise.

There is more hope for improvement in the future in the expectations that, as time goes on, zoning restrictions will be made more drastic, more effective laws will be passed to adopt and enforce a complete plan of street improvements, more use will be made by the city of the powers of excess condemnation, and that the procedure for purchasing land for public improvements will be simplified.

Mr. Edward M. Bassett makes the suggestion that the City of New York should prepare a city plan and, with it as a basis, amend the official map by widening certain avenues or streets, showing the new lines on the map. Thereafter no owner could get a permit to put up a building in the bed of the mapped street except through the Board of Appeals. The board could compel the main parts of new buildings to conform to the new line, and gradual widening would result over a period of years.¹ It is obvious that such a plan would encounter difficulties where any considerable depth of widening was required; but with modifications designed to prevent cases of undue hardship arising, such as permission to build on the air space over the open area used for widening, much could be done to widen streets more effectively than by existing methods.

As a practicable measure Mr. Bassett suggests the widening of the avenues by the creation of arcade space to a width of 20 feet and a height of 15 feet, providing supports for upper stories on the old street line. This suggestion has a bearing on the proposals made for elevating and arcading sidewalks. Under it the entire old street space could be devoted to vehicular traffic and the arcade space to parking of cars and foot traffic. Mr. Bassett acknowledges, however, that the usual difficulty would arise in that only new buildings could be set back and arcaded, with consequent hardship to owners of such buildings. But the advantages of the plan are that it would work automatically and that each parcel of land would be capable of treatment on merits. It is not a principle that could be put into practice in existing city plans, but it is one which has merit for future consideration.

¹ This method has been effectively employed in Paris, London and other cities.

GUIDANCE OF BUILDING



BUILDING SUGGESTIVE OF SUITABLE ARCHITECTURAL TREATMENT FOR AN ELEVATED STREET
The northern end of Vanderbilt Avenue, at 47th Street.

CONCLUSION

The general principles and methods we have discussed in this chapter and all the findings that have emerged from our survey lead us to the general conclusion that there is no ideal solution for the traffic problem in places where building densities are so great in relation to the street system as in parts of New York City. Such a solution would be possible only in a city that was built in accordance with a comprehensive plan in which the street pattern and the building densities and uses had been adjusted to one another in a well balanced system; and moreover where the integrity of the plan was permanently preserved to the fullest practicable degree.

There can be no final remedy for street congestion in central areas like Manhattan except by rebuilding the entire city. The most that can be done in areas where excessive densities have already been permitted is to get sufficient enlargement of streets to relieve the worst interferences with rapid, free and safe movement of traffic, together with maintenance of property values. It is only in areas where it is still practicable to prevent building densities from increasing beyond the degree that can be served effectively by the street system that some approach can be made toward a reasonably adequate solution.

The high cost involved in providing added space by widening or elevating of streets means that every alternative method of giving relief to traffic should be applied, such as arcading of buildings and provision of added facilities for parking of

FITTING STREETS TO THE BUILDINGS

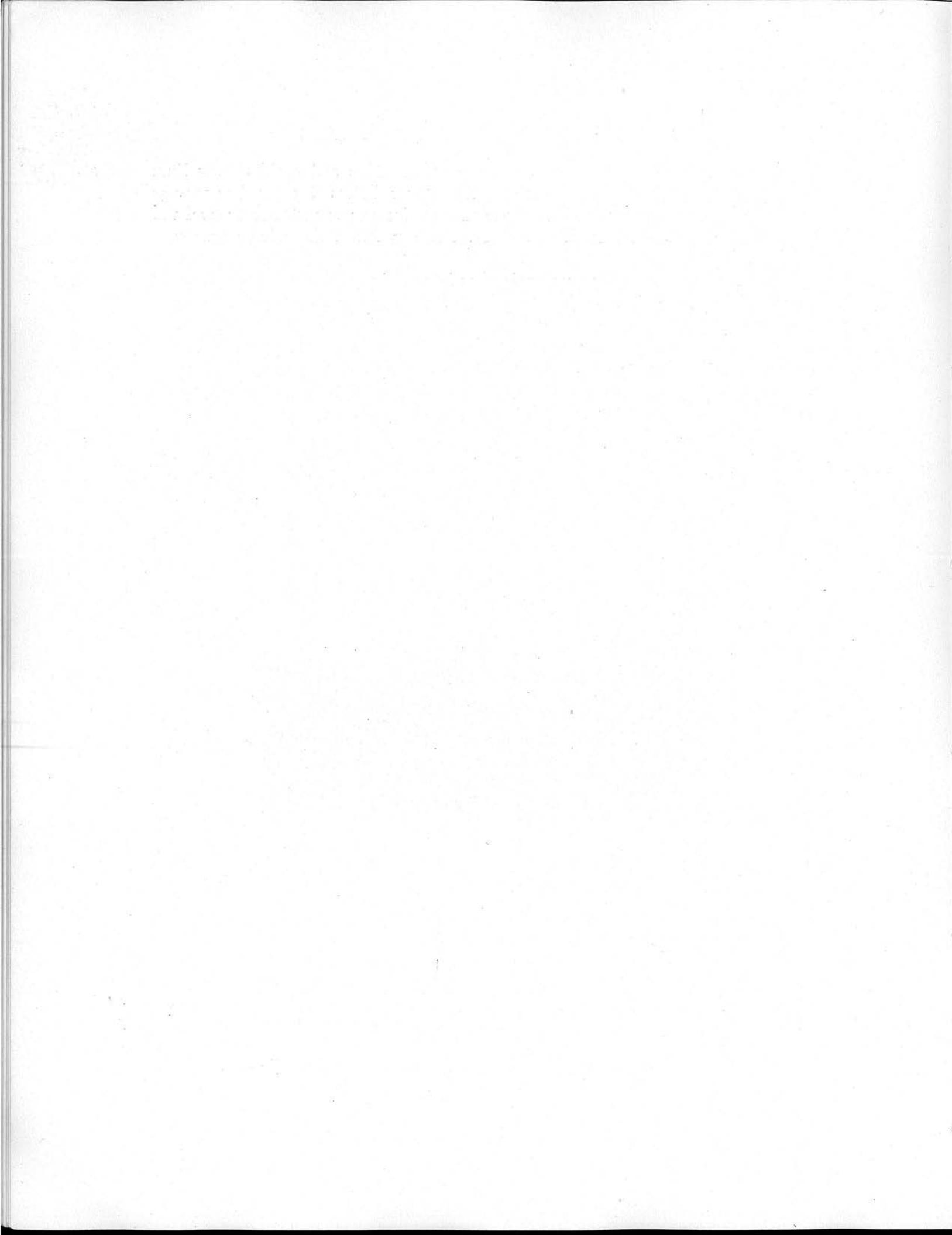
vehicles on private property. In the future all railroads and rapid transit lines should be placed underground and the existing elevated lines eliminated as soon as practicable, so as to remove obstructions to the use of streets on the existing level and permit of effective construction of two level streets where these have become a necessity.

We have to remind ourselves again that in so far as widening or elevating of streets may be used to justify higher and more densely packed buildings, it will fail to lessen street congestion; also that it may be, and usually is, more important to enlarge streets that aid circulation around rather than through congested districts. Every street improvement has to be tested in respect both to its relation to building densities and its location, on the score of its ability to assist in promoting a well balanced distribution of economic activities, of population, and of buildings.



YORK, ENGLAND

The problem of fitting river edges to buildings is a problem of modern as of ancient city planning.



PART III

OPPORTUNITIES IN REBUILDING



FIG. 40

Drawn by Francis S. Swales

VIEW OF MANHATTAN, THE BRONX, INNER BROOKLYN AND QUEENS, AND THE NEW JERSEY
WATERFRONT SHOWING MANY OF THE PROPOSALS DISCUSSED IN CHAPTERS XII-XV



AN OPPORTUNITY ABOUT TO BE REALIZED—THE TRI-BOROUGH BRIDGE
(See also illustration, pages 434-435)

XI. SCOPE AND CHARACTER OF OPPORTUNITIES

A Philosophic Conception

IN OUR discussion of the art of city building, of the complex forces that enter into the making of the city, and of the standards that must be followed to secure proper guidance of building, we have kept before us the character of the general ideal that is attainable in a democratic community. This ideal is to obtain for the city the highest practicable degree of stability, balance, order and economy. We have claimed that in proportion as this ideal is realized, other ideals, including dignity and beauty in building, will be attained.

A certain Sir Henry Wotton is quoted by Mr. Charles Moore¹ as saying that: "Well-building hath three conditions—commodity, firmness and delight." This expresses our purpose in different words, if the first two conditions are regarded as the qualities that cause "well-building" and the third as the effect they produce upon the citizen.

In the past we have allowed conditions in cities to grow up as a result of false economic standards and of letting things drift instead of planning them with proper foresight, so that we have been compelled to compromise with ideals. This is an evil necessity, and is inconsistent with a true conception of liberty.

In an admirable essay "On Foresight," Mr. Alfred North Whitehead, Professor of Philosophy of Harvard University, says:²

"There can be no successful democratic society till general education conveys a philosophic outlook. . . . Philosophy is not a mere collection of noble sentiments. . . . It is a survey of possibilities and their comparison with actualities. In philosophy the fact, the theory, the alternatives and the ideal are weighed together."

The Regional Plan is just such a survey of possibilities in the light of facts, theories and ideals, and we may therefore claim, with all modesty, that it is an attempt to arrive at a philosophic conception of the future of New York and the

¹ "The City as a Work of Art," in *City Planning Quarterly*, April, 1931.

² Introduction to *BUSINESSADRIFT*, by Wallace Brett Donham, McGraw-Hill Book Company, Inc., New York, 1931.

OPPORTUNITIES IN REBUILDING

surrounding region. To bring the possibilities to fruition requires the development by education of the philosophic outlook of the citizens, which is another way of expressing the awakening of spirit and broadening of education to which we have alluded in earlier chapters.

The greatest opportunity and most urgent need in any urban community in a democracy is that of educating and organizing public opinion toward an intelligent understanding of what is "well-building" and of the need of foresight in planning the city to achieve it. When building is guided in harmony with true objectives and a well conceived city plan, concrete opportunities will present themselves for securing dignity and beauty coincident with true economy. In preparing a regional plan for the New York region we have seen hundreds of opportunities that call for prompt action if they are to be realized; and evidences of others that once were, but no longer exist, because of past neglect.

We are now speaking of the greater opportunities that are allied with, or part of, the community structure, and not those of isolated or less importance. To inspire the

citizens to seize some of these greater opportunities is our final task. It matters little whether they seize them in the forms we propose. What matters is that they shall not permit them to pass away. The few opportunities we can deal with are those on which orderly growth of the family of communities in the Region is most dependent. In presenting them we give a concrete visualization of the application of the principles we have set forth in these volumes. Our proposals may have defects in detail, may fail to meet the artistic standards of some, or may not be immediately practicable;



Deteriorated property on East River frontage at 21st Street



Blacksmith shop on 46th Street, a few steps from the East River

TWO VIEWS SHOWING THE NEED OF BETTER BUILDING ON VALUABLE SITES IN MANHATTAN

SCOPE AND CHARACTER OF OPPORTUNITIES

but all this is of small consequence if they are properly related to the broad conception of sound principles that should guide all building development.

General Character of Proposals

The proposals we submit combine some that are immediately realizable in whole or in part with others that merely picture something that should be aimed at in the future. To a large extent they have to be imaginative in character, and the degree to which they are so may make them more valuable for guidance and inspiration. To carry conviction that something eminently desirable that is now out of reach is worth the effort to bring it within reach is more important than to prove that some unattractive proposal is immediately practicable.

IMAGINATIVE ELEMENTS

On the whole the Regional Plan is a practical plan, so designed as to meet the probable needs and demands of the future. In the specific proposals which follow, however, there are imaginative elements that may go beyond what is practicable in the form in which they are presented. It is well to explain why they are so presented and what we conceive to be their value.

Among the dreams of the late Charles D. Norton when he initiated the Regional Plan were that it should contain imaginative proposals for reconstructing the waterfronts of Manhattan and other boroughs, and for the transportation and civic centers of the future, as well as show practicable methods of bringing the beautiful Palisades and the beaches of Long Island and New Jersey nearer to the crowded populations. He perceived the necessity of obtaining more order and beauty for the city through methods that would simultaneously maintain the supremacy of the Port of New York and add to its efficiency in handling goods and conducting its business. The need for improvement is indicated by accompanying views of waterfront properties.

Mr. Norton's aspiration was that the Plan should contain features that would stimulate the imagination and civic pride of the young people as they looked forward to the future possibilities of their city. This led him to see that it should not be lacking in suggestion of bold architectural projects in addition to presenting a sound practical plan for developing its facilities for transportation and its distribution of land uses.

One of the first steps taken by Mr. Norton as Chairman of the Committee on the Regional Plan was to invite the cooperation of leading architects in New York City for the purpose of securing graphic illustrations of such architectural possibilities.¹

¹ Reference to the work of these architects is made in Regional Survey, Volume VIII, pages 194 and 195. At a meeting held in October, 1923, Mr. Frederick P. Keppe1, the first Secretary of the Plan, referring to the work of the committees of architects, stated that he had never known a major enterprise of the general character of the Regional Plan to be taken up in quite so fine a spirit and to have enlisted on all sides the same kind of devoted and disinterested support. (Footnote continued on page 328)

OPPORTUNITIES IN REBUILDING

Mr. Norton was rightly convinced that the preparation of such illustrations was essential to the proper understanding of any plan by the public. Had he lived

he would have been agreeably surprised, however, at the enormous public interest aroused by the practical proposals contained in the Graphic Regional Plan, although it includes only the features that could be placed on a map. The final determination of the types of problem to be dealt with and the form of presentation had to be deferred until a great ground plan was conceived and mapped.

As Mr. Cass Gilbert and Professor Boring pointed out in 1923, when these early studies were undertaken, it was impossible to present detailed or definite projects in advance of a thorough study of the growth and traffic problems of the City and Region. New York, said Mr. Gilbert, had "outgrown its plan." It had too many people living in too little space and the obvious thing was to redistribute the space. A broad, comprehensive program looking far into the future was needed.

From 1923 up to the eve of presentation of this volume, in 1931, a compre-

(Footnote continued from page 327)

The architects who collaborated in preparing sketches of proposals include the following:

Cass Gilbert (Chairman, Committee on City Hall and General Plan of Manhattan), Welles Bosworth, Guy Lowell,* Lawrence Grant White.

D. Everett Waid (Chairman, Committee on East Side Waterfront), Chester H. Aldrich, Louis Ayres, John W. Cross, William A. Delano, Frederic C. Hirons, Henry F. Hornbostel, Egerton Swartwout.

Harvey Wiley Corbett (Chairman, Committee on Fifty-ninth Street and Traffic Studies), William A. Boring, Arnold W. Brunner,* Burt L. Fenner,* Charles A. Platt.

Thomas Hastings* (Chairman, Committee on West Side Waterfront), Donn Barber,* Charles Butler, John Russell Pope.

In addition to the above groups, other architects who have individually collaborated in preparing designs or sketches of proposals include Grosvenor Atterbury, Frederic Bigelow, John Taylor Boyd, Jr., Henry Dumper, Hugh Ferriss, George B. Ford,* E. Maxwell Fry, William Gehron, Eric Gugler, Arthur T. Holden, Electus D. Litchfield, Thomas Newton, Bruce Rabenold, Perry Coke Smith, Francis S. Swales.

* Now deceased.



At East 120th Street



Along Exterior Street



The slaughter-house area, looking toward Queensboro Bridge
EXISTING CONDITIONS ON MANHATTAN'S EAST
RIVER WATERFRONT

SCOPE AND CHARACTER OF OPPORTUNITIES

hensive program of study has been followed, and combined architectural and engineering studies have continued to be made.

As the work has gone on, the aim has become more clearly defined as an attempt to show what is desirable from a social point of view, within the limits of what is ultimately practicable from architectural, engineering and financial points of view. Although our proposals involve difficulties in respect to cost and method of execution, all of them are capable of being carried out in substantial degree by a gradual process. They do not come within the category of fantastic projects to which we allude elsewhere,¹ and which are described by others as constituting "impossible turreted Babylons."²

The proposals may be called visionary, however, in the sense that applies to all suggestions that are made by a body which has no statutory power to carry them into effect. However soundly conceived such proposals may be, in the light of economic needs or social and political tendencies, it is unlikely that there ever can be such unanimity of thought and method on the part of public officials and owners of property as to bring about their complete realization. Yet, as Mr. Norton so clearly saw, it is well worth while to present them because of the influence they will have on the character, order of importance and design of future public improvements. They permit of substantial modification without loss of their real value, which is to guide public opinion and both public and private action toward more order and economy in the building of the city.

New York will never appear exactly as we picture it. Our only hope is that the lines we have drawn will inspire the citizens to express themselves with a greater love of order and a higher sense of beauty in the building of the city.

Architectural Forms.—No attempt has been made to present any particular style in the sketches of buildings, or to unify the designs as a harmonious whole. Freedom for expression is essential in art. So long as regard is paid to proportion, scale, harmony and solidity in the conception of a building, and to regard for truth and purpose in its materials and forms, we may be indifferent to the clash of ideas as to what is good or bad architecture. There are controversies in these days as to the relative merits of what are called ancient and modern styles of architecture. This attempted discrimination is in itself a false thing. The fundamentals in art cannot change. The "modernist" in his experiments may yet achieve beautiful forms. He has arrived at some expression of them in certain buildings. But every great experiment follows along a path that is strewn with evidences of failure. The time is not yet when we can say that architects have triumphed in creating new forms that express the modern spirit and the modern need better than those forms that have emerged and held fast through the ages.

¹ See pages 105-108.

² Hubbard and Hubbard, *OUR CITIES TODAY AND TOMORROW*, Harvard University Press, 1929.

OPPORTUNITIES IN REBUILDING

There is too much pretension in some modern conceptions—pretension that it is an expression of soul and spirit of artist or people, instead of an attempt first and mainly to compromise with commercial demands and cheapness, and second to give the artist scope to express himself freely under the clouds of that compromise.

This is not a place to define what is true architecture. But it is well to explain that there are no such things as prescribed rules in architectural design and that there is room for many ideas in form and line and detail in the sketches that are used to illustrate a regional plan. Basically the regional plan is a true architectural conception in proportion as it shows the need for sufficient space about buildings to preserve true scale between them and their surroundings. Everything else is of secondary importance in any general presentation of ideas.

Not only are we aware of the uncertainties that are attached to the achievement of such ideas, particularly in the actual form they are presented, but in so far as their execution depends on control of aesthetic features we are aware also of the great work that needs to be done in raising standards of public taste. This, as we have said, depends on education. Nothing is to be gained by attempting to dictate on matters of taste. Although we refrain from suggesting such dictation, we show indirectly how more tasteful and orderly building development can be secured. We are con-



St. Louis City Plan Commission

A PROJECT FOR A MODERN CIVIC CENTER FOR ST. LOUIS, IN WHICH TRADITIONAL FORMS OF ARCHITECTURE
ARE USED

Courtesy of the Architectural Forum

SCOPE AND CHARACTER OF OPPORTUNITIES



Frank P. McKibben, Engineer

Gehron and Ross, Architects

A GOOD EXAMPLE OF MODERN ARCHITECTURE APPLIED TO MODERN MATERIALS IN BRIDGE
BUILDING

The Ridge Road Bridge, Rochester.

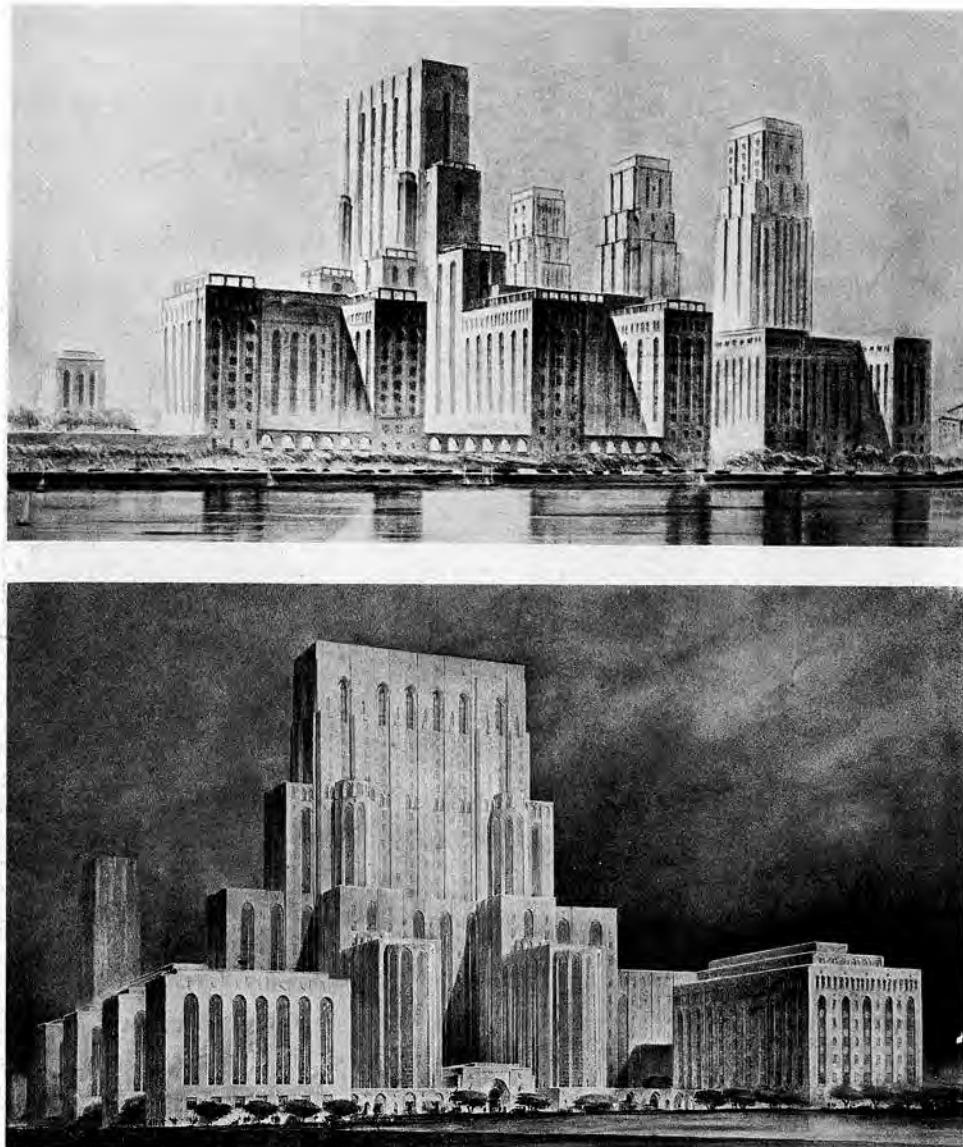
vinced that as a rule ugliness and untidiness are a consequence of wasteful neglect and that these, as well as vulgar ostentation in design, are inconsistent with true economy.

Viewed by themselves, some of the imaginative designs that follow may appear to picture a degree of height and density of building that is greater than our words and our standards would indicate as desirable. If, however, they are viewed as part of a whole concept of a more spacious New York, spread more widely and more evenly over the expansive open areas of its environs, they fit into a rational system of distribution of building bulk. When the citizens come to understand that it is their right to enjoy light and air and space, as well as access to nature, we can have well proportioned growth.

The skyscraper tower may be part of that growth, for with such spaciousness as we conceive to be practicable there can be combined many great towers, separated by open areas and low buildings so that they may all have a reasonable degree of light and air.

It is too true that much of what has happened, as well as much that seems inevitable in New York, especially with the huddling together of its skyscrapers, should be regarded as a warning rather than as a guide to architectural aspiration.

OPPORTUNITIES IN REBUILDING



Coolidge, Shepley, Bulfinch & Abbott, Architects
MEDICAL CENTER BEING DEVELOPED BY THE NEW YORK HOSPITAL-CORNELL MEDICAL
COLLEGE ASSOCIATION ON THE EAST RIVER BETWEEN 68TH AND 71ST STREETS
An example of the effects to be obtained from the towering masses of modern architecture.

It would be idle for us to pretend that we would not go further in the direction of wider distribution of buildings and wider spacing of towers if we were planning a new city. Our suggestions, however, relate to New York, with all that this means in respect to the difficulties of overcoming present tendencies to permit great heights and high densities of building.

SCOPE AND CHARACTER OF OPPORTUNITIES

SCOPE OF PROJECTS

The projects put forward in the succeeding chapters are definite in that they relate to particular areas and each presents one conception of the solution to a particular problem. It is necessary, however, to point out the limited degree to which they are definite for purposes of adoption or application. With some important exceptions, including Mr. Gugler's definite project for Battery Park, they are nothing more than we claim for them, namely, illustrations of opportunities; in some cases perhaps opportunities that have passed.

In general the elaboration of designs and of specifications in plans to a degree that would be appropriate in a city plan, and still more in a specific project prepared for execution, has to be avoided in a regional plan. Because, as a rule, they present broad conceptions of ideas rather than definite designs for adoption, we refrain from describing them in detail. Some of the imaginative drawings are more fully elaborated than others, but this is with the object of making proposals more interesting and intelligible as pictures and not with the intention of presenting them as a basis for actual schemes. At the same time all projects have been carefully studied and some of them can be carried out with relatively little modification.

Those projects that relate solely to public property, or to undertakings that are appropriate for public authorities to carry out, have to be considered in some re-



Coolidge, Shepley, Bulfinch & Abbott, Architects

ANOTHER VIEW OF THE NEW MEDICAL CENTER

Indicating possibilities of improvement along the East River. Contrast with views on page 328.

OPPORTUNITIES IN REBUILDING

spects as in a different category from those that relate to private property and undertakings. Where public authorities are owners of land or buildings or are concerned in developing a public improvement, it is reasonable to expect that they would consider proposals solely from the point of view of what would benefit the community. It is natural, however, for officials of public authorities to prefer their own plans than those voluntarily suggested by others. They may reject such plans for reasons of political expediency that are based on no higher principle than the self-interest of private owners. In the respect, however, that such officials are more susceptible than private individuals to public opinion, they are more likely to act favorably towards proposals that win public approval, whatever their origin may be.

In the case of proposals that can be carried out only through individual enterprise, and on private property, acceptance or rejection is likely to be little influenced by whether or not a scheme is sound from a community point of view or is favored by the citizens. It must be shown to be profitable to the owner.

The self-interest of owners, however, has to be respected, and if it is enlightened it may approach nearer to public interest than much of what is done by those who represent the public. On the whole, public and private interest are indistinguishable, although distinctions between the two classes of property have to be borne in mind in preparing plans for any project.

A proposal for dealing with private property may be either:

(1) A proposal for dealing with a particular site where it is thought that the private interest can be served in common with the public interest by a particular plan for its development. When such a plan is put forward by an impartial body it may appeal to the owners as a sound alternative to an existing plan or it may confirm them in promoting an existing plan.

(2) A proposal for comprehensive planning and development of a waterfront or neighborhood area, owned by individuals or corporations, which visualizes the possibilities of architectural treatment.

As we have said, there is little likelihood that proposals affecting private property will be carried out in any community if they conflict with the financial interests of the owners of the property, whatever promise they might have of benefit to the community. However, whether a proposal is sound, as a means of advancing social order and true economy, is more important than whether it complies with individual wishes. In some cases its soundness may depend on its being limited to what is best and immediately practicable under existing circumstances. If, however, its purpose is to present a plan for the future it may fail because of being either too extravagant or too niggardly in dealing with opportunities. Social injury and financial loss may arise as a result of developing plans that can never be realized, as well as through failure to plan.

SCOPE AND CHARACTER OF OPPORTUNITIES

Special Opportunities

In dealing with such a vast area, with so many and diversified problems, it has been necessary for us to limit ourselves to a few suggestions. We have made no arbitrary choice, but certain problems have forced themselves on our attention, either because of their central prominence or because of their special significance in relation to the development of the Region as a whole, or because they indicate where the greatest needs and opportunities for rebuilding are to be found.

Our studies of the Region have confirmed the early anticipations of Mr. Norton as to the importance of visualizing the possibilities for developing the waterfronts and improving the civic and transportation centers. The expansive waterfronts of the Region if stretched in one line would extend half-way across the continent. They present such variations in character and scope for treatment as will be found in many countries. Inside the City of New York alone there are 585 miles of shore, of which 200 miles surround the edges of the five boroughs. Between a third and a half of the shore line of the boroughs, including four miles of Manhattan, has vacant or sparsely built land on the adjoining uplands. No other city has such an abundance or such magnificence of shore.

The city has taken advantage of its unique waterfront opportunities in some places, creating Riverside Park and Harlem River Driveway, for example. Values created in these places prove the need of making similar improvements in other parts, especially on the East Side of Manhattan, lower Bronx, and various parts of Queens and Staten Island.

On the East Side, what could be the most valuable residential part of the city is occupied by refuse-dumping piers and slaughter-houses that destroy the amenities and the values of land. The Harlem River is becoming as central in New York as the Seine in Paris. The Seine Valley is one of the glories of the French capital, while the Harlem Valley remains the Cinderella of New York, with "rags and tatters" of buildings lining its banks and ugly bridges linking its two sides.

The proper development of parts of the waterfronts for commerce and residence, for shipping and recreation, involves, in certain places, the construction of a double level development of quay and highway. Such a development could not be carried out by individual owners, but if a plan can show how and why it should be done, then, even if it is a dream, it is well that the public should be able to envisage the possibilities. The sketches we have shown, on pages 332 and 333, of the new Cornell-New York Hospital medical center illustrate the character of improvement being made in waterfront architecture. The greatest need, however, is to secure an orderly combination of commercial use and good architecture. An example of such a combination is shown in the views of Algiers on pages 337 and 338.



PRESENT CONDITIONS IN THE HARLEM RIVER VALLEY

A number of views indicating the extent of the opportunity. (For proposals see Chapter XIII)

SCOPE AND CHARACTER OF OPPORTUNITIES

Then there are the civic centers of the city and boroughs of New York, as well as of surrounding communities, where in spite of the architectural quality of individual buildings, disorder and incongruity of surroundings are the dominant features. With all its wealth New York should be able to make and maintain dignified and well ordered centers of civic government.

In the field of private effort there are special opportunities available for employing the art of good building in connection with the development of new railroad stations. In this field, happily, a good start has already been made in Manhattan.



Publishers Photo Service

THE WATERFRONT OF ALGIERS, COMBINING QUAY DEVELOPMENT WITH A RAISED BOULEVARD OVER WAREHOUSES

Similar to treatment proposed for Brooklyn waterfront. (See Chapter XIV)

New York possesses two of the finest stations that exist in its Grand Central and Pennsylvania Terminal buildings. In our proposals we show opportunities for additional stations of corresponding dignity and quality of architectural design.

The same cannot be said of the buildings along harbor fronts. Before the erection of the West Side Elevated Highway, the Chelsea Piers presented one of the finest façades for a harbor in the world. But taken as a whole, and especially now that the elevated structure has been erected in front of the piers, there is nothing in the harbor buildings to arouse the pride of the citizen. Smaller ports in different parts of the

OPPORTUNITIES IN REBUILDING



Publishers Photo Service

FRONT VIEW OF THE WATERFRONT, ALGIERS

world, of which Antwerp, Liverpool, Havre and Hamburg are good examples, have dignified entrances by water.

The new airports of the city should be planned in keeping with its pre-eminence as a transportation center. Harbor and railroad terminals, airports and highways in the Region need to be linked together across waterways with more bridges as well as tunnels. These are important features in the building of any city, but are of special importance in the New York region.

One of the greatest opportunities for obtaining beauty and order in the building of New York in the future will lie in the design of overground structures that are essential to the development of its ways of communication.

Probably the form of structural development in New York City that has been most deplored is the elevated railroad. Not only in appearance, but in effects on property values and on street traffic, they have been found to be injurious to the city. The replacement of these causes of blight by building more underground subways and increasing facilities for fast free-wheel traffic on streets of different levels must be only a matter of time. It will be unfortunate if the mistake is made of building elevated streets in forms that compare in unsightliness with the elevated railroads. The building of new elevated structures should be carried out, to the limited extent that is necessary, in a manner that will add to the beauty of the city and to the values of adjacent property as well as to the facilities for traffic.

In addition to opportunities for improvement of conditions that relate to building development, there are those that relate to the reservation and planning of open areas whose location and character are of special importance to the maintenance of natural beauty in the environs of the city. Nowhere is there to be found such a magnificent natural feature as New York possesses in the Palisades, overlooking the

SCOPE AND CHARACTER OF OPPORTUNITIES

wide expanse of the Hudson River. Here at least there is time to safeguard the future by measures of prevention, and the immensity of the danger is such as to justify whatever cost will be involved in preserving this valuable possession.

DEVELOPMENT OF NERVE CENTERS

One of the needs of the New York region which has been the subject of thought in preparing the Graphic Plan¹ is that of securing a well distributed arrangement of *nerve centers*, that is, centers that combine industry, business and other economic activities with such social requisites as housing, recreation and education. Every city is a composite of nerve centers more or less ill-regulated and subject in most cases either to over-expansion or under-expansion. In a physical and economic sense the New York region comprises a series of such nerve centers, their force being derived from the Port of New York as the heart of the regional body. These nerve centers vary in importance and character and may have their being independently of the political divisions.

Apart from its political significance as the chief metropolitan borough of New York, Manhattan is the main nerve center of the whole metropolitan structure. Its physical character led in large degree to that concentration of activities which makes it the predominant economic center. It is also, however, a composite of *sub-centers* or neighborhoods such as Greenwich Village or the 125th Street district, each having some unity and distinction of its own, but more or less dependent on a main center. Other boroughs and outside counties are also made up of distinctive units comprising cities, villages and neighborhoods.

¹ See discussion of "recentralization," Regional Plan, Volume I, pages 149-152.



WEST SIDE ELEVATED HIGHWAY

Temporary ramp to elevated highway at 23rd Street plaza. The spaciousness and fine proportions of the plaza will be destroyed by the continuation of the highway structure.



Illustrating how the motor speedway destroys the beauty of the façade of the Chelsea Piers and subordinates the interests of international shipping to those of through street traffic.

OPPORTUNITIES IN REBUILDING

What we call nerve centers, however, do not always fall entirely within the area of the municipal divisions, but spread into more than one such division. These may be otherwise defined as sectional communities. An example of one of these is the Hoboken-Jersey City metropolitan section.

Within the central parts of the Region, sectional communities have grown up with important sub-centers along railroad and transit corridors. There are large sections also where land has already acquired a building value but for some reason has failed to be developed. Two prominent examples of these are the Jamaica Bay section, consisting of parts of Brooklyn and Queens in the City of New York, and the Hackensack Meadows section in New Jersey. These sections lie in different municipal areas but have certain physical characteristics that make it desirable to plan them



ONE OF THE FINEST OPPORTUNITIES IS TO PRESERVE THE PALISADES

without regard to political boundaries. It is desirable that these sections be planned so that they will provide for all community needs. In general, it will be impracticable to assemble much if any land in such sections under one ownership, although in the case of Jamaica Bay the major areas involved are owned by the city. In later chapters we present proposals for the Hackensack Meadows and Jamaica Bay sections.

The organization and planning of new community developments or nerve centers in the city must proceed on the lines of coordinating the interests of existing private owners and the city, so that the transportation, industrial, residential, business, recreational and cultural facilities will be provided for in well balanced proportions.

One of the main purposes in planning sections would be to obtain convenient juxtaposition of industrial, business and residential developments so as to prevent unnecessary traveling, with such degree of segregation of these uses as will prevent

SCOPE AND CHARACTER OF OPPORTUNITIES

one use from causing injury to the other. New York and other communities are growing too much in the direction of having separate districts devoted to industry, business and residence. A good zoning plan aims at the segregation of these three uses, but not to the degree that interferes with the convenient relation of one to the other, or imposes unnecessary traveling upon the community.

What is called a well balanced community is one in which these functions are so related as to produce the highest efficiency, the most wholesome living conditions, and the greatest economy in work and travel. The financial and entertainment districts of Manhattan are exceptions, and, except to the extent that they have been permitted to become congested, gain enormously from concentration. As a rule, however, the industries, the residences and the cultural and recreation facilities of a city should be interspersed with one another, subject to the purely localized segregation obtained by well conceived zoning plans. Every area that is adaptable for industrial development should have, either contiguous or easily accessible to it, areas for the accommodation and recreation of its workers. The nearer the approach that can be made to having different sections enjoy the advantages of self-contained community life, and the less dependent they are on other sections for their domestic and social needs, the more they will contribute to the strength of the whole community structure of the Region.

There can be no question as to the value of centralization of certain functions and activities, for instance of major economic activities in Manhattan; but the strength of Manhattan itself and still more of its sister boroughs and its neighboring counties lies in each having the highest possible degree of civic independence. This is true of both political divisions such as boroughs and of such non-political sections as we have referred to. The question of securing some degree of civic unity in sectional units that have no political entity is one of considerable importance.

The future prosperity of the Region and of its many constituent communities and parts depends in a large degree on the proper development of such sections, especially those that surround some focal point in the system of transportation.

To encourage a proper and effective degree of recentralization it is also desirable that new satellite communities be developed in open areas in the environs. With the development of Radburn as such a community there has been inaugurated a method of promoting self-contained centers, within easy reach of the great metropolitan center, where industries and residences will be combined and a varying degree of provision will be made for commuters, according to the distances from the larger places of employment. The nearer such communities can be made to approach a complete self-supporting character the greater their social and economic success is likely to be, and the less the importance that needs to be attached to proximity to existing centers, involving, as it does, the payment of comparatively high prices for land.

OPPORTUNITIES IN REBUILDING

Planning of Neighborhood Units.—We have referred to the Hackensack Meadows and Jamaica Bay sections as non-political units of area so great in extent and so diversified in character that they should provide for all community needs. Much lower in the scale of size we have sections that have been appropriately designated by Mr. Clarence A. Perry as neighborhood units. These comprise associated groups of residences with definite boundaries and a certain degree of homogeneity in their organized community life. Their physical characteristics may vary from the unorganized village and the suburban group of residences to the large apartment development. Examples of communities that partake to a greater or less degree of the neighborhood unit type of development are Forest Hills, Jackson Heights and Sunnyside, all in Queens Borough.

The planning problems and principles of neighborhood units or sections are fully dealt with in Volume VII of the Regional Survey. Mr. Perry there presents constructive proposals which are parts of the Regional Plan.

ORDER OF PRESENTATION OF PROJECTS

The projects illustrated and briefly described in succeeding chapters are dealt with in the following order:

- (1) In downtown and midtown Manhattan, below 86th Street.
- (2) In upper Manhattan, above 86th Street, extending into The Bronx, and including the Harlem River Valley.
- (3) In Brooklyn, Queens and Staten Island.
- (4) In Metropolitan New Jersey, including Jersey City, Bayonne, Newark and the Hackensack Meadows.
- (5) In the outer environs.

We have already pointed out that there has been no arbitrary process of selection of areas or problems on the basis of either relative importance or geographical distribution. It will be seen, however, that a high degree of emphasis has been given to the problems of Manhattan and that much the greater part of the projects illustrated relates to opportunities in the metropolitan center. Manhattan, for obvious reasons, affords the most striking object lessons of the need of improvements. It is the chief center of the City and the Region; it is subject to greater and more rapid changes than other areas; and in the possibilities it presents for creating new values it is unique in the Region and possibly in the world.

We repeat also that the designs suggested are not intended to be arbitrary as to the particular form in which a proposal should be carried out. The communities in the Region will express themselves in their own way and the suggestions we make are ideas of the kind of changes which they might accomplish.

Each project should be considered as typical of what can be done to deal with a specific problem in a particular way and according to one form of design. In prin-

SCOPE AND CHARACTER OF OPPORTUNITIES

ciple, each suggestion made for one area has a bearing on what should or might be done for a comparable area.

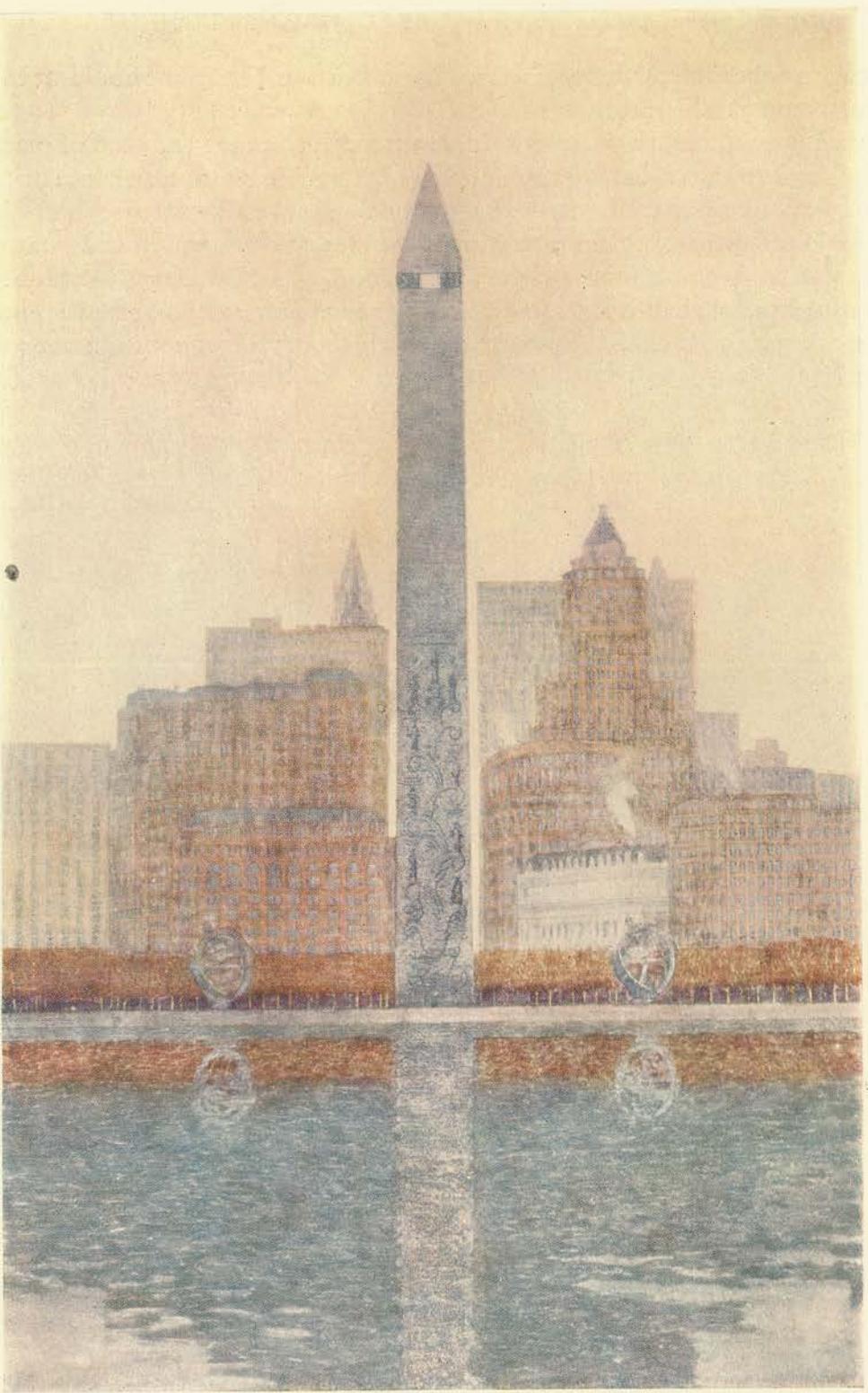
Taken as a whole, these proposals are intended to prove the need of planning in all areas; and in that sense they are applicable in principle to many localities in the Region. Indeed, we may claim for the Regional Plan, in all its parts, that it presents a conception of principles, of a comprehensive ground plan, and of imaginative projects that are suggestive for all cities in the country. New York is unique in size and in the physical character of its site, but its economic, social and structural problems and the elements of change which affect all these problems are common to every modern city.



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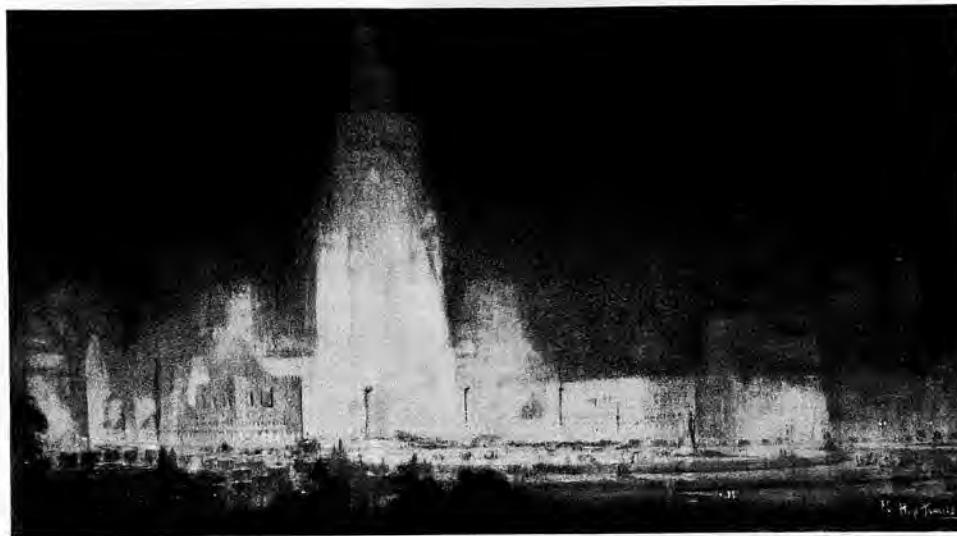
A VIEW OF GENEVA, SWITZERLAND

Showing how the opportunities of development along the lake front have been used.



Eric Gugler, Architect

MONUMENT AND SPHERES PROPOSED AS CENTRAL FEATURES OF AN ENLARGED BATTERY PARK



Advisory Committee of Architects, Harvey Wiley Corbett, Chairman
STUDY FOR AN ART CENTER FACING CENTRAL PARK

XII. IN DOWNTOWN AND MIDTOWN MANHATTAN

Problems in Re-planning

DOWNTOWN and midtown Manhattan¹ probably present both the most difficult problems and the most dramatic opportunities in the world for re-planning and rebuilding. It does not follow that where the problems are most difficult the opportunities are most important; indeed, in some cases the reverse is true. Midtown Manhattan includes five strategic cross streets—57th, 42nd, 34th, 23rd, and 14th—and three centers of high land values and high buildings—surrounding Grand Central Station, Times Square and Pennsylvania Station. Downtown Manhattan is the center of finance and mercantile trade for the whole Region, and still is predominant in values and in building concentration.

A bird's-eye view of the lower portion of the island reveals its undulating skyline. We see its groups of skyscrapers forming ranges of hills in the midst of valleys. Great masses of high office structures stand cheek by jowl with low deteriorated tenements. Both have dark rooms, rather because they each cover too much land area than because of their height. It is where the great isolated tower stands, like that of the Empire State Building, that the greatest amplitude of light and air exists. A 20 story window in a low building district of Eighth Avenue commands a better view than one on the 40th story in some other places. All is relative, and few sky-

¹ This chapter deals with the area of Manhattan below 86th Street, except that the parts of Central Park and Welfare Island below that street are reserved for the next chapter.

OPPORTUNITIES IN REBUILDING

scrapers get their light without denial of light to others, or seem likely to enjoy permanently that which they have.

As we have shown, it is the overcrowding of land and not the skyscraper in itself that is the destroyer of light and air in cities. All the advantages of high buildings and concentration can be obtained without this destruction. It is unnecessary and futile to talk about breaking up and spreading the major economic activities already centered in the lower half of Manhattan. Among the things that can and should be done, however, to make it more efficient for these activities are:

- (1) Securing as much space as is practical for light and movement as a result of encouraging the dispersal into New Jersey, Staten Island and Long Island of such manufacturing industries as do not of necessity require a central location.
- (2) Providing facilities for taking all traffic that originates in and is destined to other parts of the Region around, instead of through, Manhattan.
- (3) Encouraging the expansion of transit facilities and the improvement of railroad terminals in suburban areas.
- (4) Placing much more drastic limitations on bulk of buildings than is now done or contemplated.

Much can be done also by widening streets, especially by arcading; by increasing the facilities for parking of cars off the streets; by opening small play-parks in the tenement districts and a large waterfront park on the lower East Side; by increasing the facilities on the margin of the island and on certain avenues for fast moving traffic; and by providing pedestrian over and under crossings in congested districts.

The architects who made preliminary studies in 1923¹ had no illusions as to the limited value of the suggestions they made. Also they would be the last to claim that they were agreed either in principle or detail as to objectives or methods. The chief difficulty in securing agreement was perhaps with regard to the controversial issue of whether great skyscrapers are desirable, or rather under what conditions they are desirable. We have no record of specific statements on both sides of the question from the cooperating architects having different views, but a recent utterance of Mr. Cass Gilbert, who was chairman of one group, gives us what we believe to be the nearest approach to a majority opinion of the architects and the Committee on the Regional Plan.

It has been observed of Mr. Cass Gilbert that he always speaks hesitatingly when he refers to the place of the skyscraper in the city. Perhaps he has never spoken with more emphasis than he did on January 16, 1931, when he was presented with the gold medal for architecture of the Society of Arts and Sciences. On that occasion he made a plea for beauty and sincerity in building and declared that the most beautiful skyscraper that is possible has not yet been built. Of its faults, he

¹ See page 327.

IN DOWNTOWN AND MIDTOWN MANHATTAN

said: "When I see the long shadows cast even at noon on a winter's day, I sometimes wonder if the light and air their occupants enjoy compensate for the sunlight their neighbors lose."

Recalling the fact that hundreds of millions had been spent on transportation, transit and automobiles, he asked:

"How much have we spent on widening streets and avenues and providing large public spaces to accommodate the modern traffic? Why not let people travel in the sunlight instead of like moles underground? Why not put the freight underground and let the people have the streets? . . . Double-decked streets will not solve the problem. We have carried concentration too far! We must begin to think in terms of decentralization. Think it out."

The proposals we present in this and other chapters are the result of our having thought it out.



PROPOSAL FOR TREATMENT OF CITY HALL SQUARE MADE IN 1924 BY THE NEW YORK CHAPTER,
AMERICAN INSTITUTE OF ARCHITECTS

OPPORTUNITIES IN REBUILDING

First Architectural Studies

We shall now recall certain specific studies and proposals made by the architects for dealing with the problems, first of City Hall square, second of the West Side waterfront, third of the East Side waterfront, and fourth of the 59th Street section in Manhattan.

CITY HALL SQUARE

The question of what should be done to improve the square has long been a matter of popular discussion and at different times projects have been put forward for this purpose. Most of them have agreed as to the importance of getting rid of the Post Office Building, the old Court House, and the encroachment of the Brooklyn Bridge terminal in City Hall Park. A design showing an interesting treatment was prepared in 1924 by the Public Information Committee of the New York Chapter of the American Institute of Architects, as shown on the preceding page.

The committee of architects, headed by Mr. Cass Gilbert, which, with Mr. Francis S. Swales as designer, studied the problem in 1923, also advocated the removal of the buildings in the park, other than the City Hall. They pointed out the need of providing more space about this fine building and of correlating it with the new Court House. They realized, however, that to give the City Hall and Municipal Building a proper setting it was essential to obtain good architectural design for any new buildings that in future might be erected on the frontages of the square. They pointed out the need and difficulties of re-planning the approaches to the square and the importance planning of Manhattan. The suggestions have proved of great value in subsequent

of comprehensive
tions they submitted
studies.

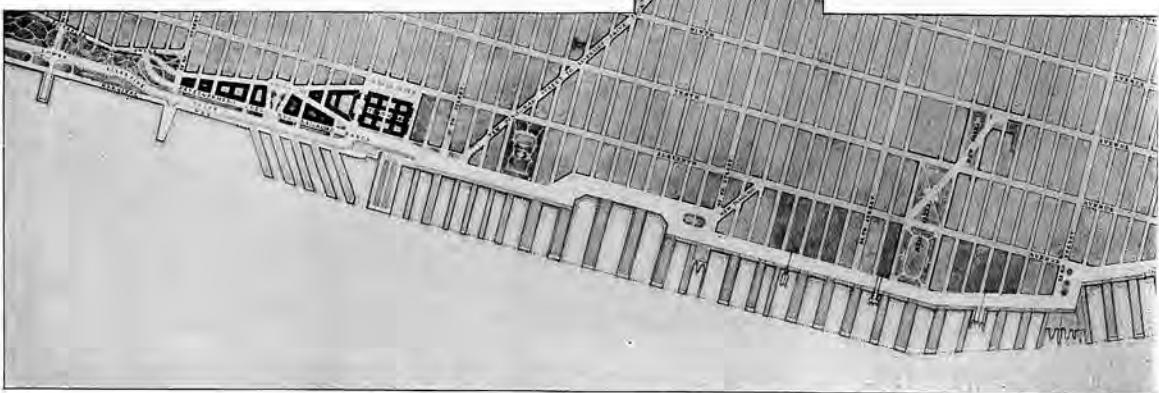


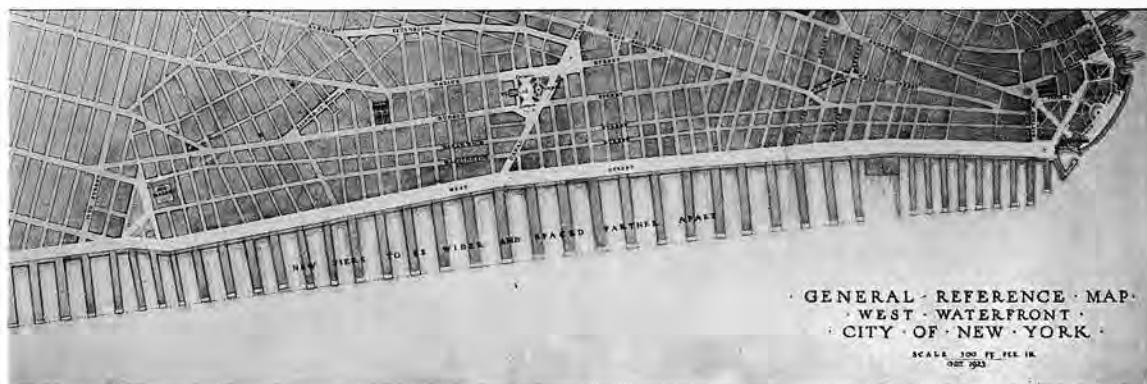
FIG.
Section from 80th Street to 18th Street
TENTATIVE PLAN FOR THE DEVELOPMENT OF THE WEST SIDE WATERFRONT

IN DOWNTOWN AND MIDTOWN MANHATTAN

WEST SIDE WATERFRONT

A tentative plan for the development of the West Side waterfront was put forward by the committee under the chairmanship of the late Thomas Hastings. This plan is shown on the accompanying general reference map (Fig. 41). The chief proposal of the committee was the removal of the New York Central tracks from Tenth and Eleventh avenues and West Street and the improvement of West Street as a great artery on the ground level. It deprecated the erection of an elevated roadway. Since the committee made its proposals the city and the railroad company have agreed upon a plan to remove the tracks, and an elevated highway has been erected on part of West Street. It is of interest, however, to note what the committee conceived to be the solution of the problem as it presented itself to them in 1923. The committee advocated the placing of all the railroad tracks underground, the eventual removal of the 30th Street yards, the acquisition by the city of the space between 30th and 32nd streets and Tenth and Eleventh avenues, the conversion of the site of the milk station between Ninth and Tenth avenues into a park, and the construction of a diagonal street between Ninth and Eleventh avenues. They also proposed a detour by which vehicles could avoid the tracks crossing Twelfth and Thirteenth avenues between carfloat transfer bridges and inland terminals by using Eleventh Avenue to 40th Street and proceeding by a new diagonal street to Twelfth Avenue at 42nd Street.

The general reference map shows a treatment of the New York Central Railroad yards at 60th Street, which includes the raising of the avenues above the tracks. A perspective of the suggested architectural treatment is shown on page 350. It was proposed that Twelfth Avenue would connect with Riverside Drive and a new lower Riverside Drive north of 72nd Street, with a retaining wall between the lower drive and the river.

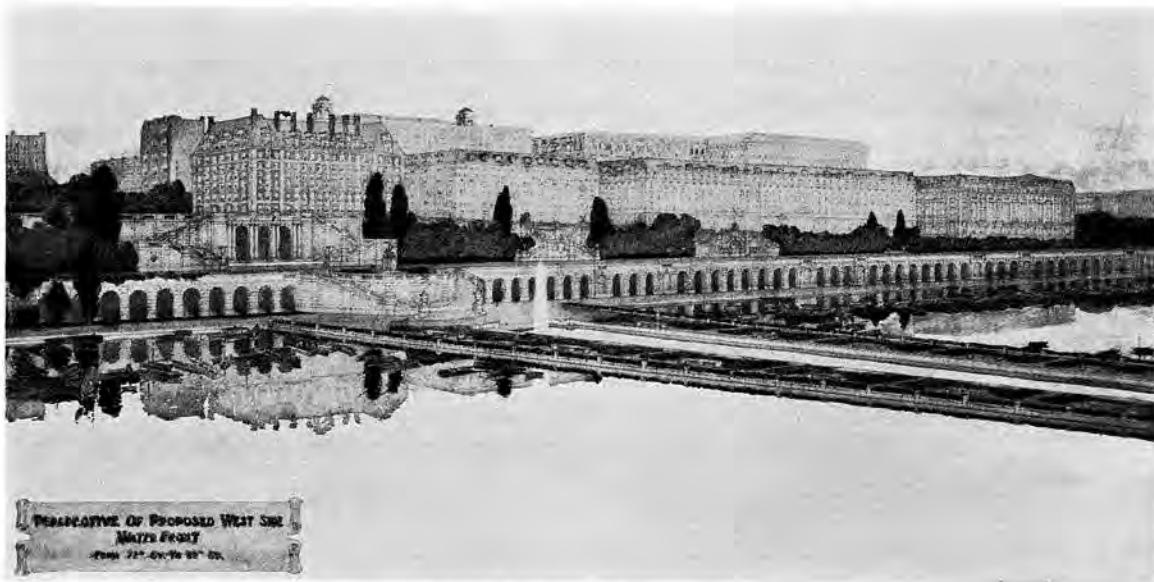


41

Section from 18th Street to the Battery

PREPARED BY ADVISORY COMMITTEE OF ARCHITECTS (THOMAS HASTINGS, CHAIRMAN)

OPPORTUNITIES IN REBUILDING



STUDY OF ARCHITECTURAL TREATMENT FOR WEST SIDE WATERFRONT SOUTH FROM THE PRESENT END OF RIVERSIDE DRIVE

Detailed suggestions included the following:

(1) A market at the south end of the railroad yards; a recreation pier at the foot of West 72nd Street; and a new diagonal street from Times Square to the waterfront at 56th Street and thence north to Riverside Drive.

(2) The restudy of the smaller parks between Battery Park and Riverside Drive; the enlargement of Battery Park in the northwest portion without acquiring new property and its re-planning as a terminal plaza to West Street; the construction of a new diagonal street connecting Church Street with West Broadway at Barclay Street; and the opening of a larger space at the entrance to the vehicular tunnel than has since been provided.

(3) The widening of Bedford Street between 7th and Hudson streets; a new site for West Washington Market within the boundaries of Gansevoort, Greenwich, Jane and Washington streets; and the widening of Gansevoort Street and an extension of the Gansevoort open air market.

(4) The extension of Sixth Avenue to Canal Street (since carried out).

(5) Enlargement and wider spacing of piers.



Courtesy of the Borough President of Manhattan
CONSTRUCTION WORK ON THE SIXTH AVENUE EXTENSION, SINCE COMPLETED

EAST SIDE WATERFRONT

The study of the East Side waterfront was made by a committee headed at first by Mr. D. Everett Waid and later by Mr. John W. Cross. Contrary to the views of the West Side Committee, this committee

IN DOWNTOWN AND MIDTOWN MANHATTAN

concurred in the plan of the late Nelson P. Lewis for an elevated highway on the margin of the island.¹ They illustrated their proposals in four sketch studies. One sketch (page 306) shows the suggestions in small scale over the whole width of the island at its lower end, and indicates the proposed elevated highway on the southern tip of the island. The sketch on this page gives a larger and clearer definition of the suggestions for the area between the East River and Centre Street. Two additional sketches on page 352 show the location and surroundings of a proposed pavilion and recreation pier with projected building development facing a square adjoining Corlears Hook Park, and the design of the pavilion in still larger scale.

The principal suggestions in addition to the elevated highway were as follows:

- (1) Widening of East Broadway as a parkway, which included clearing the blocks between East Broadway and Division Street.
- (2) A large plaza at the end of Manhattan Bridge surrounded by new buildings.
- (3) Open space at the junction of New Chambers Street and New Bowery.
- (4) Plaza and recreation pier at the East River waterfront between Brooklyn and Manhattan bridges, connected by two diagonals with Allen Street widened, and with the Municipal Building via New Chambers Street.

¹ See page 299.



SUGGESTIONS FOR THE LOWER EAST SIDE BY ADVISORY COMMITTEE OF ARCHITECTS (D. EVERETT WAID, CHAIRMAN)

The above sketch study shows the general character of the proposals between the East River and Centre Street. (A more comprehensive view of these proposals showing their relation to the island as a whole is given on page 306.)

OPPORTUNITIES IN REBUILDING



IN THE FOREGROUND, A PROPOSED RECREATION PIER AND BUILDING DEVELOPMENT BETWEEN BROOKLYN AND MANHATTAN BRIDGES

- (5) New diagonal streets leading from Manhattan Bridge Plaza in a southwesterly and north-easterly direction respectively.
- (6) Enlarged open space east of the Court House.
- (7) Elevated roadway along the line of Houston Street.

Other detailed suggestions included the extensions: of First Avenue south to East Broadway by widening Allen Street (since undertaken); of Avenue A south to East Broadway by widening Essex Street to Seward Park (since partly cleared by



A CLOSER VIEW OF THE PROJECTED RECREATION PIER AND ELEVATED HIGHWAY

IN DOWNTOWN AND MIDTOWN MANHATTAN

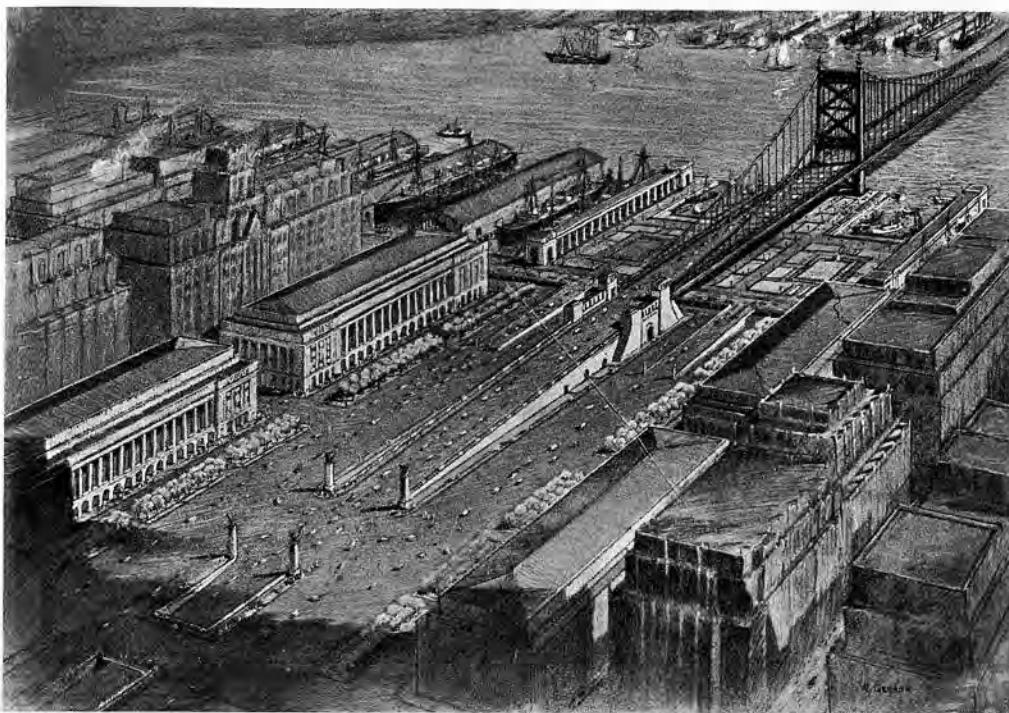
subway construction); and of Delancey Street westward to the entrance to the Holland Tunnel. Also included were the widening of Houston Street west to Hudson Street (since cleared in part by subway construction), of Eighth Avenue south of 14th Street, of Vesey Street and Pearl Street.

An East Side park system was proposed which included enlargement of City Hall Park, a large open space surrounding the Court House, the parkway along East Broadway to Corlears Hook, a park to the north of Corlears Hook to 10th Street, and park areas along the East River to 64th Street. Garden apartments were proposed for erection between Avenues A and B north from Tompkins Square to Bellevue Hospital.

FIFTY-NINTH STREET SECTION

The detailed proposals of the committee, of which Mr. Harvey Wiley Corbett was chairman, included, in addition to those already referred to in Chapter X for elevating sidewalks,¹ the widening of 59th Street between the rivers so as to obtain a great highway connection between Queensboro Bridge and "a possible future bridge across the Hudson."

¹ See pages 306-311.



TREATMENT OF A BRIDGE APPROACH SUGGESTED BY ADVISORY COMMITTEE OF ARCHITECTS
(HARVEY WILEY CORBETT, CHAIRMAN)

OPPORTUNITIES IN REBUILDING

In illustrating this proposal the committee presented two sketches—one giving an impression of the prospective building groups on areas facing Central Park (page 345), and the other an approach to the proposed new bridge (page 353). Subsequent studies of the Regional Plan staff showed that a bridge of large capacity crossing the Hudson River in the neighborhood of 59th Street would be a serious mistake. Nevertheless, we show the sketch of the proposed bridge plaza and building development as a good illustration of the treatment that should be given to the approach to a highway bridge.

Second Architectural Studies

At different periods between 1924 and 1929 more elaborate study was given by Mr. Francis S. Swales, in collaboration with the writer, to the group of areas and problems dealt with in the preliminary studies to which we have just alluded. As a result of this study, Mr. Swales prepared a series of plans and drawings illustrating possibilities in the treatment of City Hall square and of the West Side and East Side waterfronts.

EXPANSION OF THE CIVIC CENTER

The original studies of the Civic Center made by Mr. Cass Gilbert's committee¹ were continued and further developed, resulting in the proposals illustrated in the plan in Fig. 42. The predominating feature of this plan is a huge new building on the four blocks bounded by Broadway and Chambers, Centre and Duane streets. This would overlook a City Hall square cleared of all buildings except New York's historic City Hall. Such a new municipal building is incorporated in the Regional Plan and is illustrated and referred to in more detail as part of our final recommendations.² Although the plan for reconstructing the area north of this building, between Broadway and Lafayette Street, may not be immediately practicable, its great cost would be justified in course of time.

The drawing (page 384) indicates the construction of a raised walk on masonry arches between the east side of Park Row and the west side of Broadway. This arcade would fit in appropriately with the architecture of the existing and proposed municipal buildings. It would enable a proper screen to be constructed around the terminus of the rapid transit line now projecting an ugly structure into Park Row north of Brooklyn Bridge. From the Brooklyn Bridge and the rapid transit lines it would be possible for all pedestrians going toward the west to pass over crowded Park Row, Centre Street and Broadway. The subway system would be linked up with the elevated pedestrian way and tremendous traffic capacity obtained as a result merely of providing east and west facilities for the pedestrian traffic.

The plan (Fig. 42) also indicates a utilization of the three blocks to the north of Duane Street between Broadway and Lafayette Street for new public or semi-public buildings. The layout of buildings around New York County Court House is similar to that proposed by the city.

¹ See page 348.

² See page 381 ff.

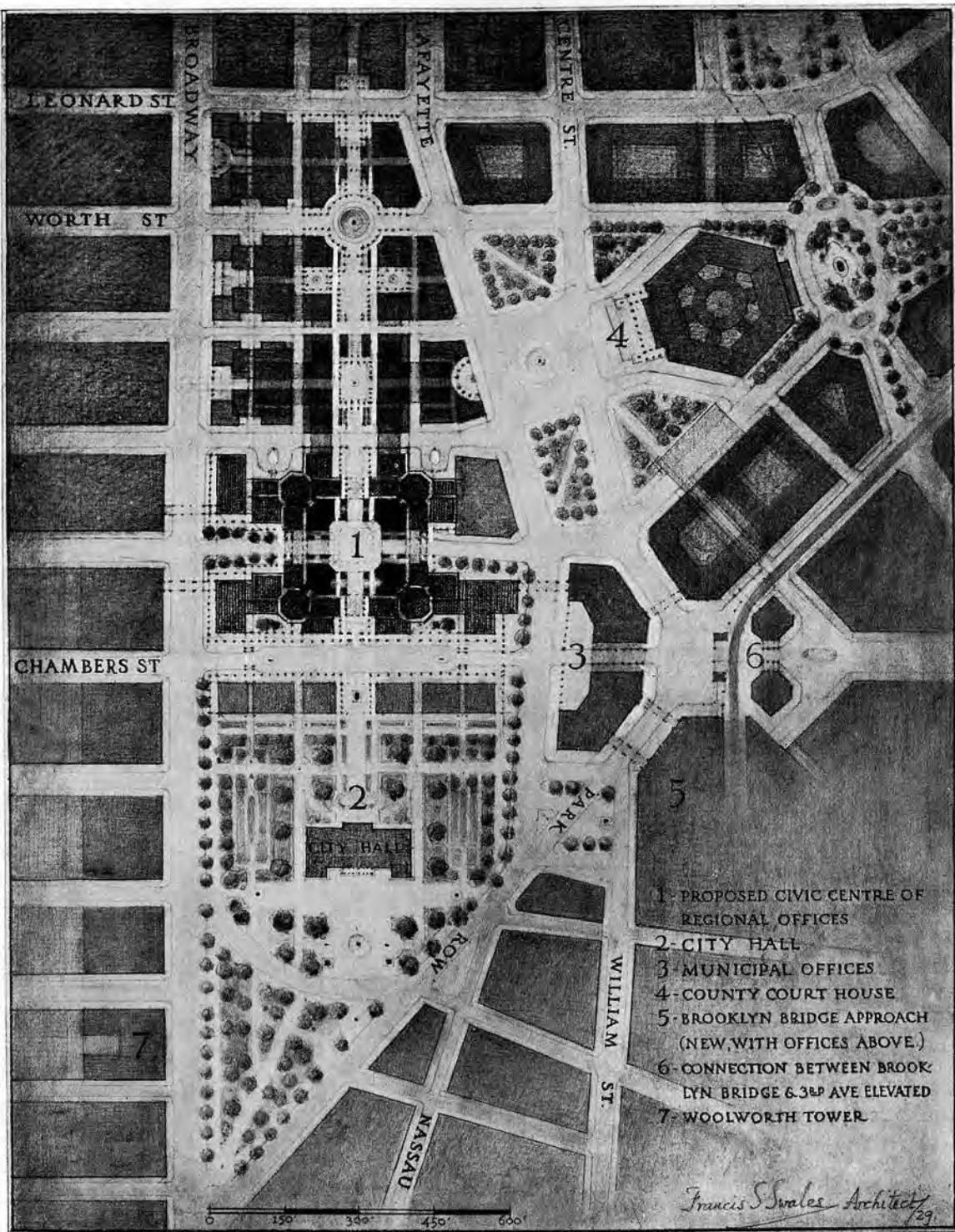


FIG. 42
 PLAN OF DEVELOPMENT FOR THE MANHATTAN CIVIC CENTER
 (For illustrations, see pages 384-387.)

OPPORTUNITIES IN REBUILDING

WEST SIDE WATERFRONT

The accompanying plan (Fig. 43) and perspective drawings (pages 359 and 360) show proposals worked out by Mr. Swales for the ultimate development of the West Side area from 23rd Street to 86th Street. At the time this plan was made the plans of the city and the railroad company were still in a state of flux. The final plan for the removal of the railroad tracks had not been approved and the construction of the elevated highway in West Street had not been begun.

Mr. Swales' conception was developed on the assumptions of the Regional Plan that the crossing of the 60th Street yards and the transfer bridge connections of the New Jersey railroads between 25th and 38th streets would require a raised highway along the West Side, and that it should be physically connected with the adjoining buildings where practicable. It was felt, however, that the cost of erecting such a raised roadway, and giving it architectural treatment appropriate for its position, was such that it should be carried out gradually over a considerable period of time, largely coincident with the railroad improvements. During that time the immediate needs of through traffic could have been met by the building of viaducts over the 60th Street yards and the tracks between 25th and 38th streets, and by improving other parts of West Street and Twelfth and Thirteenth avenues on the existing level by repairing and widening, and by eliminating obstructions.

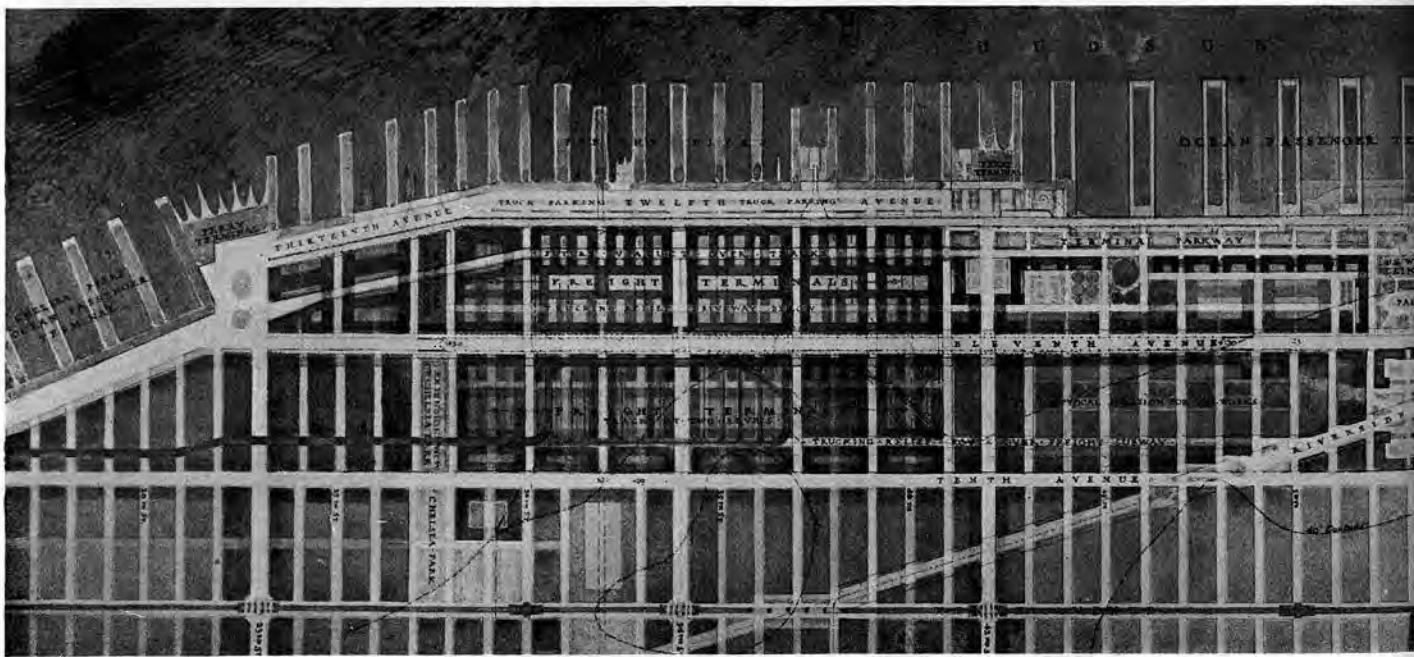


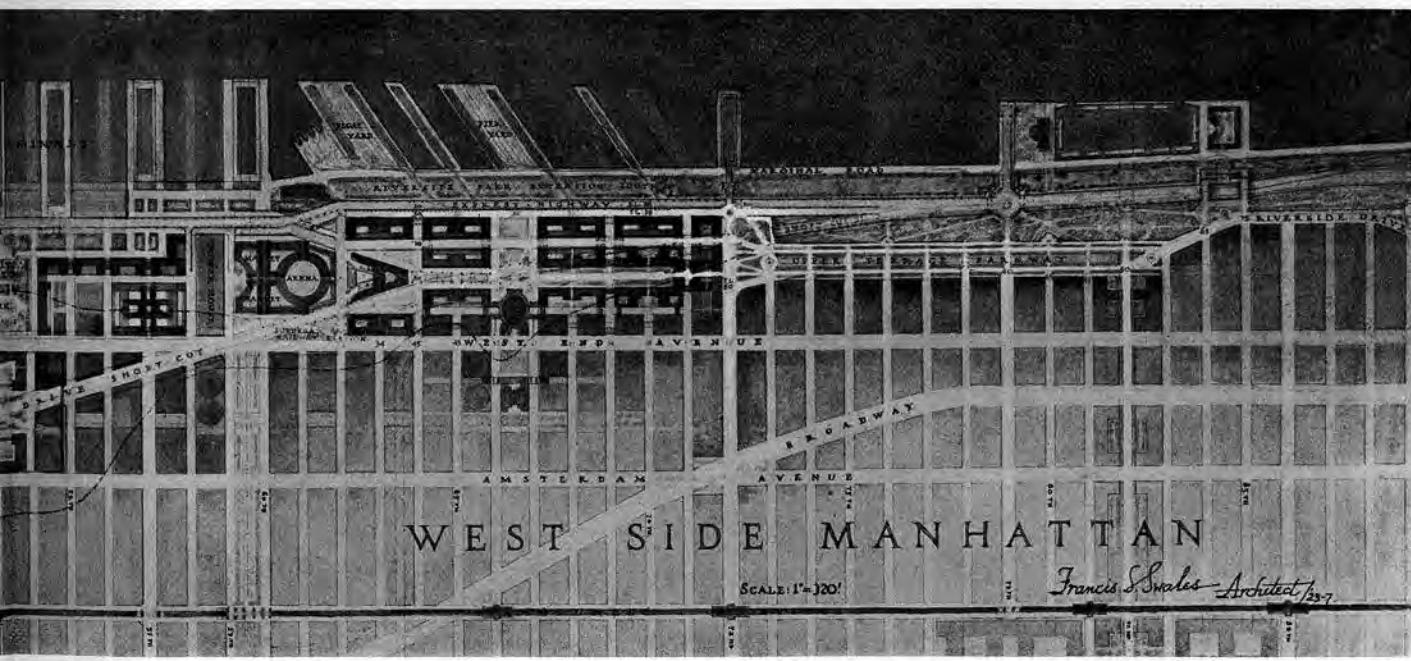
FIG.
SECOND ARCHITECTURAL STUDY FOR THE DEV

IN DOWNTOWN AND MIDTOWN MANHATTAN

We have pointed out objections to the erection of an elevated structure in the middle of the marginal way, as has been done, believing that it would be injurious both to property and to the commerce of the harbor. Such objections were presented by the staff of the Plan to the city authorities when the project was announced in its present form.

At that time officials agreed that it would be better to have the elevated roadway against the buildings, but that this would involve excessive costs for damages and interfere with express movement if local access were permitted. Yet in its present position the highway does injury to property, whereas had it been architecturally designed and fitted into the building development it would ultimately have had the result of improving property.

When in 1921 the late Nelson P. Lewis advocated an elevated highway, he claimed that "such driveways along the easterly and westerly sides of Manhattan's waterfront, with its fascinating picture of the life of the harbor, would be among the most notable drives in the world." But to get a general view of the river on the West Side the highway would have to be 40 feet up in the air, which would be out of the question. Its advantages in facilitating fast movement of uptown and downtown traffic and in by-passing central areas must be recognized, but these could have been obtained without the disadvantages due to the location adopted. It requires uncom-



G. 43
DEVELOPMENT OF THE WEST SIDE OF MANHATTAN

OPPORTUNITIES IN REBUILDING

mon foresight to appreciate what the West Side could be made to become when the railroad improvements are carried out. We believe that the erection of the elevated highway in its present form and position indicates an absence of this foresight on the part of those who were responsible for the undertaking.

Time will show whether we were sound in our objection to the location and design of the project. It is already evident, however, that in appearance and effect on surroundings it is quite similar to the much criticized elevated railroads, and that its character and location are such as to have destroyed much of the opportunity that existed before its erection for obtaining well ordered and dignified harbor approaches, in connection with the proposed railroad improvements.

The fact that the West Side below 57th Street must continue to be used for the chief commercial uses of the city does not mean that it should remain in a blighted condition after the steam railroad tracks are removed. It could be given a nobility of structure appropriate to its proper uses.

In considering the suggestions of the committees of architects, and those developed by Mr. Swales—as well as the definite proposals we shall presently put forward—we have to bear in mind the difficulties of the situation as revealed by the long battle that has been waged between the city and the railroad authorities.

In the area comprised in this part of the Hudson River front we have the gateway of shipping and commerce. Here it is that visitors and citizens enter and leave the city by water, not only to and from foreign countries, but to and from the majority of railroad termini in New Jersey that serve the vast hinterlands of a whole continent. This entrance and exit is at the focal point of the system of transportation that has been mainly responsible for the wealth and greatness of New York. It was appreciation of these facts that led us to suggest plans that would give appropriate dignity to this great gateway and, at the same time, preserve and develop its facilities for commerce.

The problems with which the Port Authority has to deal—the creation of facilities for distribution of freight, of suitable markets, and of terminal stations and warehouses, and the consequent release of piers for steamship use—are vital questions to be considered in any plan. They are not questions that should be subordinated, as we fear they have been to a considerable extent, to the needs of vehicular traffic.

In brief, the first necessity to be considered in developing the West Side waterfront is the improvement of the harbor and the handling of its commerce, on which depends the efficiency of the Port. The Port Authority properly claims that the railroad problem in this section of the city is part of the whole railroad problem of the port district. The interests of separate railroads and the local needs of speedways for traffic must be secondary to the general interests of commerce, although they form an essential part of the system of distribution from the Port.

IN DOWNTOWN AND MIDTOWN MANHATTAN

Although only parts of this plan can still be realized, it visualized how the fullest advantage might have been taken of the opportunities presented as a result of railroad reconstruction. It includes the following features:

(1) The construction of two raised roadways from 23rd to 56th streets, separated by buildings between 23rd and 41st streets and by a terminal parkway between 41st and 56th streets. The western roadway would be adjacent to the buildings fronting on the east side of Thirteenth and Twelfth avenues and constructed in a manner similar to the raised roadway which abuts on Grand Central Station in Vanderbilt Avenue. It would connect with the frontages or run through the second story of buildings. The eastern roadway would pass on a viaduct between 23rd and 41st streets, crossing above railroad spur tracks in new manufacturing and terminal buildings. Above 41st Street the parkway treatment, including the two roadways, would give the effect of a wide raised area with extensive parking facilities underneath. Towers giving views of the harbor could be included in the parkway development.

(2) The construction of a double level highway following the line of Eleventh Avenue from 23rd Street north to 57th Street. The upper level of this highway would be the same as the terminal park-

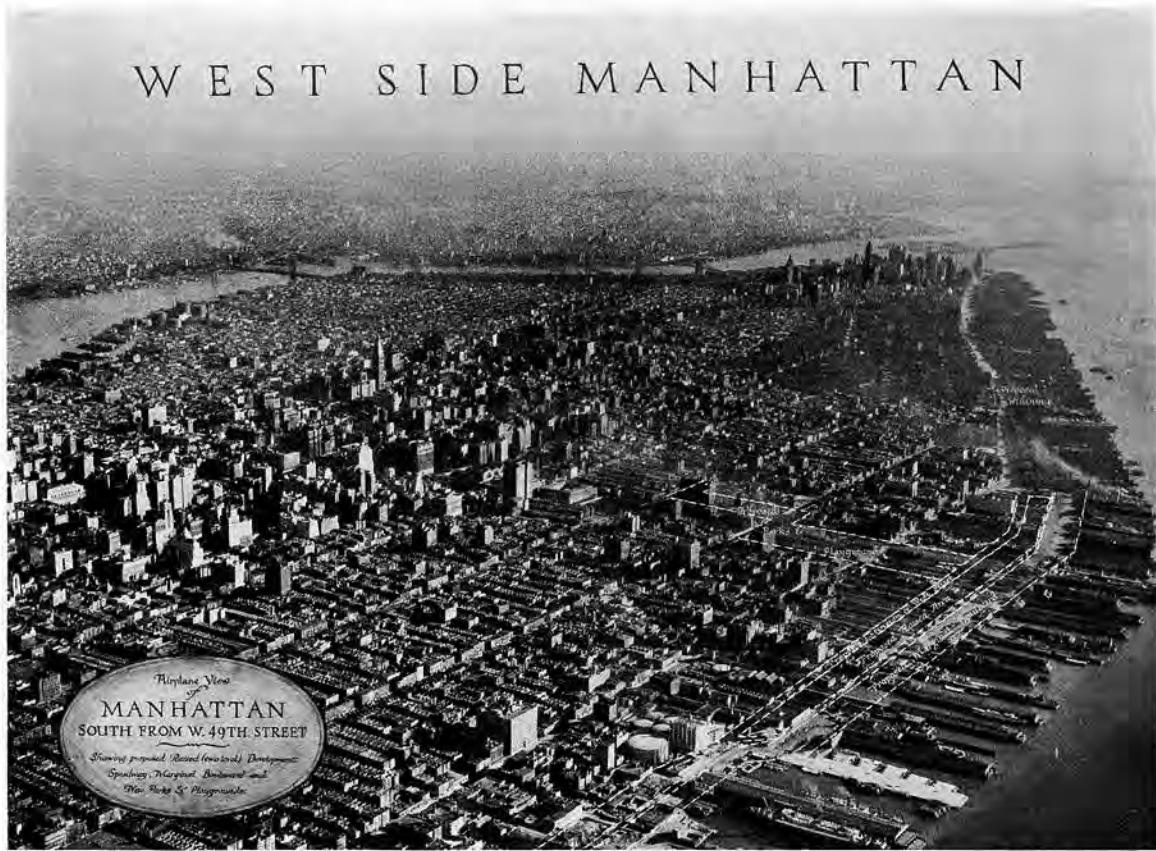


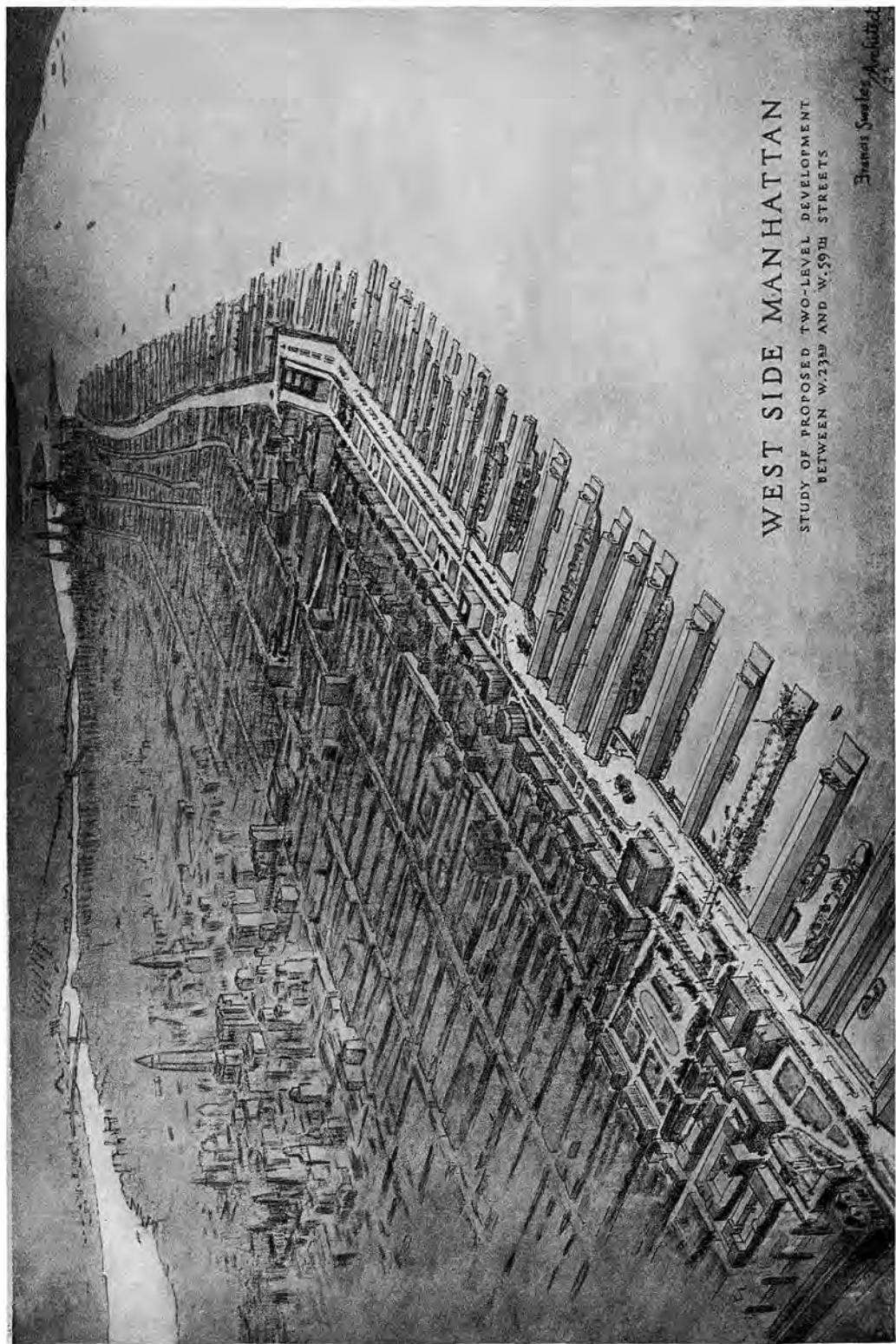
Photo by Fairchild Aerial Surveys, Inc.

AIR VIEW OF MANHATTAN SOUTH OF 49TH STREET SHOWING AREAS THAT WOULD BE AFFECTED BY THE WEST SIDE PROPOSALS

WEST SIDE MANHATTAN

STUDY OF PROPOSED TWO-LEVEL DEVELOPMENT
BETWEEN W. 23RD AND W. 59TH STREETS

James S. Gandy, architect



IN DOWNTOWN AND MIDTOWN MANHATTAN

way, and the development between Eleventh Avenue and the waterfront from 42nd to 57th streets would be raised gradually to correspond with this higher level.

(3) New freight terminals with added trucking facilities would be located between Tenth and Twelfth avenues to the south of 41st Street; also an extension of Chelsea Park by clearing the block between Tenth and Eleventh avenues and 27th and 28th streets. Trucking driveways are indicated through the freight terminal buildings.

(4) De Witt Clinton Park is maintained and used as part of the parkway scheme. A new plaza with large buildings fronting upon it is suggested between Tenth and Eleventh avenues on the two blocks from 52nd Street to 54th Street.

(5) Extension of large ocean terminal piers is indicated; also construction of large new terminal warehouses on the frontages of the raised area between 41st and 57th streets.

(6) The cutting of a new diagonal, described as Riverside Drive Short Cut, from the junction of 59th Street and Eleventh Avenue and proceeding in a southeasterly direction to Tenth Avenue, thence in a straight line in the same direction to a new plaza at Ninth Avenue and 37th Street, with provision for extension to and beyond 34th Street.

(7) The development of a great terminal district through a utilization of the air rights over the 60th Street railroad yards, in part for a passenger terminal, in part for a great office and apartment group of buildings and in part for a large market group and arena at the southern end. The plan shows a two level elevated way¹ along the riverfront. One level would connect with Riverside Drive and the other with a lower parkway along the Hudson River. Outside the express highway is a proposed southerly extension of Riverside Park with a marginal road along the bulkhead line. A new street system is shown above the railroad yards, with connections to existing streets. The design has been carefully worked out with due regard to the levels of the land and the great possibilities of creating immense values in the use of the air rights. It is a restudy of the earlier design prepared by Mr. Swales for Mr. Hastings' committee.²

The method of erecting the buildings over the yards would follow that which has been successfully carried out along both sides of Park Avenue north of the Grand Central Terminal. The dominating feature in the architectural conception of the building developments would be the terminal building located in the block between 66th and 67th streets to the west of West End Avenue, and having an open plaza between it and the river intersected at right angles by a wide north and south parkway extending from 64th Street to half way between 70th and 71st streets. Mr. Swales suggests that the east side of this building face an open square on the east side of West End Avenue. Surrounding this square a group of new buildings is shown facing the main terminal building. On the east of this square a great tower, forming a background to the terminal building, is shown on the design. This would form a desirable feature in any such monumental scheme.³

(8) A wide approach to the market group and arena would be made by clearing the blocks of buildings between Ninth and Eleventh avenues and 59th and 60th streets, forming a parkway.

These suggestions are illustrated on accompanying sketches which show the fine architectural opportunities presented for the development of this magnificent waterfront. The most important feature of the West Side plan is the new terminal and building group over the 60th Street yards. This is a sound, even if it may appear to be an ambitious, project in the form visualized in Mr. Swales' sketches. It is in-

¹ An elevated express highway in about this same location is now being constructed by the City of New York under its agreement with the New York Central Railroad for a relocation and electrification of its West Side tracks.

² See page 349.

³ See sketches on pages 390 and 391.



VIEW ACROSS WELFARE ISLAND SHOWING EAST RIVER WATERFRONT

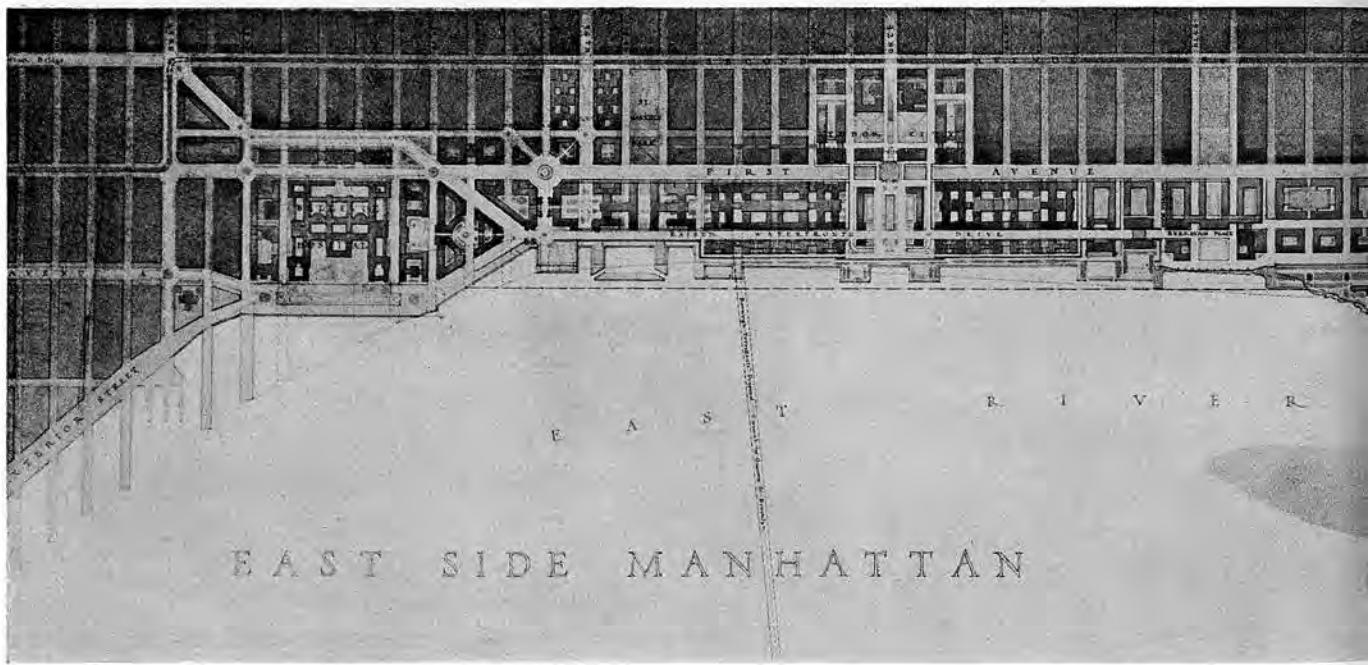
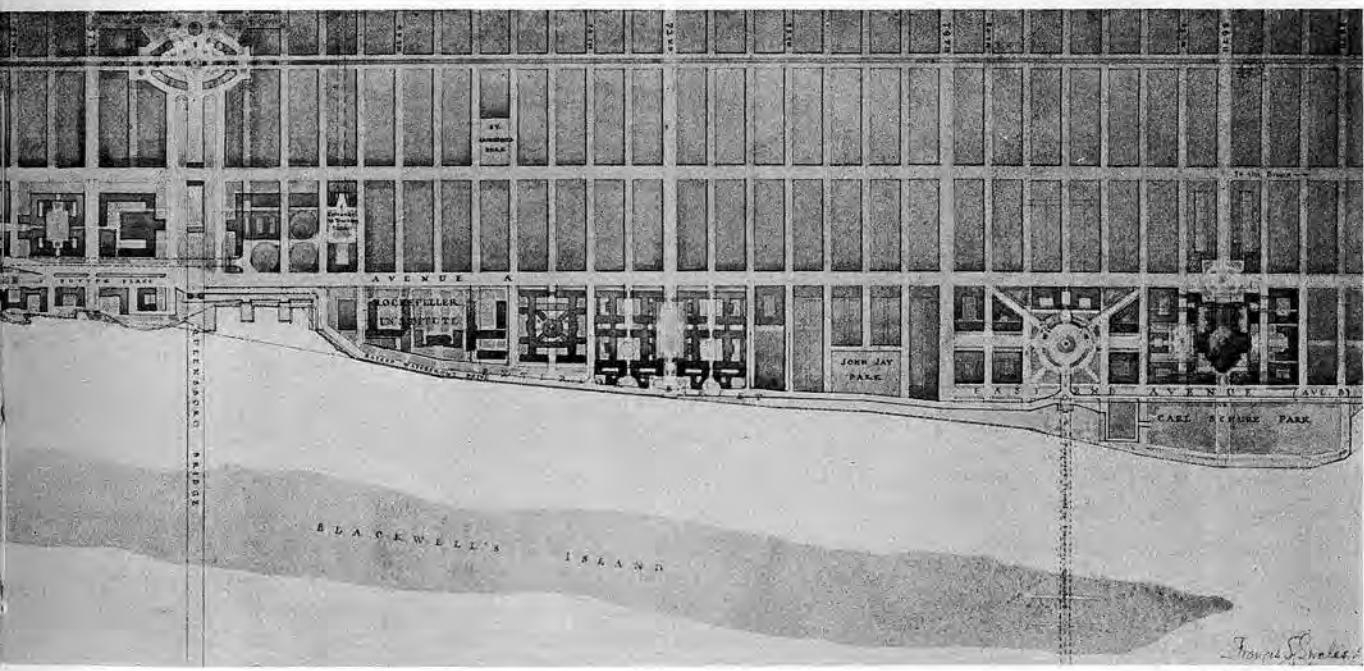


FIG.
ARCHITECTURAL STUDY FOR EAST SIDE WATERFRONT



Photo by William Frange

FRONT OF MANHATTAN FROM 34TH STREET TO 59TH STREET



Francis S. Swales, Architect

FRONT BETWEEN 23RD STREET AND 88TH STREET

OPPORTUNITIES IN REBUILDING

cluded in our general plan of Manhattan (Fig. 46, page 383) and discussed in more detail in the latter part of this chapter.¹

MIDTOWN AND UPPER EAST SIDE WATERFRONT

The second architectural studies of the East Side led to the preparation by Mr. Swales of designs for the waterfront between 23rd Street and 86th Street. An accompanying plan (Fig. 44) illustrates the proposals. While it is only realizable in part, we present it as an interesting conception of possibilities.

Existing Conditions.—At present the waterfront land on the midtown East Side is used predominantly for industrial purposes. East River frontage is not of importance for world shipping, compared to other parts of the Port. If it were developed for the greater part of the frontage with a straight bulkhead quay, with necessary basins and a few piers, in such a manner as to secure the highest efficiency for the commercial uses now carried on, it would serve the city better than it now does.



APARTMENT BUILDINGS OVERLOOKING COMMERCIAL FRONTAGE OF EAST RIVER

whole eastern waterfront of Manhattan Island as a result of the lack of access to open spaces, including open water. Mr. Lawrence Elliman has stated that a room in an apartment house overlooking the river is worth 50 per cent more than a room overlooking a street. This is why so much new building of high class apartments is going on in certain areas along the upper parts of the East Side waterfront.

Commerce on the East River has gained nothing as a result of the present disorderly conditions. There are buildings that should be removed in any event. There are others, like the electric power station, which cannot be removed, but which in such a situation as they occupy should be given special architectural treatment.

Proposed Treatment below 40th Street:

Starting at 23rd Street in the area under consideration, two approaches leading in a northerly direction were suggested to connect at about 33rd Street with a raised waterfront drive. The eastern approach consists of a waterfront boulevard as an extension of Exterior Street along the outside

¹ See pages 389-392.

IN DOWNTOWN AND MIDTOWN MANHATTAN

of Bellevue Hospital. The western approach starts at Second Avenue, at the northern end of the part that is free of the elevated railroad, and proceeds in a new indirect line across First Avenue to 33rd Street.

Suggestions are included for enlarging Bellevue Hospital on the north and west of the present site. There would be no interference with the view of the hospital over the river and the treatment of the waterfront boulevard would be such as to prevent any objectionable noise of traffic reaching the hospital building.

A new road through the blocks to the west of First Avenue is shown between 23rd Street and 40th Street. North of 33rd Street a raised driveway is suggested near the river shore to 40th Street and beyond.

From 40th Street to Beekman Place:

North of 40th Street the waterfront drive continues on a raised road to Beekman Place (51st Street) at or below the level of First Avenue. The existing crosstown streets would remain, sloping downhill to the dock levels of the waterfront.



Holabird and Root, Architects

ARCHITECTURAL DESIGN FOR A POWER STATION

The dock level being from 25 to 45 feet lower would permit the entry of barges and tugs to coal and cattle handling points undisturbed until new devices could be installed for such handling over a broad quay. It is proposed to reclaim the waterfront by filling to a line approximately parallel with First Avenue, nearly to the average (not parallel) surveyed line at the bulkhead. This would provide valuable building sites for apartment houses. The lowest floor of the apartments would be level with the raised roadway and a wide terrace provided all around the groups. The space below the apartment houses and terraces as well as below the raised roadway would be used for dock and trucking facilities.

The height of the trucking story and the design of the buildings would enable sufficient light to be obtained on the low level.

A great quay 250 feet wide and half a mile long is suggested. The covered shipping and storage space, about half a mile long, that it would provide would be an improvement on any facilities of the same type in New York.

OPPORTUNITIES IN REBUILDING

The power houses and wholesale meat storage will require enlargement as time goes on. It is suggested that it would be an advantage for any plants that remain in this location to be capable of being extended under one great roof, with at least air rights above the cross streets, in which to build connecting wings between the blocks. The sketches of the elevations show how this might be accomplished, with a percentage of the width of street and height of wall left open in the form of a large arch, through which the view over the river is maintained to the crosstown streets while permitting buildings to extend continuously. Arches are shown at the ends of 38th, 39th and 40th streets and again at 44th, 45th and 46th streets.

The easterly ends of 41st, 42nd and 43rd streets terminate at the high level of 57 feet above high water, or about 50 feet above dock level, west of First Avenue from which a 20 foot stone wall and steps rise into or near a crossing known as Prospect Place. This vicinity presents some of the very best building sites for high class apartments on Manhattan. In spite of the handicaps of smoke from the power houses and the disagreeable conditions about the slaughter-houses, the west side of First Avenue between 40th and 43rd streets has been developed as the apartment community of Tudor City since these studies were made. The present slaughter-houses should give way to cold storage and salesrooms, occupying buildings of modern design and sanitation.

Mr. Swales shows the power houses without visible stacks and the meat center with towers which would house the water tanks in a pleasing manner.

The plan includes a proposal for a large plaza occupying two blocks to the east of First Avenue at 42nd Street. (See accompanying sketch) This plaza would be at the upper level, extending from the Eastern Terrace, east of the raised roadway, to the east side of First Avenue, where it terminates in a terrace wall with steps down to the avenue. The plaza being about level with Prospect Place meets the levels of 41st, 42nd and 43rd streets, which are carried into it by bridges. At 42nd Street pedestrians only are accommodated at the upper level, as the present roadway of this street passes through a tunnel to the level of First Avenue and is left undisturbed in its route to the waterfront, where ramps are provided for access to the raised roadway. The roadways of 41st and 43rd streets are carried along the sides of the plaza to the raised roadway, where they join it, or make a turn down the ramps leading from both streets to the end of 42nd Street at dock level. Under the plaza, in the two blocks now occupied as storage yards, it is proposed to use the upper 24 feet of height as a great civic garage.

The design includes special galleries and passages for pedestrians, with provision in the galleries for shops, and involves the closing of certain streets. The marginal road and large parking spaces would be of great value in lessening traffic congestion in First Avenue. At Beekman Place (51st Street) the raised drive terminates in a plaza. The broad quay development is broken between 47th and 49th streets.



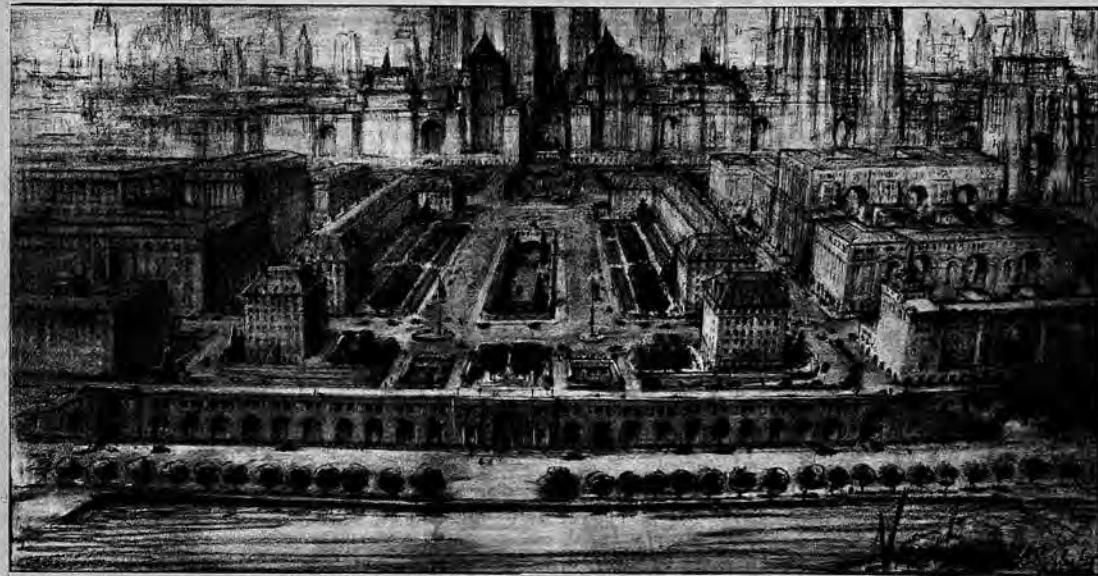
FORTY-SECOND STREET, LOOKING WEST FROM THE
EAST RIVER FRONT
Tudor City in the background.

Beekman Place to 63rd Street:

Starting from 52nd Street, a wide avenue is shown running north via Sutton Place in line with Avenue A.

It is proposed to tunnel or build a cut-and-cover vehicular subway for trucking from a proposed excavated area at 55th Street, to a widening of East 61st Street. This would afford a great deal of relief from heavy vehicles in First and Second avenues in the district around the

IN DOWNTOWN AND MIDTOWN MANHATTAN



Francis S. Swales, Architect

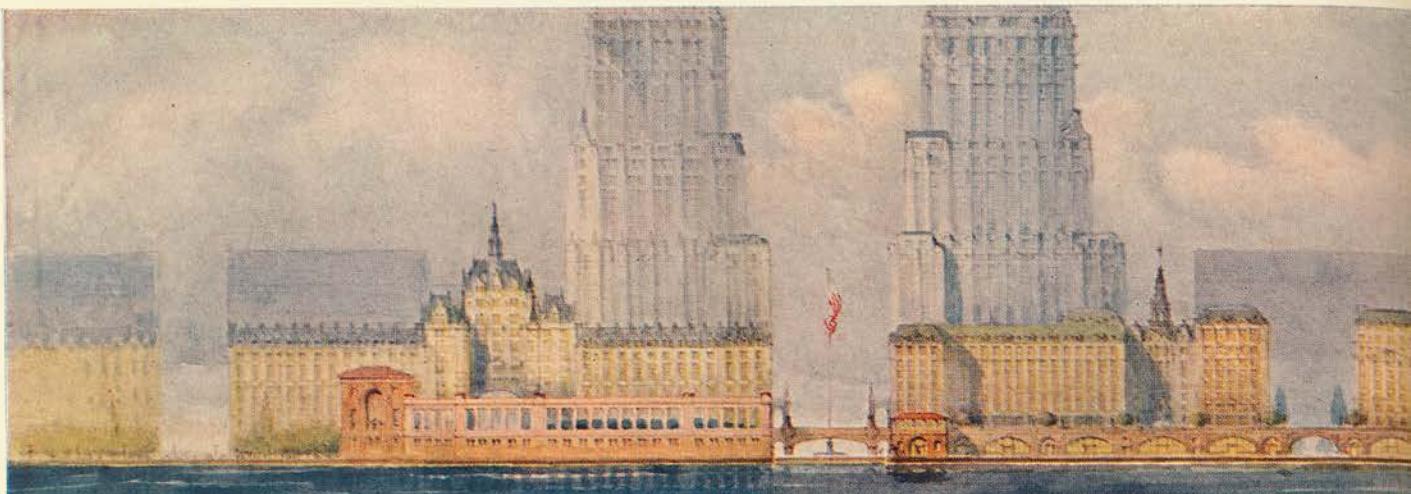
STUDY FOR TREATMENT OF THE AREA BETWEEN THE EAST RIVER FRONT AND TUDOR CITY AT 42ND STREET

entrance to Queensboro Bridge. It would also keep Sutton Place and the raised roadways clear of such traffic—a great convenience to both light and heavy traffic in this neighborhood.

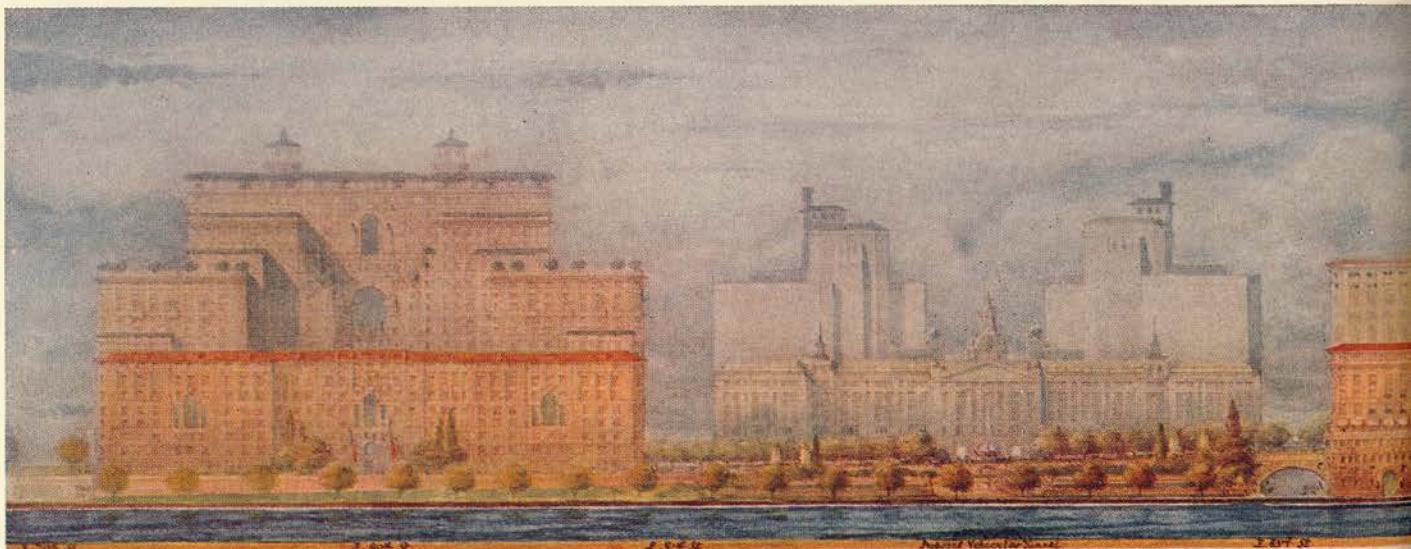
Sutton Place would not be converted into a speedway, but the proposal involves the widening of the existing street on the western side. Under the Queensboro Bridge from 59th to 60th streets a wide, level plaza would be formed by continuing the playground retaining wall across the south end of Avenue A (turning heavy traffic either through the tunnel at 61st Street or through 60th Street to First Avenue). From this plaza a roadway, level with it and with Sutton Place, would extend the latter northward to 63rd Street, where it would turn east to Marginal Street, along the riverfront north of Queensboro Bridge.

Since these proposals were worked out in 1926, the East Side district between 51st Street and Sutton Place has greatly increased in popularity for high class apartment residence. Consequently land values have greatly increased, and large buildings have been erected. These new conditions make it impracticable to carry out the plan we have described, but there are still opportunities for realizing some of the ideas illustrated in the design.

The riverfront should be improved by removing objectionable features. The best residential parts of the riverfront areas should be developed as far as possible as a distinct community, with some of its entrance cross streets closed to the east of First Avenue and Avenue A. Much space in these dead-end streets is wasted and causes a needless expense for maintenance. Some of these should be converted into building land, but the amount of open area should be increased as a whole by reserving small parks in places where there is no through traffic.

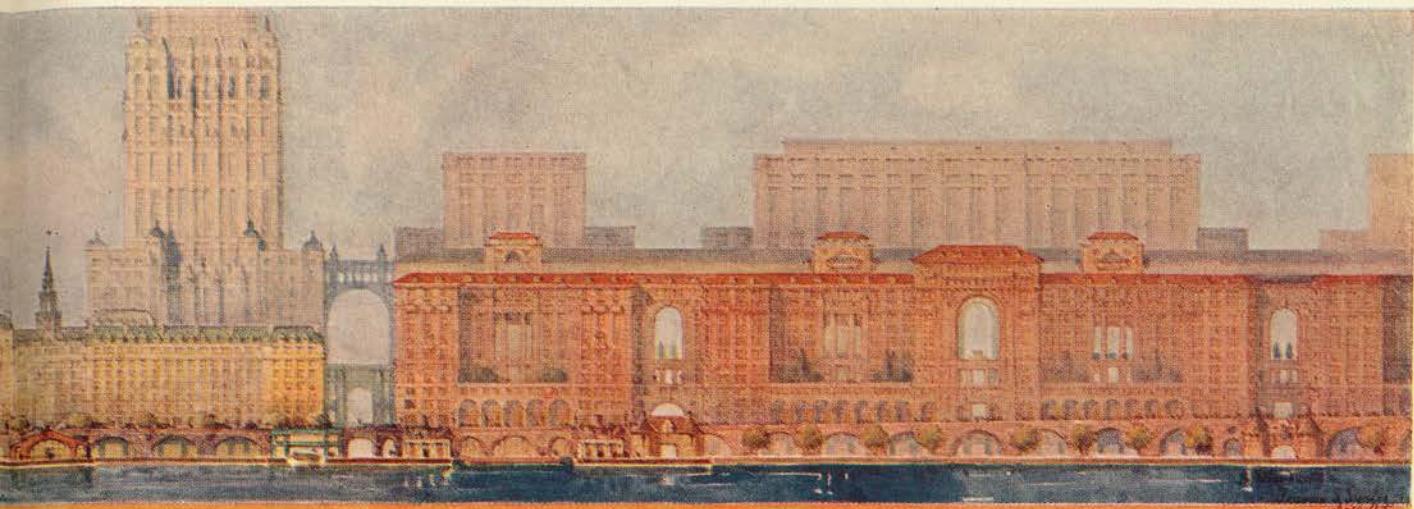


ARCHITECTURAL STUDY OF TYPE OF DEVELOPMENT SUGGESTED ALONG A RAISED EAST WATERFRONT



ARCHITECTURAL STUDY OF TYPE OF DEVELOPMENT SUGGESTED ALONG A RAISED EAST WATERFRONT

SKETCH STUDIES OF THE EAST RIVER WATERFRONT BETWEEN
Similar studies by Mr. Swales for the area between 4



FRONT SECTION FROM E. 32ND TO E. 40TH STREETS (OLD LONG-ISLAND FERRY AND POWER-HOUSES)



FRONT SECTION FROM E. 79TH TO E. 87TH STREETS (VICINITY OF CARL SCHURZ PARK)

ON 32ND AND 40TH STREETS AND 79TH AND 87TH STREETS
6th Street and 71st Street are shown on pages 372-375.

OPPORTUNITIES IN REBUILDING

An oval plaza on both sides of the line of Second Avenue is suggested as an enlarged approach to Queensboro Bridge.

One proposal, which Mr. Swales submits with the reservation that it may not be practicable, is the construction of ramps up to the side of Queensboro Bridge to enable part of its traffic to turn directly through the ramps to the raised roadway along the waterfront, thus diverting it from the interior avenues. (See drawing on page 375) The ramps are indicated as being supported on large open arches of masonry. The lower parts between the piers could be used at three or four levels to form a large civic garage. The lowest level—approximately that of the docks and Avenue A—could be used for truck garage and road access to a well developed quay for building materials. The upper levels could be used for pleasure cars, taxicabs, ambulances, police and fire department vehicles, et cetera. They would be entered at the raised road and plaza level and at upper landing levels at the turns of the ramps.

A building material port is maintained between 60th and 63rd streets. This would include two piers, with buildings on the inshore ends and the outer sections constructed of earth-filled cribs in which trees and foliage would grow. Trucks would reach the dock level from the west beneath the raised road along Avenue A, and from 63rd and Marginal streets at the north end.

From 63rd to 86th Streets:

The raised roadway follows the waterfront above Marginal Street and would be about level with the land on which the Rockefeller Institute stands. A connection is suggested to be made between the Institute and the water's edge east of the roadway. Incidentally, it is suggested that the New York Trade School should be extended into a more important institution. Playgrounds and small parks are proposed to be substituted for wasted street areas.

By creating open spaces running north and south through the long blocks added frontages on such parked spaces would bring revenue to pay the cost of the improvement and its maintenance as an amenity.

The raised roadway is carried forward through Carl Schurz Park, but, as will be seen later, this is modified in the definite proposals put forward, by ending the roadway on the higher level at the southern end of East End Avenue (Avenue B). On the west of Carl Schurz Park, Mr. Swales visualizes the ultimate erection of a great cathedral. (See drawing on page 369)



Photo by William Frane

EAST RIVER WATERFRONT ABOVE 60TH STREET AS SEEN FROM THE QUEENSBORO BRIDGE,
LOOKING OVER WELFARE ISLAND
Rockefeller Institute in the center.

IN DOWNTOWN AND MIDTOWN MANHATTAN

Architectural Features.—A number of drawings illustrate Mr. Swales' design and show one kind of architectural treatment that is possible. These show designs for the sections of the waterfront:

- (a) Between 32nd and 40th streets and between 79th and 87th streets (page 369);
- (b) Between 40th and 48th streets and between 48th and 56th streets (page 373);
- (c) Between 56th and 64th streets and between 63rd and 71st streets (page 375).

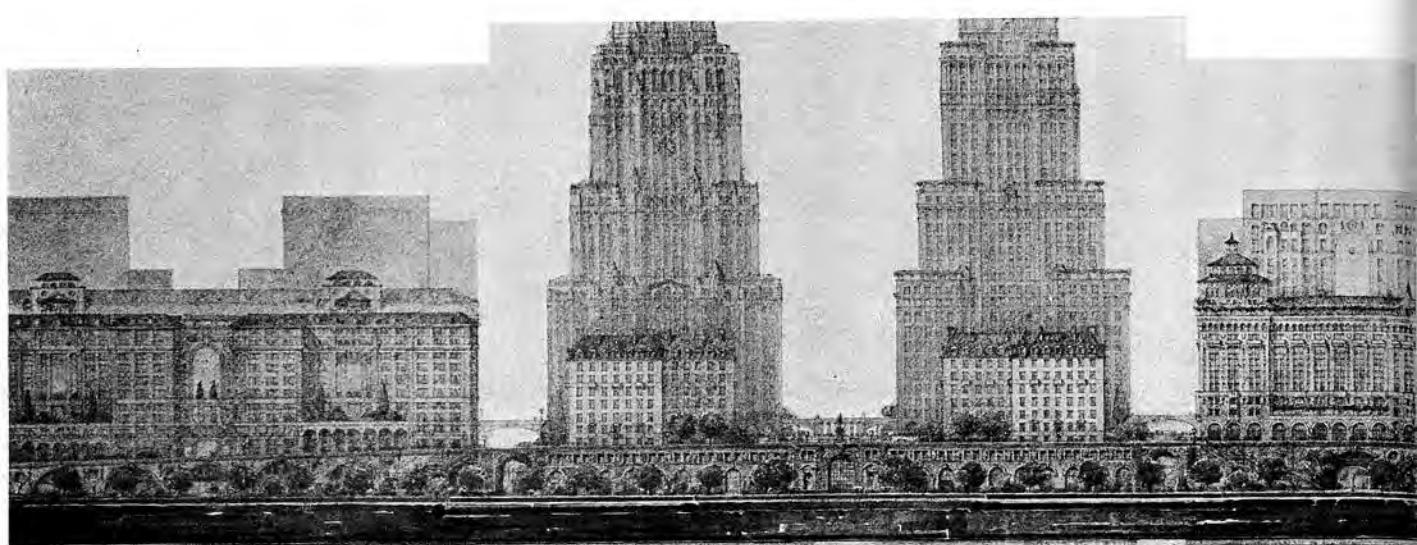
The precise effect pictured in these drawings is, of course, impossible of realization. To obtain it would involve an amount of collaboration between property owners and the city and between the owners themselves that is clearly impossible. They are suggestive of the sense of order that should be obtained rather than of the type of architecture and actual arrangement and grouping of the buildings. The number of large scale projects that have been carried out, including Tudor City, the apartments at Beekman Place, the extension of Bellevue Hospital and of the Rockefeller Institute, and the great new Cornell-New York Hospital medical center, prove the practicability of the concept.

As part of the amenities that should be provided, trees should be planted wherever possible along the broad quays and in all open areas. There is no need to displace the cleaner commercial uses of the waterfront. The plan provides for greatly added facilities for such uses, all of which, when conducted with proper tidiness and under reasonable control, are really "amenities." A river alive with shipping and commerce is much more interesting than one which is used for pleasure purposes only. The opportunities on the East Side consist in obtaining the best use of its magnificent situation for residence on higher levels combined with a variety of commercial uses on the lower levels.



Photo by William Frane

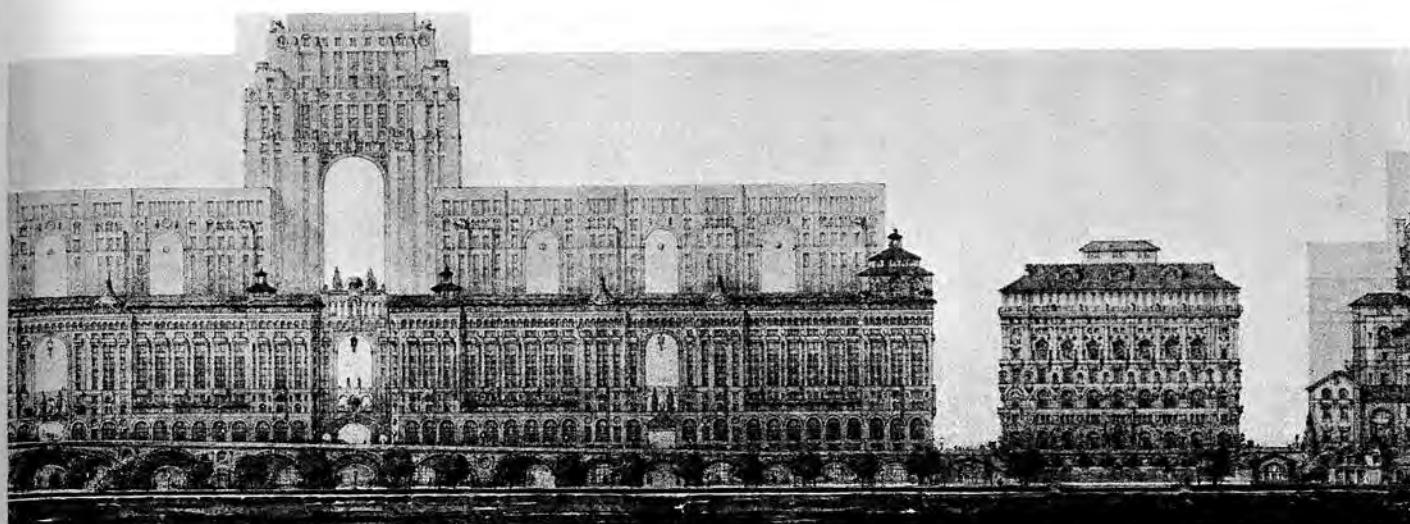
VIEW OVER WELFARE ISLAND TOWARD THE UPPER EAST SIDE OF MANHATTAN FROM
QUEENSBORO BRIDGE



- ARCHITECTURAL STUDY OF TYPE OF DEVELOPMENT SUGGESTED ALONG A RAISED EAST WATERFRONT



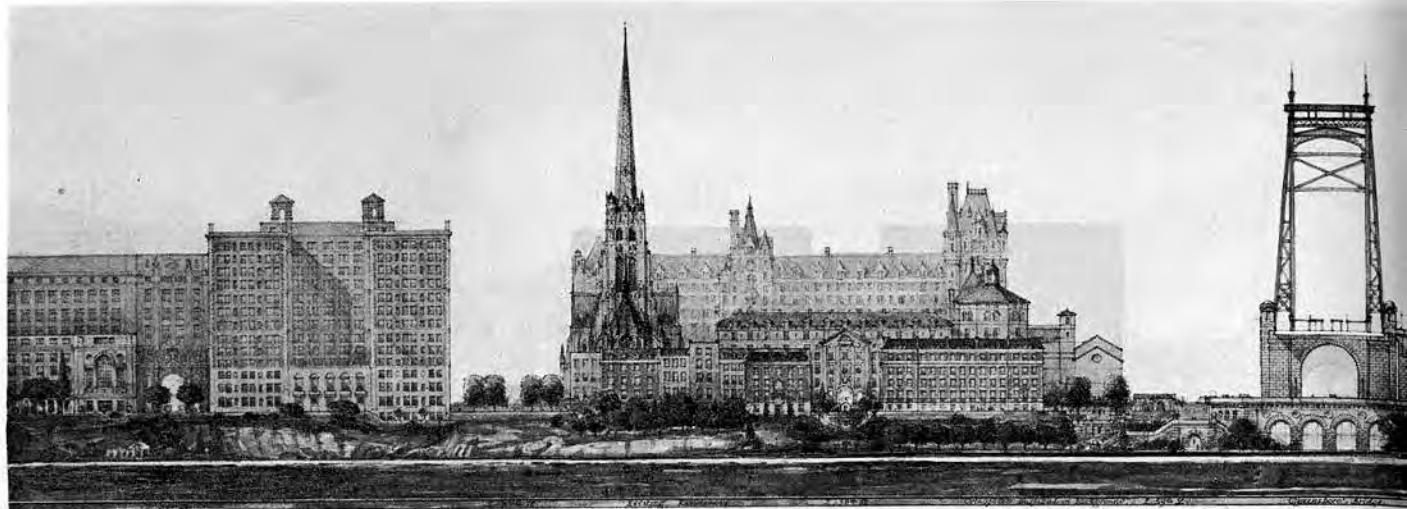
- ARCHITECTURAL STUDY OF TYPE OF DEVELOPMENT SUGGESTED ALONG A RAISED EAST WATERFRONT



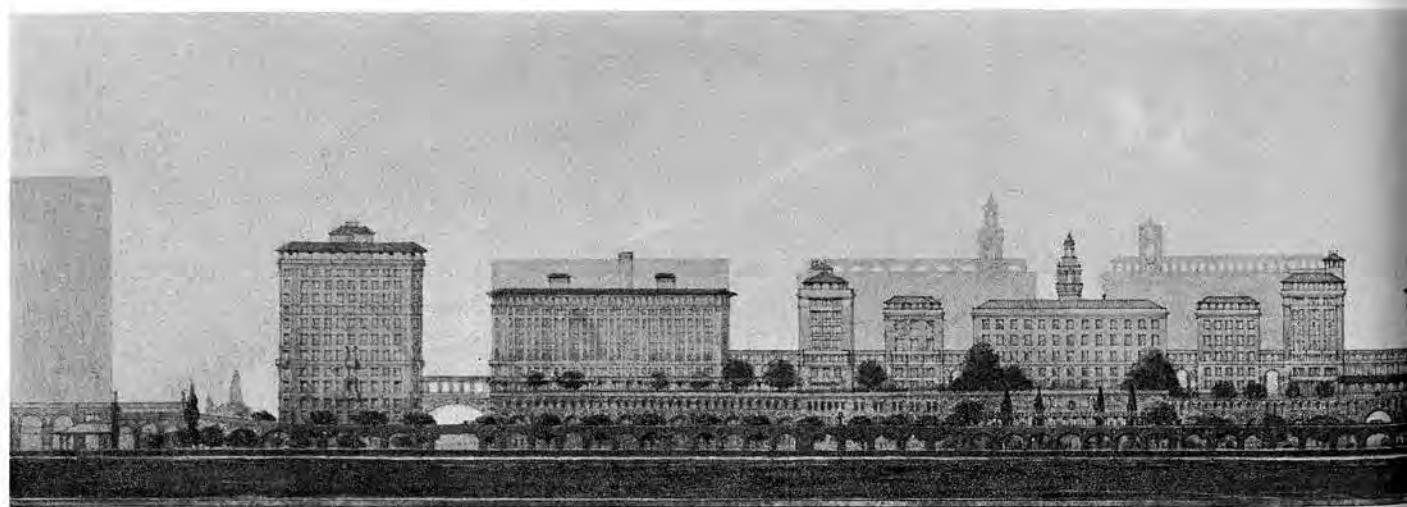
TERFRONT SECTION FROM E. 40TH TO E. 48TH STREETS - (PROSPECT PLACE AND SLAUGHTER HOUSES)



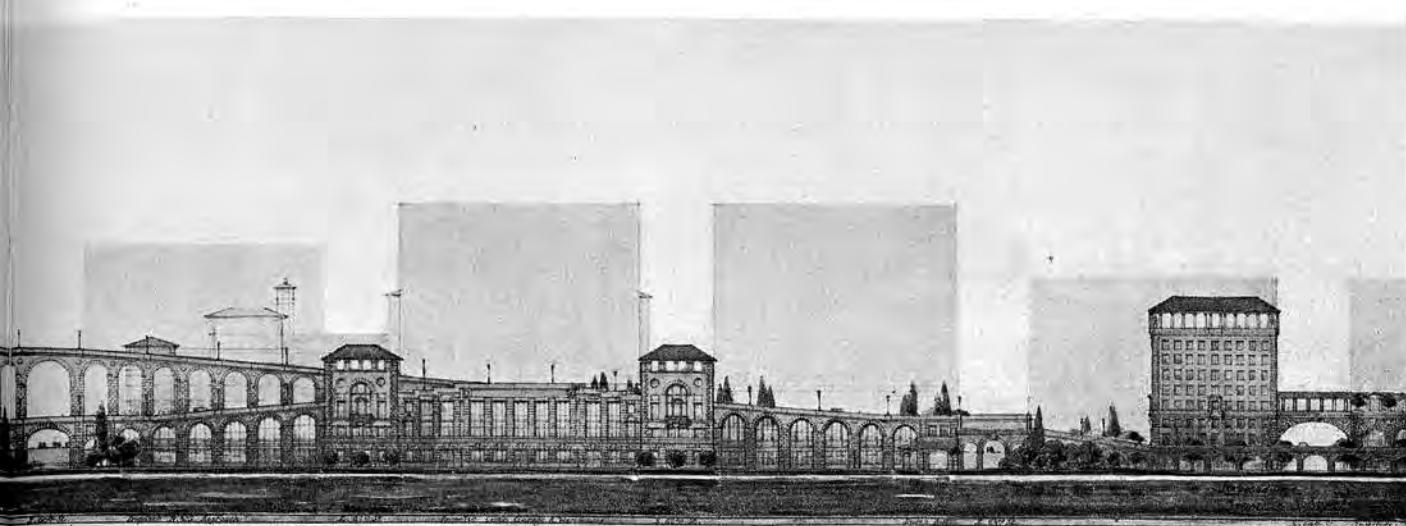
TERFRONT SECTION FROM E. 48TH TO E. 56TH STREETS - (BEEKMAN PLACE TO SUTTON PLACE)



-ARCHITECTURAL STUDY OF TYPE OF DEVELOPMENT SUGGESTED ALONG A RAISED EAST WATERFRONT



-ARCHITECTURAL STUDY OF TYPE OF DEVELOPMENT SUGGESTED ALONG A RAISED EAST WATERFRONT



FRONT SECTION FROM E. 56TH TO E. 64TH STREETS (SUTTON PLACE TO ROCKEFELLER INSTITUTE).



FRONT SECTION FROM E. 63RD TO E. 71ST STREETS (ROCKEFELLER INSTITUTE NORTHWARD).

OPPORTUNITIES IN REBUILDING

Proposals Incorporated in the Regional Plan

THEIR SCOPE AND RELATION TO ARCHITECTURAL STUDIES

Up to this point, relative to Manhattan, we have been referring to proposals that are visions of possibilities rather than definite projects. Some of them are admittedly of the nature of "might-have-beens" and others, by reason of events that have since occurred, have only historical significance. It was recognized by the architects who prepared the designs that the involved nature of the problems, their political ramifications, and the great financial difficulties in carrying them out, made it unlikely that they could be realized. They are of value in stimulating and inspiring the citizens and might in time lead to public action in giving them partial effect.

It is wholly wrong, however, to look upon such proposals as necessarily unsound from an economic point of view, merely because they may be idealistic at a given time. There are suggestions in the projects outlined, although some of them would involve great cost, that if put into effect would bring great financial gain to the city.

As a result of subsequent studies, or changed circumstances, many of these early ideas have been abandoned or modified in the Regional Plan, but salient features of them either have been retained or have been used as a basis for a somewhat different treatment. Had we been engaged in preparing a city plan for Manhattan instead of a plan of the New York region, it is certain that many detailed studies in amplification of these early architectural studies could have been made with profit. But for purposes of a regional plan they well served their purpose as preliminary suggestions and as a basis for developing our general conception of the opportunities in Manhattan.

We now come to present the suggestions for downtown Manhattan which form part of the Regional Plan and which include, in more or less modified form, much that was contained in the sketches of ideas to which we have been alluding.

A glance at the general plan of downtown and midtown Manhattan (Fig. 46, page 383) indicates that the outstanding proposals are in the lower part of the island and along the waterfronts. This plan also shows the proposals for the Brooklyn civic center and Brooklyn Bridge approach—which are described and illustrated in Chapter XIV—and the relation of these proposals to the Manhattan plan.

We will deal with the plans for midtown and lower Manhattan in the following order: (1) the Battery; (2) the Civic Center; (3) the West Side; (4) the midtown and upper East Side; (5) a proposed Second Avenue speedway and Chrystie-Forsyth parkway; (6) re-planning the lower East Side; and (7) miscellaneous street improvements.

IN DOWNTOWN AND MIDTOWN MANHATTAN

BATTERY PARK WATERGATE

The plan emphasizes to us the striking location of Battery Park on the tip of the island. Here we are confronted with the problem of how to make the park, its surroundings and approaches, worthy of its strategic and prominent situation. Although not used for great shipping, it is the ornamental gateway to the city and region, and even to the country.

The improvement of the park by joint city and individual action was undertaken as early as 1786. At that time hogs roamed over it and Chancellor Livingston offered to "plant shrubbery there and keep the place in repair if the Common Council would



Photo by Fairchild Aerial Surveys, Inc.

BATTERY PARK AT PRESENT

A winter view.

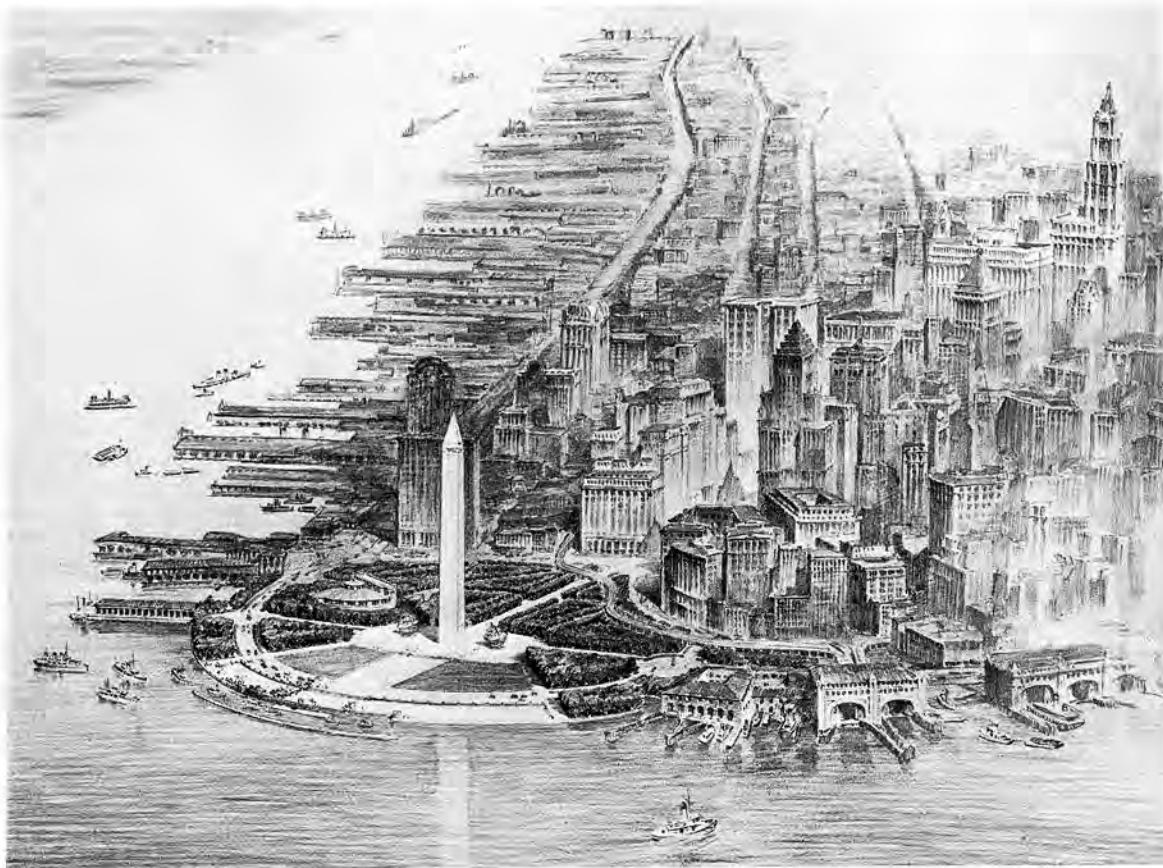
plant trees around it, replace the scattered fragments of the iron fence," and make other improvements. This offer was accepted.¹

The park has since gone through many vicissitudes and been put to various uses. Its main purpose in such a commanding location should be as a dignified water-gate, and to express this purpose it should be planned as a formal plaza.

Many attractive plans have been prepared for the improvement of the park at different times, including a recent plan prepared by Mr. Grant LaFarge for the Park Association of New York.

¹ ICONOGRAPHY OF MANHATTAN, Volume I, page 373.

OPPORTUNITIES IN REBUILDING



Eric Gugler, Architect

BIRD'S-EYE VIEW OF BATTERY PARK PROJECT WHEN COMPLETED

When the time came for the Regional Plan to consider what proposal to make for the park, the opportunity was given to its committee and staff to investigate the advantages of a design prepared by Mr. Eric Gugler, the winner of the competition for the Chicago World War Memorial to be built at Grant Park on the shores of Lake Michigan. These advantages and the general effectiveness of Mr. Gugler's conception seemed so apparent to us that we preferred to endorse his plan rather than to put forward one of our own. This plan is illustrated in accompanying sketches prepared by Mr. Gugler. For the most part we will confine our presentation of proposals to a summary of their main features and to sketches showing the designs, without attempting to describe them. But the significance of Battery Park and the immediate practicability of Mr. Gugler's plan call for a relatively more extended description.

The plan involves the extension and complete reconstruction of the park and the erection of a great monument. The following is a brief description of the main features of the project:

IN DOWNTOWN AND MIDTOWN MANHATTAN

From 14 to 16 acres of additional park land are proposed to be filled in. This would extend the point of Manhattan into the bay without interfering with the present channel. The addition is so planned that there is no less distance between Governors Island and the Battery shore line than exists at present. A large part of the required fill may be supplied by the city from subway or tunnel excavation. In the area to be filled, it is estimated that the water is nowhere more than 20 feet deep.

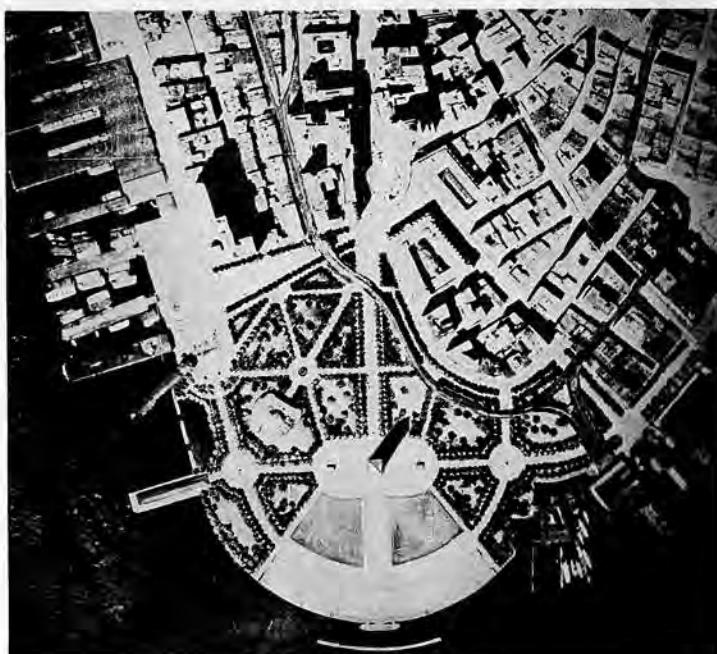
A massive semicircular sea wall is suggested at the edge of the park. At the water and leading from it to the level of the Battery a great flight of steps, some 400 feet in width, would connect with a protected float for landing purposes. Permanent or temporary reviewing stands and all the surroundings for a dignified reception of distinguished visitors are provided for.

A subway for commercial and fast traffic under the park plaza might connect the future overhead roadways in contemplation along both the North and East rivers, and might also house the southerly section of the elevated railroad which now snakes unpleasantly through the park, and should be removed at some future date. But the removal of the "L" structure is not essential to the general plan.

The present Staten Island Ferry terminals are left undisturbed, except that more space will be provided on the easterly side of the park to facilitate traffic regulation at that point.



A.—Dotted line shows water area to be filled in.



B.—The completed plan.

FIG. 45
AIR MAPS OF THE BATTERY PARK PLAN

OPPORTUNITIES IN REBUILDING



THE BATTERY PARK MONUMENT AS IT WOULD APPEAR
FROM BROADWAY

Around the bottom of the monument would be a platform reached by steps from the north. At the middle of the south side, where the balustrade would be eliminated, a rostrum would be provided. This would be an ideal site for the formal greeting of distinguished visitors who now enter Manhattan by the pier at the northwest corner of the park.

No established public features at the Battery are disturbed, while the landscaping features of the plan will improve the approaches to the Aquarium, enlarge the basin for the police and fire boats, and provide a larger basin for the landing of private motor boats. It is possible to construct two large recreation piers at the west side of the park, the upper decks to be used as recreation centers and the lower decks for city purposes.

To establish and maintain the proposed grove of trees would involve having a nursery to care for the trees and replacing injured and dying trees, as is done in some European cities.

The proposed War Memorial monument is the result of ten years of study with plans and models, by Mr. Eric Gugler and Mr. Paul Manship, the well known sculptor. It would be about 650 feet high, 62 feet across the base and 53 feet just below the apex, about 600 feet in the air at the level of the visitors' gallery and the beacon.

The upper two-thirds of the monument on the south, east and west sides and the whole of the north side of the exterior of the monument, would be decorated with chronological tables in the form of inscriptions carved in granite covering the history of the World War, but stressing the period of American participation.

On the south side, facing the water, the lower third of the monument would be designed to represent abstract qualities, such as Fortitude, Courage, Patriotism, Justice, et cetera, surmounted by a figure of Peace.

On the east and west sides the lower part would show three pairs of great figures on each side, the one group representing the Arts of War and the other group the Arts of Peace.

IN DOWNTOWN AND MIDTOWN MANHATTAN



VIEW OF MONUMENT AND SPHERES FROM THE UPPER BAY

Armillary spheres on either side of the monument would represent, in the one, the fixed stars, and in the other, the succession of the planets, and show their relationship to one another as they move about the sun.

The monument would be entered through a door on the north, directly into a large room. Above this lobby there would be a number of floors to be reached by elevators. Ten or more rooms, some 30 by 40 feet, could be provided for the New York contingents and organizations to be assigned to them. These rooms could be repositories for relics of the war, flags, medals, et cetera. They could be decorated with inscriptions, with lists of names and with mural paintings, mosaics, and marble incrustations.

It is also suggested that 24 floors about 15 feet high be given over to the 48 states. Each state would have a room 20 by 30 feet. With proper vault space for archives, valuable data with regard to the war could be assembled.

THE CIVIC CENTER

The present Civic Center of Manhattan is properly placed in relation to the five boroughs of the city. As the city has grown, the center has been improved in its buildings and in the degree of accessibility afforded by its transit facilities. It possesses the finest and best displayed of the old buildings of the city in its City Hall. No proposal will be sound that does not seek to give this gem of early American



SUGGESTED USE OF PARK FOR CEREMONIAL PURPOSES

OPPORTUNITIES IN REBUILDING

architecture a still better setting and more dignified surroundings than it now has. Part of any project must also be to improve the surroundings of the splendid Municipal Building and fit it in as part of any general conception.

Proposals to move the civic center of the city have been considered and rejected as undesirable even if such a move were practicable. There is a relation between the municipal, the legal, and the financial activities that is neither easy nor proper to disturb. The three activities are entrenched very firmly in lower Manhattan. They enjoy transit facilities connected with every part of the city that cannot be obtained elsewhere. There are opportunities for extension of the combined municipal and law center to the north of Worth Street, between Lafayette Street and the Bowery, along both sides of Centre Street, where old obsolete buildings could be torn down with great advantage to the city. There are old tenement areas and industrial buildings all around the Court House that could be replaced by public buildings with spacious surroundings and connected with our proposed improvement of Chrystie-Forsyth streets.¹ The extension of the municipal center to the north and northeast of the City Hall square would be a logical and practical development and create a more open use of the land where this is most needed. In a general way, this is already planned and being carried out by the municipal authorities.

The most obvious thing to do to improve the center is first to obtain the removal of the Federal Building from the south end of the park and secondly to remove the old Court House from the north end. The first of these has been assured by arrangements for a new post office site at Church and Vesey streets.

With City Hall Park cleared of all buildings except the City Hall, there will still remain the need of improvement in the architectural development of the buildings facing the square. The site that faces the park on its northern boundary, comprising the blocks between Chambers and Duane streets, should in course of time be acquired by the city for the extension of its municipal buildings. How should these blocks be developed so that there will be ample space for carrying on the ever enlarging activities of the city?

We propose that there should be developed on this site a great new building much higher than the present municipal building and offering floor space and facilities equal to the total obtainable in a small city. It would extend the full width of the northern boundary of City Hall Park, from Broadway to Centre Street. This proposal, as developed by Mr. Francis S. Swales, is shown in the plan on page 355 and in the perspective drawings on pages 384 and 385.

We have prepared an alternative design to that suggested by Mr. Swales for the architectural treatment of the building. It appeared to us to be desirable to indicate the possibilities of the site for a more open type of structure with larger areas of over-ground space and with a distinctive tower rising to approximately the same height.

¹ See page 396 ff.

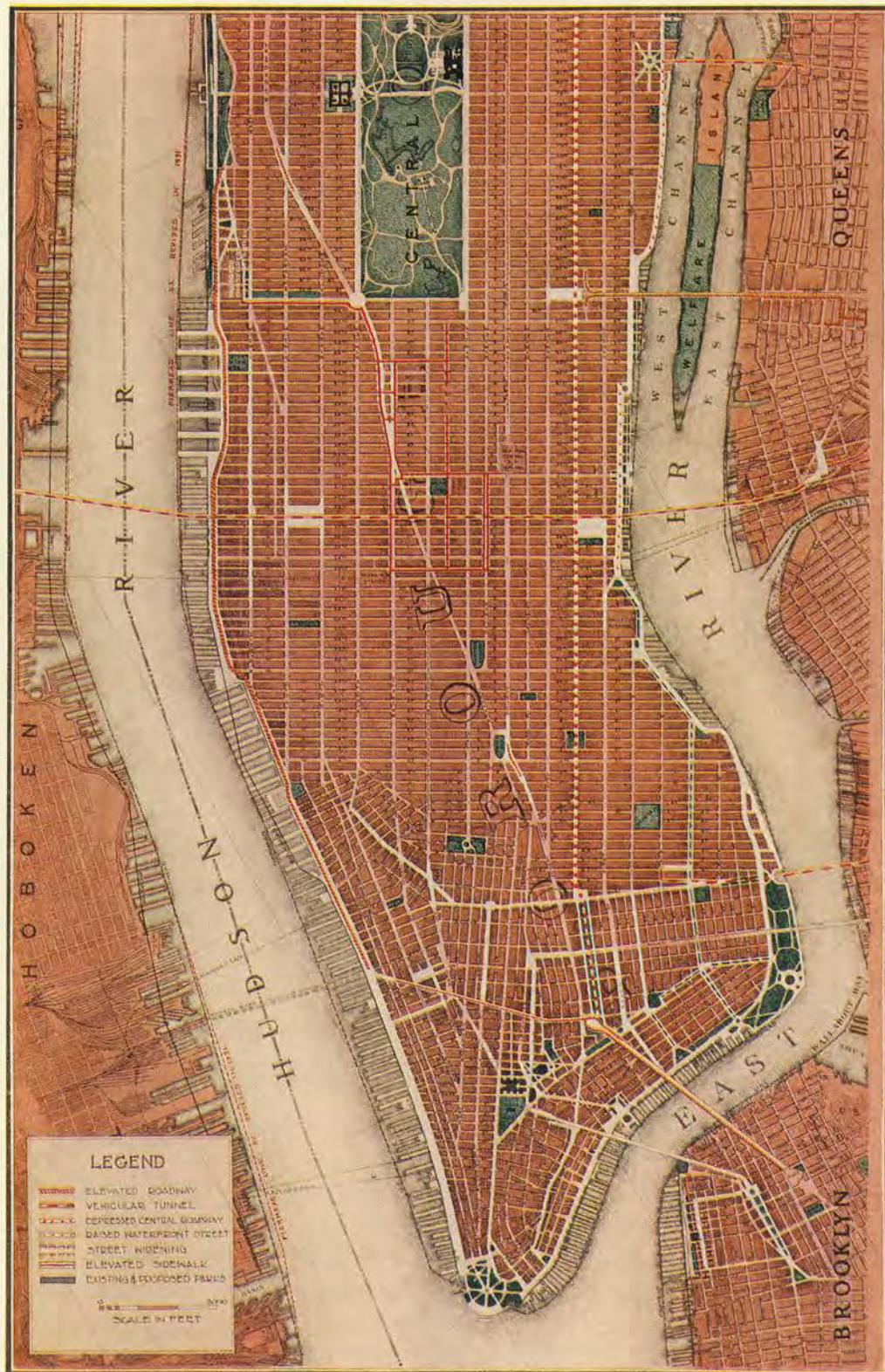


FIG. 46
GENERAL PLAN SHOWING PROPOSALS FOR MANHATTAN SOUTH OF 86TH STREET

From a rendering by C. Earl Morrow

OPPORTUNITIES IN REBUILDING



A MONUMENTAL BUILDING IS PROPOSED AS THE DOMINANT FEATURE OF THE CIVIC CENTER

The alternative building was designed by Mr. Chester B. Price, in collaboration with the author, and is shown on page 387 in a drawing prepared by Mr. Price.

It is essential in order to give proper emphasis to the municipal center of the city to erect one building that will not only fit in appropriately with its immediate surroundings, but stand out alone as the dominant feature in the whole of downtown Manhattan. Its pinnacle should rise above all other structures. Obviously, the

IN DOWNTOWN AND MIDTOWN MANHATTAN

only way that this dominance can be obtained is by erecting a building over a large enough area to permit great height to be obtained with large courts and open spaces on all four sides. If a building were erected on this site to a height of 1,000 feet or more, it would not prevent proper restriction of other buildings in the matter of height. So long as there is ample light and air obtained for the building, the question of restricting height becomes of less importance. Such a building should be constructed so as to permit of circulation under it and on its lowest floors in the same manner as in the Municipal Building.

The project in its scope is not extravagant for a public building. In value of old buildings destroyed, the proposal does not involve such high costs as many private enterprises. It presents great opportunities in providing for all the municipal activities in closely grouped buildings, and should result in an ultimate economy to the city.

A first glance at this proposed building immediately suggests the questions: "Why should the city erect a great skyscraper in order to obtain a dominant feature in its civic center? Is such a proposal not inconsistent with the principles suggested by the Regional Plan as necessary to follow in order to obtain reasonable distribution of building bulk?" One answer to both questions is that great height is necessary for dominance in the area where there is no natural eminence and where there are now the highest buildings in the city, and another answer is that it is practicable and desirable to arrange the overground spaces secured by the setbacks of the building so that a high degree of light and direct outer air may be obtained in all its rooms. There is no prospect of anything being done by zoning to prevent concentration in the neighborhood of City Hall Park which will use up

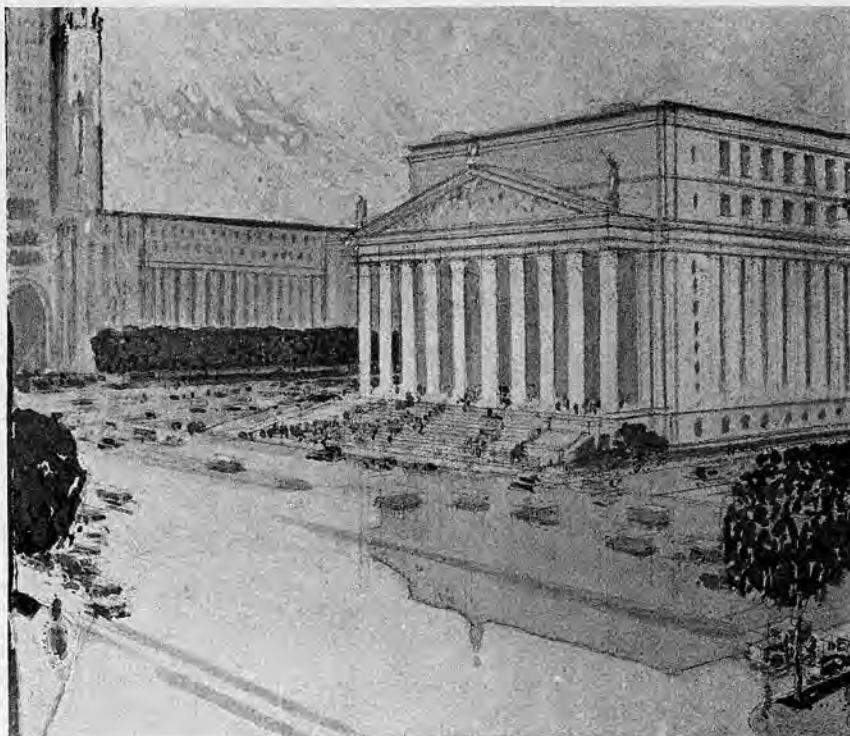


A MORE DISTANT VIEW OF THE PROPOSED BUILDING
FOR THE CIVIC CENTER

OPPORTUNITIES IN REBUILDING

transit facilities to the maximum that it is possible to provide. If the proposed civic building is erected in time, it may take the place of private buildings that might be put up to serve some other needs, but it will not add, on the whole, to the traffic congestion beyond what will be added in any case by combined public and private buildings.

New buildings will be erected up to a limit of density that will be determined by the extent to which it is economically practical to transport people into and out of the section. There is more scope for expansion in downtown than in midtown



J. M. Arrelano, Architect

AN EARLY STUDY OF AN ENLARGED SETTING FOR THE COUNTY COURT HOUSE
The site to the north, an architectural treatment for which is here shown, has since been developed as the State Office Building.

Manhattan, from the point of view of potentiality for increasing transport facilities. The erection of such a public building as is proposed will not add materially to the density of building in downtown Manhattan; it will merely result in the utilization of increased transit and street facilities for public buildings which will otherwise be utilized by private buildings.

The site of the proposed building is occupied by groups of offices, including the comparatively modern Industrial Savings Bank. The cost of acquisition of the



AN ALTERNATIVE DESIGN FOR A CIVIC CENTER BUILDING WITH AMPLE SETBACKS AND COURTS

OPPORTUNITIES IN REBUILDING

property would be very great, but not too great for the City of New York if the project is a sound one. There is no reason why, with a well planned civic center, adequate provision should not be made for the owners and occupants of existing offices and banks, including a newspaper office, within the proposed building. The great structure envisaged in the project could provide for all the civic needs in the tower, and the lower parts could be allotted to existing or similar private uses.

The project is based on the assembling of a considerable area of land and the erection of a building which would afford the best kind of opportunity for the combination of public and private enterprise. The largest skyscrapers have all the scale and variety of uses of small cities.

Along with the proper development of City Hall square, it is desirable to improve the surroundings of the Court House and the approaches via Centre Street. The drawing on page 386 shows the Court House and possible architectural treatment of the frontage to the north. The new State Office Building has been erected on the latter site.

THE WEST SIDE

Its Waterfront.—From the Battery north to Canal Street on the West Side we show the marginal way on the existing level. The fine proportions of this way should be preserved; it should be maintained with a good surface and kept free of obstructions. The sites along its eastern frontage will be developed with great buildings which should have arcaded sidewalks, and the façades of the piers will be improved. This stretch of harbor front, in combination with an improved Battery Park, offers the greatest opportunity for immediate realization of an orderly and dignified treatment of the face of Manhattan.

From Canal Street north we are confronted with the problems connected with the re-planning of the railroads and with the fact of the existence of the new elevated highway recently named Miller Highway.

In the judgment of the Port Authority and of Colonel William J. Wilgus, the eminent railroad engineer, there is no economic justification for maintaining the extension of the New York Central Railroad tracks below 30th Street. Under the plan adopted by the city and the railroad company, this extension is proposed to take the form of a viaduct to be erected on a private right-of-way with bridges over intersecting streets as far south as Spring Street. We deprecate this extension as an undesirable feature and as a needless expenditure.

With the 30th Street yards improved as a terminal and connected with the 60th Street yards by the proposed freight subway, the West Side will undergo changes of profound importance to the whole of the West Side waterfront.

The reconstruction of the railroad will result in removing every grade crossing and in permitting a more economical system of handling freight. The present dirty,

IN DOWNTOWN AND MIDTOWN MANHATTAN

untidy and dangerous conditions in Tenth and Eleventh avenues will be removed. As a result of these public improvements, extensive construction will take place on private property. Derelict structures will be replaced by modern buildings. Above the 40 foot level, buildings facing west on Thirteenth and Twelfth avenues will have a permanently open view across the expanse of the Hudson River, with a fascinating picture of its great shipping activities.

We have already suggested¹ that the erection of the elevated highway along the middle line of West Street, Thirteenth Avenue and Twelfth Avenue will in time be the only serious defect in the development of the West Side. If we look far enough ahead it is not improbable that this structure will be removed, or so modified in its location and character in relation to the buildings that it will be possible to obtain some finer treatment of the whole West Side area, comparable in scope to that visualized in the architectural studies of the Regional Plan.

One of its injurious results is the impairment of the large open plaza at the junction of 23rd Street and the marginal way. This ground level reservoir for traffic will become of greater importance to circulation when Eleventh Avenue is cleared of tracks, repaved, and intensively used for through traffic from the north.

When, in course of time, the Ninth Avenue elevated is removed, an opportunity will exist for creating on the West Side a sunken speedway above a new subway similar to what we propose for Second Avenue.² There will be no early necessity for an additional speedway, after the completion of the elevated highway through to 72nd Street, and the removal of the railroad tracks from Eleventh and Tenth avenues. The latter, when cleared of tracks, will form, with Amsterdam Avenue, one of the finest surface arteries, extending from 14th Street to the Harlem River.

A New Terminal District between 60th and 72nd Streets.—A proposed rail terminal over the 60th Street yards has already been described and illustrated³ as a major feature in the architectural studies developed first by the West Side committee of architects and second by Mr. Francis S. Swales. This is put forward as a definite suggestion and as representing one of the greatest opportunities in the city.

It is now difficult to realize the condition in which the New York Central passenger station and its approaches were twenty-five years ago. If one stands today on the top of a building overlooking the 60th Street yards, he will see almost exactly the same kind of conditions that existed in the Grand Central Terminal before 1905. The only differences are that the destruction of property values by the steam railroad has been prevented on the north by the existence of Riverside Park, (although values are low to the south) and that the 60th Street yards have a natural setting which the Grand Central or the Pennsylvania stations never had. These two latter terminals have, since they were improved, created values for the railroads and the public which have made them splendid investments. The 60th Street terminal would have a more

¹ See page 357.

² See page 394.

³ See pages 349 and 356 ff.

OPPORTUNITIES IN REBUILDING



Francis S. Swales, Architect

A residential group, illustrated above, is suggested for the upper end.

A residential group, illustrated above, is suggested for the upper end.

wonderful setting than any existing station. In developing it the mistake of under-estimating the space needed for future growth could be avoided. It would have one side that could never be shut in by surrounding buildings.

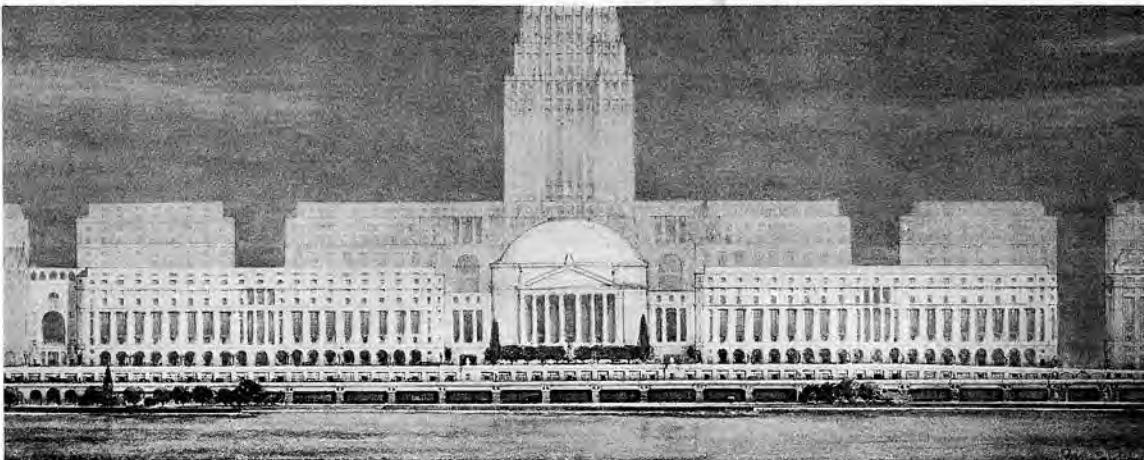
The site is strategically situated for a terminal in relation to New Jersey and Long Island. In the neighborhood of the 60th Street yards near 57th Street the Graphic Regional Plan shows a railroad tunnel connection from New Jersey under the Hudson, passing through Manhattan and connecting with the Long Island Railroad system. This tunnel would also provide a link between the rapid transit systems of New Jersey and the City of New York.

It does not need much imagination to see how valuable it would be to have a great new passenger terminal on the edge of the island, overlooking the wide expanse of the Hudson, directly connecting with the great spaces of New Jersey, served by the main line of the New York Central, and linked up with approaches to the Battery that are independent of the congested streets in the center of the island. Such a terminal would also have an outlet along Riverside Drive and a new waterfront boulevard stretching from 72nd Street to the north of Manhattan.



CROSS SECTION AT 72ND STREET, INDICATING THE POSSIBLE DISPOSITION OF VEHICULAR AND RAIL TRAFFIC

IN DOWNTOWN AND MIDTOWN MANHATTAN



Francis S. Swales, Architect

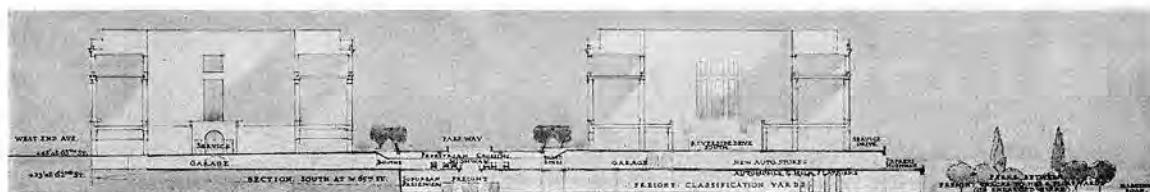
A RAILROAD TERMINAL, WAREHOUSES AND OFFICE BUILDINGS WOULD OCCUPY THE CENTRAL PORTION OF THE DEVELOPMENT

To the south a market and an arena are proposed, while several possible sites for an art center are included.

Access from the east would be facilitated by the parkway proposed between 59th and 60th streets and a direct connection to a proposed system of elevated sidewalks in the midtown area. Access to the south and the projected midtown vehicular tunnels under the Hudson River would be facilitated by a proposed diagonal street connection between Tenth and Eleventh avenues. (See Fig. 46, page 383)

Art Center.—One of the groups of buildings indicated on the plan of the terminal group (Fig. 43, page 357) might be used for an art center for the Region. The facilities for transit and transportation we have referred to would make this site eminently suitable for such a cultural group of buildings as is needed to assemble the activities connected with the fine arts in New York and New Jersey.

It is generally admitted that the New York region wants an art center—not one where all art activities will be concentrated, but one where all the fine arts may be associated and represented. It should be a national center in the spirit of its foundation, organized in keeping with the universality of art and therefore free of localism. It should have an open and commanding site, and should be distinguished in the architecture and arrangement of its buildings.



CROSS SECTION OF YARD AND BUILDING DEVELOPMENT AT 65TH STREET

OPPORTUNITIES IN REBUILDING

If we set ourselves to visualize the future and not be influenced too much by what now exists, we shall probably find that no site meets the requirements of such a center to the same degree as the area proposed for this great new terminal district. There is no more commanding situation near to the business and existing cultural centers of the city. It offers great opportunities for a beautiful display of buildings, with views over the Hudson River toward the highlands of New Jersey.

An art center in this vicinity would be close to the existing art institutions in 57th Street. In addition to an approach by a parkway between 59th and 60th streets it would have a northern approach from 72nd Street which would connect it with Riverside Park, and ultimately with the proposed watergate of Columbia University at 116th Street. At 86th Street a terminal feature on the waterfront would indicate the axis line of the direct approach to the Natural History Museum, which, when free of the elevated structure on Ninth Avenue, will become a dignified street. Near the same cross axis, and approached through the transverse road under Central Park, is the Metropolitan Museum.

The plan and drawings prepared by Mr. Swales indicate a large residential development along the waterfront above the railroad yards. Part of this development facing the river might, however, be used for the purposes of an art center. Another possibility would be to use for this purpose the three groups of buildings proposed between West End Avenue and the waterfront and extending from 62nd to 64th streets, with the arena made part of the art group instead of being connected with the adjacent market. A third site that would be adaptable for the art group would be the western half of the three blocks between 65th and 68th streets, where Mr. Swales suggests an open square with a dominating tower building facing the terminal building.

The abandonment of the proposal to make an art center on the Rockefeller site between 48th and 51st streets and Fifth and Sixth avenues leaves the way open for some other alternative. Incidentally it may be suggested that the building of the "Radio City" may add to or detract from the architecture of New York. The hope is that it will make New York proud of its dignity and beauty. But it can never be more than it is designed to be, namely, a great center of a particular type of commerce connected with communications. It may embrace an opera house and other buildings devoted to art, but these will be auxiliaries, for its main function is expressed in its name. To say this is not to disparage its purpose or to ignore its tremendous power as a university of the air.

THE MIDTOWN AND UPPER EAST SIDE

Its Waterfront.—The general plan (Fig. 46, page 383) shows the continuation of a widened marginal way on the ground level from Battery Park to a point above 23rd Street, where it is extended from an open square on the waterfront to the east of

IN DOWNTOWN AND MIDTOWN MANHATTAN

Bellevue Hospital. It thus differs from preliminary plans suggested by the late Nelson P. Lewis and the East Side architectural committee for an elevated highway around the lower tip of the Island. (See pages 299 and 350)

Proposals on the plan include the most important and practicable features in the studies made by Mr. Swales, which already have been described in some detail. They include the raised waterfront drive between 33rd Street and 51st Street (Beekman Place), the widening of Sutton Place, and the improvement of its connection with a raised road over Marginal Street extending as far north as East End Avenue (Avenue B). We do not propose any raised road over, or to the north of, Carl Schurz Park.

Quay development is shown along the bulkhead line between Gouverneur Street and 17th Street and between 33rd Street and 50th Street, the latter in harmony with the proposals shown in Mr. Swales' plan (Fig. 44, page 363).

First and Third Avenues.—In connection with the development of the East Side we have to consider what should be done to improve both the character and the traffic value of the adjoining avenues. First Avenue is one of the best north and south arteries in the city for through traffic. Unfortunately it is spoiled at its lower end by the elevated railroad and at its northerly end by congestion around the Harlem wholesale market at 102nd Street, and by street vendors between 106th and 116th streets. Ultimately the elevated structure is likely to be removed so as to permit clear operation of the street surface through the widened Allen Street on the south. The street markets should be moved to a new area on side streets in the same neighborhood and provided with up-to-date facilities. This avenue should be preserved as a major surface street. The same applies to Third Avenue if and when the elevated railroad is removed.

The advantages of subways as compared to elevated railroads are indicated by the fact that in 1926 the Third Avenue Association recommended that the Third Avenue Elevated be bought for \$28,000,000, scrapped entirely, and replaced by a new subway.

SECOND AVENUE SPEEDWAY AND CHRYSTIE-FORSYTH PARKWAY

An express highway on the east side of Manhattan was shown diagrammatically on the Graphic Regional Plan as one of its major proposals.¹ The irregularity of the East River shore line, the lack of any continuous marginal street throughout its length, and the varying types of development found there, make it more difficult to develop an adequate express vehicular route on this waterfront than on the Hudson River waterfront. We therefore propose that fast through traffic should be provided for, partly by means of the proposed raised driveways along the riverfront, but mainly by means of a sunken roadway in Second Avenue extended south to the Manhattan Bridge and Civic Center by a parkway between Chrystie and Forsyth streets.

¹ Regional Plan, Volume I, pages 233 and 269.

OPPORTUNITIES IN REBUILDING

A suggestion for using Second Avenue in part for through traffic was made by the late Nelson P. Lewis in 1922. He then proposed the widening of Chrystie Street and the building of an elevated road up the lower part of Second Avenue to connect at 23rd Street with a proposed express highway along the East River, mainly with the object of relieving traffic at the end of Manhattan Bridge. However, the erection of an elevated road on Second Avenue would do much damage to property and lessen the great attractiveness that it has below 23rd Street.

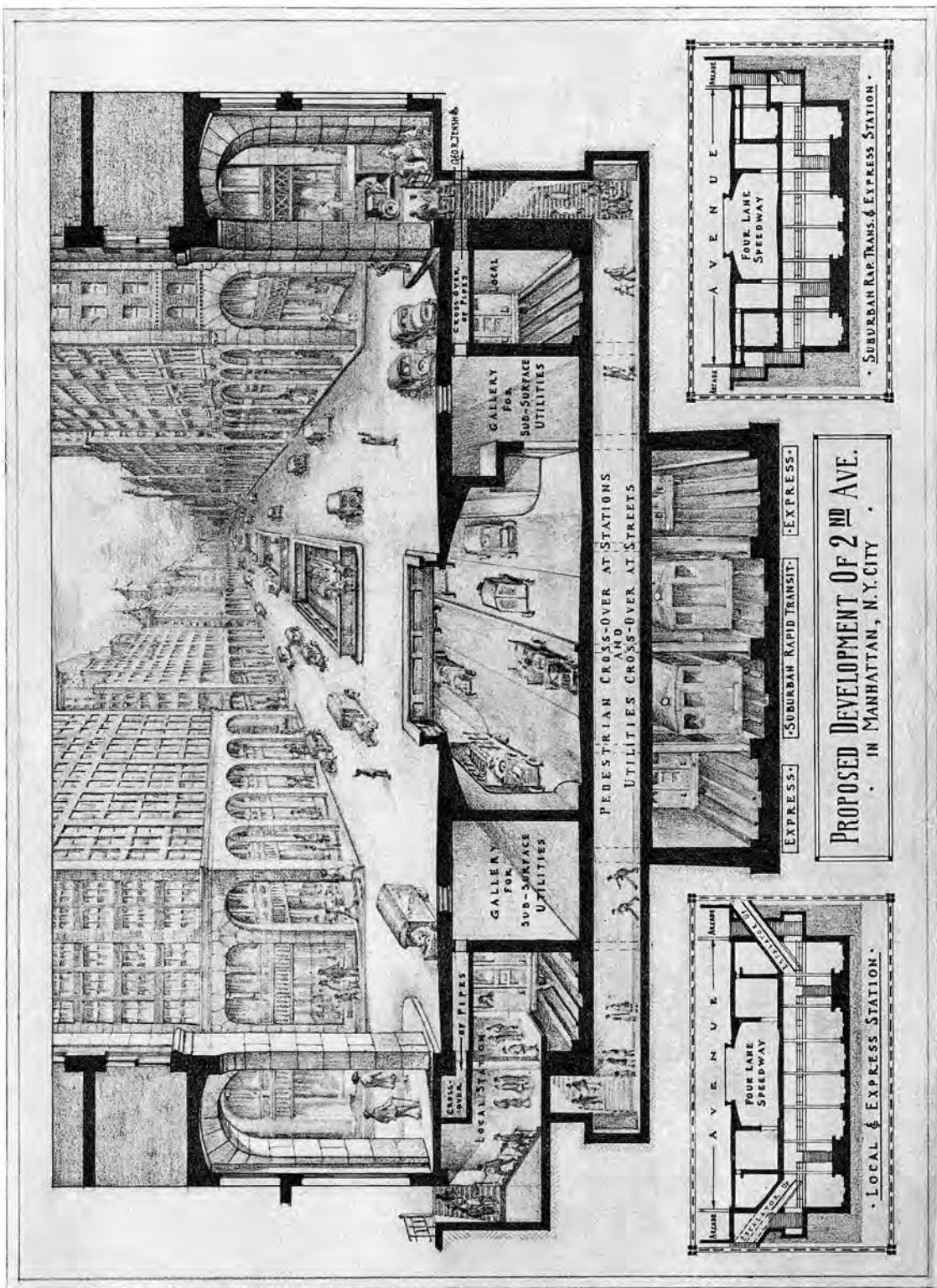
Proposed Treatment of Second Avenue.—We propose instead that Second Avenue be developed throughout its entire length from Houston Street to the Harlem River as shown in perspective and cross section on the accompanying sketch. Such a project requires the removal of the present elevated railway, which, it is hoped, will be made possible by the construction of a large capacity subway route in Second Avenue.

The sunken speedway of four lane capacity is shown along the middle of the avenue, with its pavement about 20 feet below the present street level and about 10 feet above the roof of a rapid transit subway. Including two three-foot sidewalks, the total width of the depressed road would be 46 feet. Of this, the middle 20 feet would be open to the air except where crossed by the intersecting streets which would be carried across on bridges. The balance of the existing 100 foot width would be used for two one-way streets with roadways approximately 36 feet in width. Thirteen feet of each of these roadways would be cantilevered over the depressed roadway. The relationship of the speedway to the arcades and local roadways is also shown in plan in Fig. 47 (page 396).

The proposal calls for placing the existing sidewalks in pedestrian arcades within the present building lines. Local rapid transit tracks could be placed beneath the service roadways and alongside the depressed roadway, making them readily accessible from the street. Four express rapid transit tracks are located at a lower level in the center of the street. It is suggested that two of these might be utilized for such a suburban rapid transit route as was proposed in the Graphic Regional Plan for construction under Third Avenue.¹ The space between the local rapid transit tracks and the depressed roadway would be reserved for pipe and conduit galleries, which could be made accessible both from the existing street surface and from the depressed roadway. Crosstown utilities would be carried in the space between the depressed roadway and the express rapid transit tracks.

Such a plan would cause the express subway tracks to be placed about 10 feet deeper than would be the case with standard construction and mezzanine stations. On the other hand, the local tracks would be nearer the street than is customary. Escalators could be provided at express stations, as indicated. The whole project should be carried out simultaneously with the construction of the subway to minimize expense.

¹ Regional Plan, Volume I, page 197.



OPPORTUNITIES IN REBUILDING

Ramps to the street surface should be provided only at the most important points, such as in the vicinity of East River crossings. These might be in the form of central ramps, such as those used on the West Side Elevated Highway or side ramps carried through the middle of the blocks and connecting with the cross streets.

The two traffic lanes at the sides of the depressed roadway, being under cover, would not be obstructed by snow in the winter. We believe also that the central traffic lanes could be kept free from snow with a very slight raising of the temperature and with the aid of good drainage facilities. The opening at the top would be sufficient to obtain good ventilation with the possible need of some artificial aid. The advantages of such a road as compared with an elevated highway must be obvious.

Allowing two lanes for parking and unloading on the surface roadways, there would be a total of 10 lanes for moving vehicles. As four of these would be uninterrupted lanes, and therefore have about twice the capacity of lanes subject to ordinary traffic interruptions, the total capacity would be equivalent to 14 lanes on

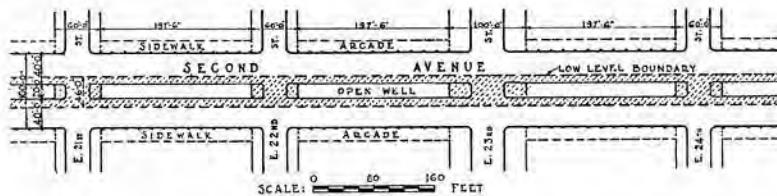


FIG. 47
PLAN OF A TYPICAL SECTION OF THE PROPOSED SECOND AVENUE
DEVELOPMENT

an ordinary city street. This would provide a much greater traffic capacity than any other avenue in the city, and at the same time Second Avenue could be made a very beautiful thoroughfare.

The carrying out of the complete plan is dependent on arcading the buildings to be erected along the improved avenue. We believe that this would result in a great improvement of property values, but realize that it would be difficult for the city to obtain sufficient cooperation from the owners to make such arcades continuous in the near future. Types of existing arcades are illustrated on pages 288 to 292.

A preliminary treatment, based on utilizing only the present 100 foot right-of-way without arcades, would still accommodate the proposed depressed roadway. It would, however, be necessary to limit the surface roadways on each side to about 26 feet with 12 foot sidewalks. It might be found in practice that a combination of this treatment and the complete plan would have to be carried out.

Chrystie-Forsyth Project.—South of Houston Street the Second Avenue speedway would be continued in the area between Chrystie and Forsyth streets to Manhattan Bridge and connections with Division Street and East Broadway, as a parkway re-

IN DOWNTOWN AND MIDTOWN MANHATTAN

served for passenger vehicles. A small area on the north side of Houston Street and east of First Avenue would have to be acquired.

The land between Chrystie and Forsyth streets was purchased by the city in 1930 for a slum clearance and rehousing project. It is unsuitable for rehousing. It is not wanted or desirable for business development. In 1927 Borough President Miller proposed the widening of Chrystie Street to 100 feet for traffic relief. He suggested a site for a small park between Rivington and Stanton streets and rebuilding on other excess lands to be acquired.

The strip of land now opened up is 300 feet wide and about 3,000 feet long. As a result of widenings of Chrystie and Forsyth streets, completed in 1931, the seven blocks available for building are only 125 feet wide, and not suitable for a housing development. No satisfactory scheme of rebuilding can be carried out on these blocks.

We propose that, with the possible exception of permitting a school and library to be erected on parts of the area, the whole be dedicated as a parkway and developed in the manner shown and explained in the accompanying plan and sketches. This open area affords an excellent opportunity of obtaining for lower Manhattan a main thoroughfare of noble proportions combining an admirable traffic artery with generous lung space. There is no impediment to the construction of a roadway in a low level cut as proposed on account of the existing subway under Delancey Street. On both sides of the low level road below East Houston Street the land would be laid out in walks with trees for shade and both Chrystie and Forsyth streets left on the existing level with ample width for local traffic.

As shown in Fig. 48, Canal Street, Grand Street, Schiff Parkway (Delancey Street), Stanton Street and Houston Street would be carried over the sunken way by bridges. Pedestrian bridges only are shown at Hester Street and Rivington Street. The depressed

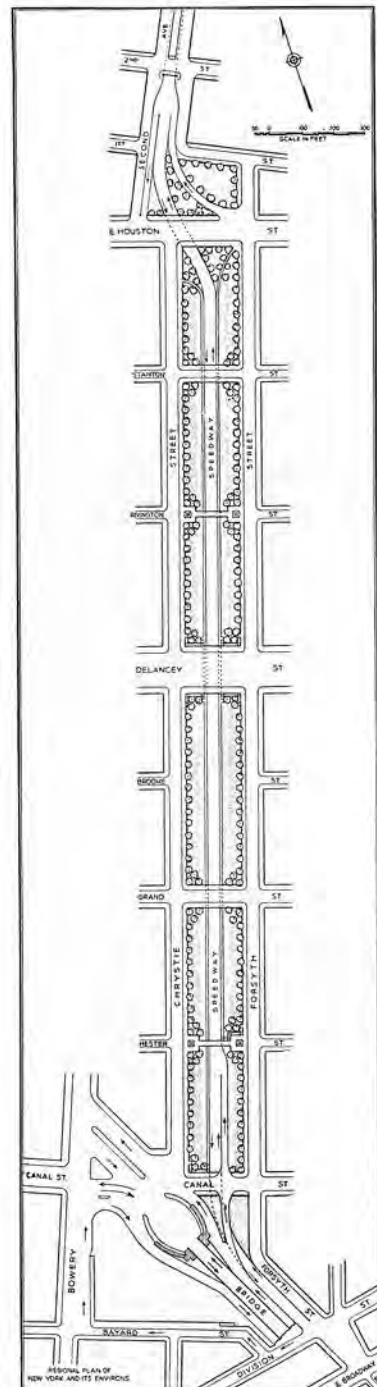


FIG. 48
PLAN OF THE CHRYSTIE-FORSYTH
PARKWAY

OPPORTUNITIES IN REBUILDING



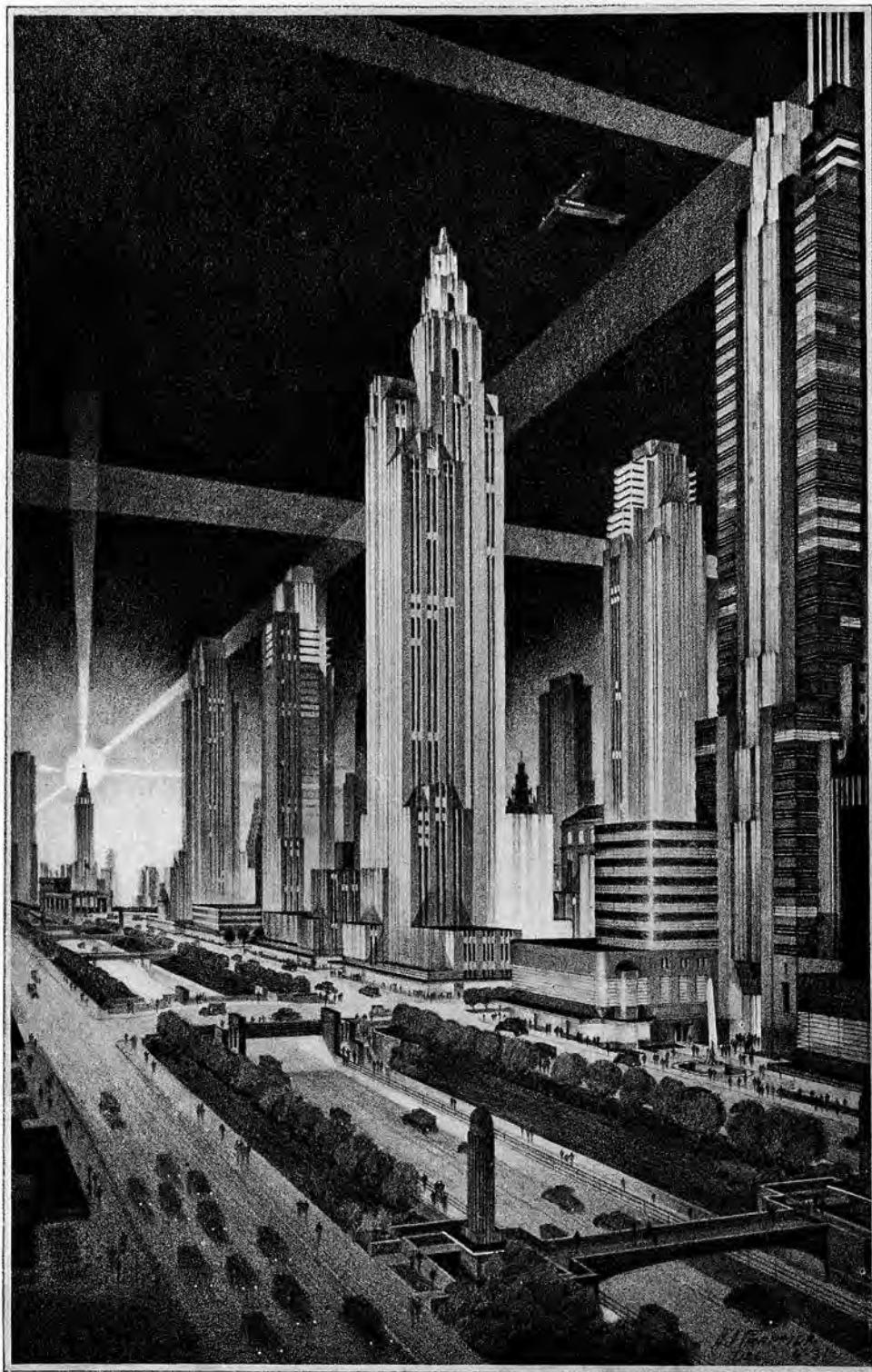
THE CHRYSTIE-FORSYTH AREA AS IT LOOKS TODAY—CLEARED OF BUILDINGS AND AWAITING DEVELOPMENT

roadway would be carried south along the Manhattan Bridge to come to grade near Division Street. From that point East Broadway provides a direct route to the Civic Center, and the near-by marginal way an equally good route to the financial district. A northbound ramp would connect with Canal Street and northbound and southbound ramps would connect with Houston Street. Easy connections for passenger vehicles would be provided with the two upper level roadways on the Manhattan Bridge. Trucks using the Second Avenue speedway could use the Bowery south of Houston Street.

South of 23rd Street this speedway and parkway project could be constructed without interference with any existing improvements, but north of that point it is dependent upon the removal of the Second Avenue elevated railway. Consideration of the whole project is urgent in connection with the city's proposal for a subway along this route as part of the second step in the municipal rapid transit system. Pending actual construction of the Chrystie-Forsyth parkway, it is recommended that the existing open land be cleaned up and converted into temporary playgrounds.

RE-PLANNING THE LOWER EAST SIDE

The proposals we have suggested for the waterfront and for making a parkway between Chrystie and Forsyth streets would, by themselves, be of great value in reviving the attractiveness and restoring the prosperity of the lower East Side district,



THE PROPOSED CHRYSIE-FORSYTH PARKWAY

Including the sunken roadway, promenades and park strips, and a conception of the type of development which might be expected to follow. The buildings fall well within the bulk requirements of the Regional Plan for sub-central areas. (See Chapter VII)

OPPORTUNITIES IN REBUILDING

which lies between 14th Street and the Manhattan Bridge and extends inland from the East River to Third Avenue and the Bowery. Its area comprises about 885 acres. We have made a special study of this district with a view to suggesting methods for reconstruction.

Along the waterfront the elevation of the land above sea level is about five feet. Rising gradually to the west, an elevation of about 40 feet is reached at Manhattan Bridge Plaza and northerly along the Bowery, dropping to 35 feet along Third Avenue. An exception to this gradual slope from the Bowery to the river occurs on Grand Street, which reaches an elevation of about 40 feet at Ridge Street.

As early as 1850 sections of the area had population densities between 100,000 and 150,000 people per square mile. In 1900 they had densities between 200,000 and 300,000 people per square mile; one assembly district near the Bowery had a population density of over 300,000 people per square mile. In 1920 the Fourth Assembly District had a population of 94,980, which represented a density of 250,000 people per square mile; and in 1930 it had only 53,866 people, representing a density of 141,000 people per square mile. The decrease in the last decade was thus 43.4 per cent. Living conditions have not improved with the decrease of population density; in fact, they have steadily declined, accounting partly for the movement of people away from the district.

A comparison between land values of 1914 with those of 1923 reveals a marked decrease in practically the whole area.¹ There have been few increases since 1923. Values along First and Second avenues and also along Avenues A, B and C have increased slightly. There has been a slight rise around Tompkins Square and along East Houston Street, the latter due to new subway construction in that street.

While this area as a whole can be classified as predominantly residential, it has also for many years been an important center in the garment industry, housing many contract shops of the garment workers. Since the establishment of the new Garment Center on the West Side of Manhattan and the reduction in immigration, the garment industry has tended to move away from this district and many of the smaller non-union shops have been established in Brooklyn and Harlem.

It is of great importance to the city that this district be improved as a residential neighborhood. It is as accessible to the downtown business district as Tudor City and Sutton Place are to the midtown district. Sites should be provided for both high class residences and modern low cost housing, leaving space for such industries as would naturally tend to remain in this district.

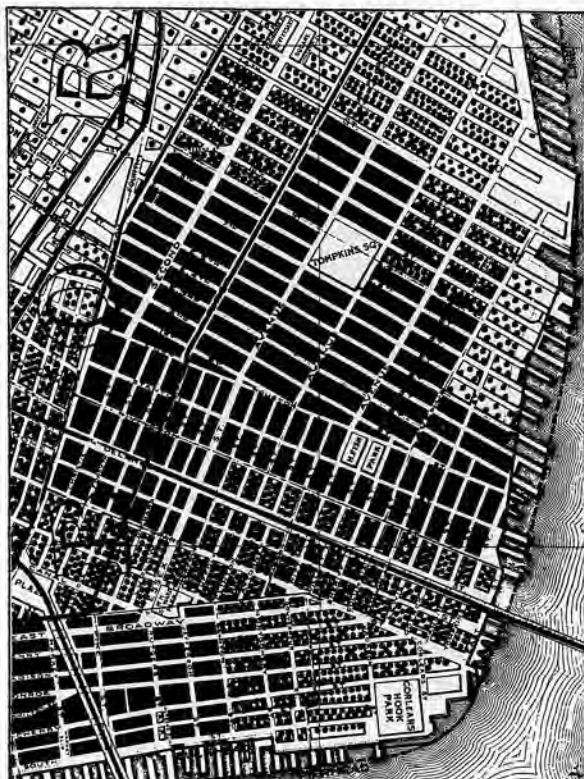
Conditions point to the ripeness of the area for rebuilding on an economical basis, and large scale housing operations would probably effect the best development. The city can insure, or at any rate make probable, a vast change for the better by providing certain public improvements.

¹ See Plate 6 opposite page 151, Regional Survey, Volume II.

IN DOWNTOWN AND MIDTOWN MANHATTAN

Among the reasons for present conditions are: the existence of noisy, unsightly bridge approaches; a defective street system; elevated transit lines; and inadequate transit facilities. A further reason of special importance is the insufficiency of parks, parkways and playgrounds and of means of access to the waterfront.

Any scheme for improvement should make the most of the two factors that operate in favor of the district, namely, proximity to the downtown financial dis-



A.—1920



B.—1930

FIG. 49

THE RECENT FALLING OFF IN THE POPULATION OF THE LOWER EAST SIDE OF MANHATTAN IS SHOWN IN A GRAPHIC WAY IN THESE DOT MAPS FOR 1920 AND 1930

One dot represents 100 people. Where the population of a sanitary district exceeds 20,000, the blocks there appear in solid black.

trict and to the East River, which bounds it on two sides. Our detailed proposals for this area have been worked out through close cooperation with the East Side Chamber of Commerce and its consulting architects, Messrs. John Taylor Boyd, Jr. and Holden, McLaughlin and Associates. The proposals are shown in plan on Fig. 50 and in perspective on the air view¹ on page 405.

¹ A view similar to this portraying the proposals of Messrs. Boyd and Holden appeared in the *East Side Chamber News* for September, 1930.

OPPORTUNITIES IN REBUILDING

Highway and Street Improvements.—In this district we suggest some major street improvements in addition to the parkway between Chrystie and Forsyth streets, already described, and the widening of Allen Street. The former cannot be over-emphasized as to its importance in any scheme of restoration of downtown Manhattan.

Another important proposal is the improvement and widening of Division Street and East Broadway and a portion of Grand Street to form a boulevard between the Civic Center and the East River. Adjacent to the waterfront a highway is proposed to follow the marginal way as far as Montgomery Street, then swing in an easy curve northerly across the corner of Corlears Hook Park, follow along Mangin Street, and return to the East River at East Fourth Street.

By means of widening and providing a central parking strip it is proposed to make a boulevard of Gouverneur Street, Pitt Street and Avenue C. From East River to East Broadway, Rutgers Street should be a boulevard to connect with Essex Street, which is now being widened and which connects at its northern end with Avenue A. Allen Street should have its present widening extended southerly to East Broadway,¹ where it meets Pike Street. With Pike Street widened, a connection would thus be provided from the marginal way to First Avenue.

Houston Street is being widened in connection with subway construction between Sixth Avenue Extension and Essex Street. This should be extended to the East River, making an approach to a vehicular tunnel proposed under the river at this point. The tunnel would probably come to the surface near Avenue C.

Parks.—A park of 75 acres, which would be large enough to attract good residences to the neighborhood, is suggested between the present pierhead line and the proposed alignment of the East River Drive. It would start at East Fourth Street, continue south under Williamsburg Bridge, include Corlears Hook Park, and extend westerly to Gouverneur Street. From this point it would fall back to the bulkhead line and continue a block in width along the marginal way to Rutgers Street. Yacht basins are suggested at each end, with a large recreation building at Corlears Hook and an eight acre playground under the Williamsburg Bridge.

There is an objection to having through traffic ways between residences and parks when this can be avoided. In this case, however, it seemed best to have a promenade on the waterfront. If the traffic were directed inland several blocks, it would face inevitable interruption with cross traffic. The drive should be raised a few feet above the park level to permit pedestrian underpasses to be placed at conveniently frequent intervals.

Tompkins Square should be improved and provided with attractive park houses and a wading pool. Playgrounds should be located in the centers of blocks bounded by main streams of traffic in all parts of the district. The present playground space should be doubled.²

¹This was started in August, 1931.

²See Regional Survey, Volume V, page 159.

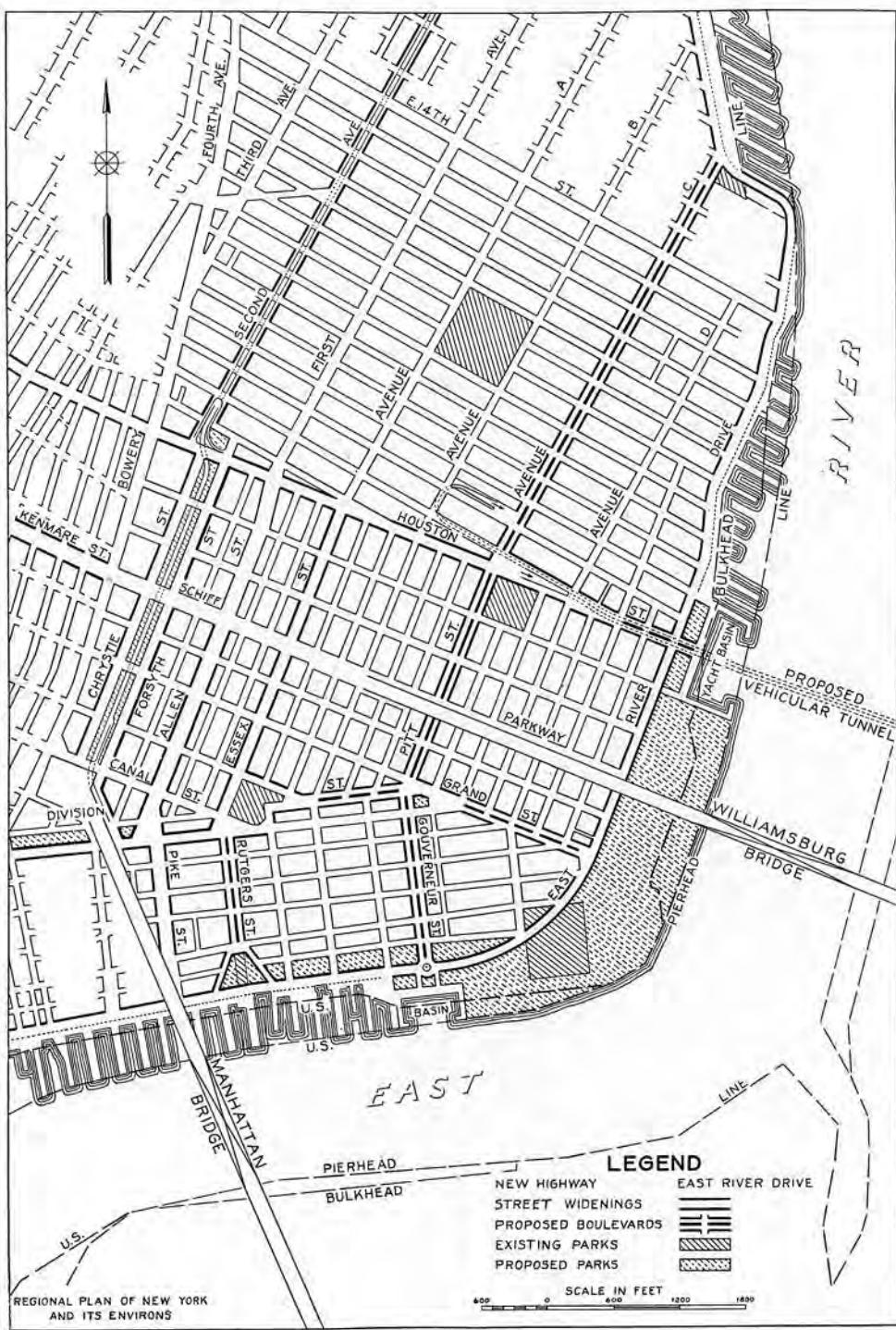


FIG. 50
PARKS AND STREET WIDENINGS PROPOSED FOR THE LOWER EAST SIDE AS PART OF A GENERAL PLAN OF REHABILITATION

OPPORTUNITIES IN REBUILDING

If the plan we present were carried out, it would not only result in securing the rebuilding of this district with modern structures, but would reduce congestion of traffic and transit facilities, and add greatly to land values.

One serious impediment to any plan of reconstruction is the fact that this district is zoned almost entirely for unrestricted or business uses. A constructive rezoning plan should be made; and undesirable outdoor markets should be removed. Another difficulty in securing improvement is due to the extent of "absentee ownership." Improvement of home conditions will lead to more home ownership even in an apartment district.

The high cost of acquiring land for park space in this neighborhood should be set against the immense value that would be given to the whole of the large residential areas that would be adjacent or accessible to the park. The city has a vital financial stake in stabilizing the values of the lower East Side. In an area covered by the activities of the East Side Chamber of Commerce the assessed values of land amounted to \$175,711,040 in 1930, or an increase of \$16,428,600 since 1920. Meanwhile the population has fallen from 588,304 to 355,884 and land prices have fallen in sympathy.¹ The city must do something to sustain its assessments and the first step is to return considerable sums to the district of the lower East Side for park acquisition.

There can be no effective restoration of values in this district until a park of 50 to 100 acres is provided on the waterfront and the city acquires a number of playgrounds in the more crowded areas. The present area of park space amounts to 28.9 acres, of which half is used for playgrounds. An area of 1,000 acres would not be in excess of the normal requirements of the community. It is impossible to obtain any such area, but it is possible to provide a small park on the land that will open up to the population a lung space of hundreds of acres in the form of the waters of the East River.

No commercial necessity stands in the way of the proposed improvement. New York has superabundance of waterfront for its commercial needs.

It is not necessary for the city to actually build in order to get rid of the blighted conditions. Private enterprise will gradually accomplish the needed improvement in buildings when public enterprise has provided the favorable conditions in the form of more open space and re-planning of the waterfront.

In referring to the need of this improvement we have suggested that substantial money values would be created for the city. But there are other values of greater importance. Ex-Governor Alfred E. Smith says of the bad housing in the tenement districts that it is a fundamental cause of crime and delinquency. We have affirmed the same thing as a result of our studies. But the cause is perhaps more the poverty of recreation facilities than it is the poverty of the home.

¹ *East Side Chamber News*, September, 1930.

AERIAL VIEW SHOWING PARK AND HIGHWAY PROPOSALS FOR THE LOWER EAST SIDE



OPPORTUNITIES IN REBUILDING

The lower East Side is one of the most prolific nurseries of New York, and the real nursery for the majority is the street and the disorderly vacant lot. This must be so with the deficiency of play space. In an editorial in the *Times* of July 1, 1930, quoted by the *East Side Chamber News*, Dr. John H. Finley writes:

"One has but to visit the Lower East Side on a summer's evening to realize that, as Mr. Brogan, of the East Side Chamber of Commerce, has said, it is 'essentially a neighborhood of children and mothers.' What with groups of women guarding baby carriages inside the curb, or huddled on stoops or on doorsteps, little ones toddling about and older children racing and darting in and out, pedestrians have difficulty in making their way. Everywhere there is such squalidness, such ugliness of surroundings, such turmoil, that one wonders how life can be endurable there."

There are no money values that rank in importance with the social values, in health and security, that would be obtained from reconstructing the lower East Side on the lines we have proposed. But it is expedient to recur to money values as a final point. This we do by quoting another editorial. Referring to the growing public demand for open spaces facing the rivers, and the consequent new values created on the upper East Side, the *Herald Tribune* says:¹

"The popularity of the East River front as a place of residence is less a discovery of the river than a rediscovery. A century ago many of the first families of New York, including the Roosevelts, the Beekmans, the Schermerhorns and the Brevoorts, had their summer homes along the shore of the East River from Kips Bay at Thirty-fourth Street to Observation Point at Eighty-ninth. . . .

"That which was country then is city now, but the beauty of the river itself is unchanged, and since it has become a city river, lively with traffic, it has acquired a special fascination, like a water street. So there is nothing surprising in the revival of appreciation of the East River; the wonder is that it was so long in coming. Some day its banks will be entirely reclaimed to beauty as well as use and then we shall have a waterway through the city that will be to New York what the Thames is to London and the Seine to Paris."

How is this popularity to be brought to the waterfront below 14th Street unless by removing the causes of the blight that has, among other evils, thrown 2,000 stores into vacancy?

Need of Carrying Out Plan in Complete Units.—Perhaps it is well to anticipate one criticism of planning that affects the lower East Side particularly. No part of the city seems to have suffered more from unfinished reconstruction schemes. It is almost better not to start an improvement than to leave it unfinished for years. Planning isn't enough. Starting to carry out a project and then suspending operations in the middle is to discredit the good that effective reconstruction can do.

Improvements of Allen Street, Forsyth Street and other places remain uncertain prospects and even failures, so long as they are left in disordered incompleteness. It is good to do things gradually, but when once begun each section of an improvement should be completed and made to take the appearance of permanence.

¹ Issue of August 7, 1928.

IN DOWNTOWN AND MIDTOWN MANHATTAN

MISCELLANEOUS STREET IMPROVEMENTS

The projects already described include a number of our most important proposals for street enlargement and improvement of connections with bridge approaches. Two of the most essential needs are the provision of more space at the Manhattan end of the Queensboro and Manhattan bridges.

Queensboro Bridge Approach.—The capacity of the Queensboro Bridge has been greatly increased as a result of the opening in June, 1931, of a new roadway for passenger vehicles on the upper deck. Additional improvements are contemplated at the Manhattan approach. In order to make it function properly more open space will be required at the Manhattan end than is provided in the improvement plan.

The block between 59th and 60th streets and between Second and Third avenues should be cleared of buildings. This block is still poorly developed and the cost of the acquisition of the buildings should not be a deterrent to making an effective improvement. Any adequate solution of the problem of this approach will involve grade separation between bridge traffic to and from points west of Second Avenue and traffic going north and south on Second Avenue. This is provided for by the Regional Plan proposal to construct a sunken roadway in Second Avenue.

Manhattan Bridge Approach and Canal Street.—The major difficulty in dealing with Manhattan Bridge approaches is the presence of the elevated railway on the Bowery which must remain until the Third Avenue elevated is abandoned. So long as this structure remains there can be no proper approach designed from Canal Street. We propose, however, that raised roadways be constructed in Canal Street between Greenwich Street and the Bowery (assuming the removal of the Sixth Avenue elevated railway in West Broadway), ramping down for the present under the elevated railroads at both ends, and ultimately extended at the eastern end to connect with the high level roadways over Manhattan Bridge.

Our suggestion is that two raised roadways be built in Canal Street abutting on the buildings on each side, as indicated on the accompanying sketch (Fig. 51). No piers would be built in the existing roadway. One row of supporting piers would be located at each curb line on the lower level, supplemented by smaller ones at the property line, so that the upper roadways could be built independently of the adjoining buildings. Each would be 28 feet wide with no sidewalk except as provided in arcades within the buildings. All traffic on each roadway would be one way. One road should be built at a time. The proposed building access on the upper level would counterbalance the injury caused by obstructing light and air to the first stories of the buildings.

The present street would have a clear opening above it for a width of 40 feet and no obstructions to vehicular traffic as a result of building the upper roadways. It is suggested that the present roadway be widened to 68 feet, providing four lanes for moving vehicles and diagonal parking for loading and unloading at the curbs.

OPPORTUNITIES IN REBUILDING

The Chrystie-Forsyth Street parkway will be of great benefit as a bridge approach and also, as a result of the southern extension of the low level speedway, will assist in detouring traffic away from the bridge. On the south of the bridge plaza the improvements of the street system between the Bowery and the Court House Square, indicated on the general plan and summarized later, will ultimately provide satisfactory means of approach.

Holland Tunnel Plaza and Approaches.—The problem of the approaches to and from the Holland Vehicular Tunnel must be considered in relation to plans for improvement of the Manhattan Bridge Plaza and the enlargement of street capacity in Canal Street. When provision was made for the entrances and exits of the tunnel they were adequate for traffic. Since the tunnel was built, Sixth Avenue has been

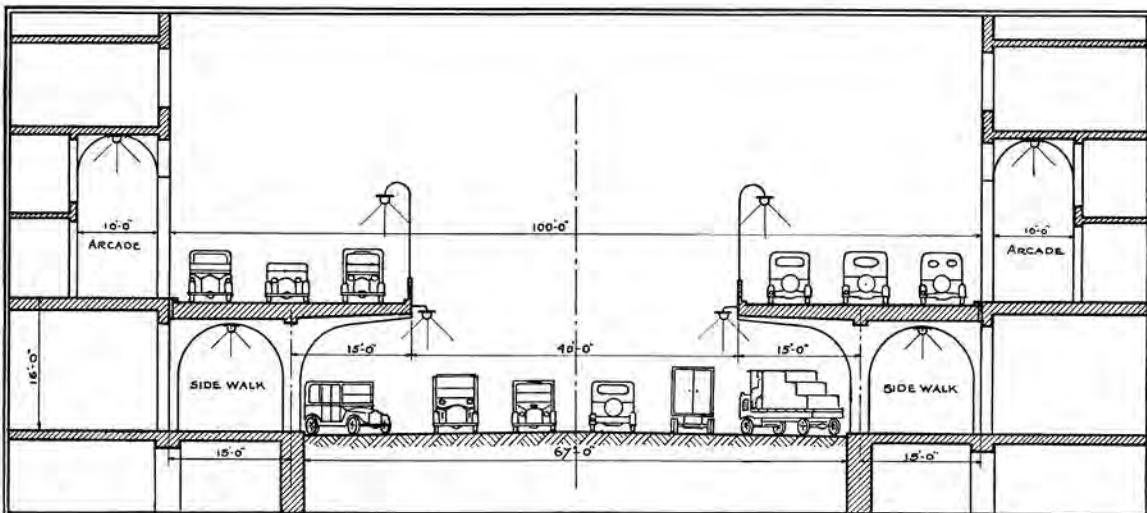


FIG. 51
CROSS SECTION OF CANAL STREET, SHOWING THE PROPOSED ELEVATED SPEEDWAYS AND SECOND STORY ARCADES

opened through to the tunnel "reservoir," and the West Side Elevated Highway has been built, with its southern terminus impinging on the same open area. If, in addition, Canal Street is made to carry more cross traffic from Manhattan Bridge, as seems inevitable, there is danger of choking the tunnel approaches with too much converging traffic.

This condition should have been anticipated. The committee of architects who made the study for the Regional Plan Committee in 1923 advocated the acquisition of the whole triangular space bounded by Canal, Varick and Watts streets. It is unfortunate that this was not done.

Experience since the opening of the tunnel has been that on certain occasions, principally on Sunday and holiday evenings, congestion exists at the New Jersey end,

IN DOWNTOWN AND MIDTOWN MANHATTAN

notwithstanding the apparently adequate provision made at that end. The improvement of the approaching highways is all that is necessary to overcome the difficulties in New Jersey. On a few occasions there has been congestion at the Manhattan end. The most needed thing to relieve this congestion is more river crossings. But the New York exit is the weak link in the chain so far as permitting the tunnel to operate to full capacity for eastbound traffic is concerned. The removal of the double track trolley line on Canal Street and provision of a separate grade crossing for pedestrians would help to solve this problem. Referring to this matter, however, Mr. Ole Singstad, Chief Engineer of the tunnel, said in November, 1929, that the commission had under consideration a slight enlargement of the exit plaza in Manhattan which could be done at moderate cost.

With the greatly added traffic converging in the plazas from the marginal express highway, not yet operating to full capacity owing to its not being completed above 23rd Street, it is desirable that the raised roadways on Canal Street should be designed to drain traffic away from the tunnel in greater degree than they attract traffic to it. This means that the first raised roadway should be constructed on the south side for eastbound traffic, and the later development of a second roadway on the north side of Canal Street should be deferred until more ample "reservoir" facilities are provided at the tunnel plazas. The immediate need would seem to be for the widening of Laight Street to 100 feet east of Hudson Street and to 80 feet from there to West Street.

In connection with the approaches to the tunnel from the north, the West Side committee of architects suggested that West Street be widened at West Washington Market and that, to effect this, the market be moved to a site bounded by Gansevoort Street, Greenwich Street, Jane Street and Washington Street. This widening has become more, rather than less, essential because of the building of the elevated highway in West Street.

Extension of Lexington Avenue to Irving Place.—An exceptional condition exists at Gramercy Park, to which brief reference may be made. Although on the Graphic Plan we show Lexington Avenue as carried through this park, we do not regard this connection as a present or likely necessity. It is a detail in our plan which we prefer to modify. Our later conclusion is that the park should be preserved as it is. Its value as an open space depends on its unity and on diverting traffic around it. As a quiet open space, it adds more to property values surrounding it than would be the case if the land it occupies were used for traffic, and it is doubtful whether its value as a building site would be greater than the loss which adjoining property would suffer as a result of covering the space with buildings. If the extension of Lexington Avenue through the park to Irving Place ever becomes a necessity, it should take the form of a subway under the park, and should be deferred until the city extends Irving Place through to Fourth Avenue by a direct connection.

OPPORTUNITIES IN REBUILDING

Connections to 38th Street Tunnel.—What we have said regarding the need of greater space at the entrance to the Holland Tunnel raises the question of the importance of securing adequate space for surface entrances and exits to the new tunnel projected at 38th Street. This tunnel is shown on our plan as an express vehicular route from Long Island to the western side of the Hackensack Meadows in New Jersey, passing under the East River, Manhattan Island, and the Hudson River.

The plans for the Manhattan connections with this route are being worked out by the New York City Board of Transportation and the Port of New York Authority, which have been authorized to build the East River and Hudson River tunnels respectively. On the general plan (Fig. 46, page 383) we show the plazas for the tunnel approaches and exits as suggested in the preliminary reports of these two bodies.

It has been suggested that the crosstown Manhattan connection should be used for the express movement of local crosstown traffic as well as for traffic passing under the East or Hudson rivers. Separate provision should be made for these two kinds of traffic. The center of the most congested and high priced section of Manhattan is not a logical place to provide an express route for local crosstown traffic. Such movements should take place around this congested area and without the necessity of tolls. On the general plan of Manhattan facilities for such express movement between the two sides of Manhattan have been proposed at Canal Street and along the Harlem River waterfront. At such sites crosstown routes can be provided far more economically and of much greater capacity than would be permitted by partial use of a midtown tunnel.

The Port of New York Authority has estimated that 30 per cent of the vehicles using the new Hudson River Tunnel would use a cross-Manhattan connection. The East River Tunnel will be between two free bridges which will compete with it, but it will prove a particularly attractive route for vehicles between Long Island and the West Side or New Jersey, provided the connection across Manhattan is furnished. It is, therefore, estimated that under these conditions about 60 per cent of its traffic might use the tunnel across Manhattan. This indicates that practically the full capacity of a crosstown tunnel in the vicinity of 38th Street will be essential as an approach and exit for both the East River and Hudson River tunnels, and that direct connection should be provided between these tunnels.

The Regional Plan staff has made some study of the approaches and connections on the East Side of Manhattan, where the Board of Transportation proposed a spiral loop to and from an exit and entrance plaza occupying the entire two blocks between First and Second avenues, 36th and 38th streets. All of the traffic using the tunnel would pass around such a loop, and all junction points would be in the open, at or near the surface. While the board's plan has many excellent features, it is subject to the following two criticisms:

IN DOWNTOWN AND MIDTOWN MANHATTAN

(1) All of the traffic to and from both the East River Tunnel and the tunnel across Manhattan is concentrated in a single plaza, which will create a heavy burden on the streets of Manhattan.

(2) The fast passenger traffic is forced to detour through the loop referred to, because it is held down to a maximum grade of three per cent, although it could utilize a steeper grade.

As a result of its study, the staff of the Plan submitted suggestions to the Board of Transportation which would have the effect of meeting these two criticisms by providing separate plazas for the slow moving truck traffic and the faster moving passenger traffic, the total area of these plazas being less than the single plaza suggested by the board. By separating these two types of traffic and putting the plaza for the fast traffic between Second and Third avenues and using a six per cent maximum grade in this case, the necessity of a spiral ramp could be eliminated except for such slow moving traffic as would require a maximum grade of three per cent.

It would also be possible to eliminate the use of the spiral ramp for through traffic on the three per cent grade by installing additional connections on a direct line for such traffic. This would necessitate splitting and joining single lanes of traffic underground, but, with local crosstown vehicles eliminated from the tunnels, this should present no accident hazard and cause no appreciable slowing down of movement at the junction and division points.

ELEVATED SIDEWALKS AND ARCADES

The general plan of Manhattan (Fig. 46, page 383) shows proposals for elevated sidewalks. In the midtown district, between 34th and 59th streets, an elaborate system of such walks, combined with arcades and second story entrances to buildings, is proposed. These will be necessary in time in addition to underground passages for pedestrians, such as are projected between the new group of buildings forming "Radio City" and the Grand Central Terminal, and for which there is need between Grand Central Terminal and Times Square.

In a statement made by Mr. Arthur S. Tuttle, then Chief Engineer of the Board of Estimate and Apportionment, dated July 12, 1923, the following appears:

"Arcaded sidewalks should be introduced and the entire present width of congested streets thereby made available for vehicular traffic. The present aggregate capacity of the streets crossing Forty-second Street is sufficient to accommodate 55 lanes of moving traffic, allowing for one line of parked traffic along each curb. By arcading these streets, their capacity for vehicular use could be nearly doubled. By providing double-decked sidewalks in the arcades, the upper one could be carried over street crossings and a complete separation of vehicular and pedestrian traffic obtained. The arcade treatment offers the following advantages:

"Affords maximum relief at minimum cost for vehicular traffic, and, if double decked, will insure safety to pedestrian traffic.

"Withdraws a minimum area from private use and from taxation."

OPPORTUNITIES IN REBUILDING

The proposals of the Regional Plan are in harmony with the views thus expressed by Mr. Tuttle, but we have limited our suggestions for arcaded sidewalks to the areas of greatest intensity of pedestrian traffic and therefore of greatest need.

We show on a sketch plan (Fig. 52) the system of elevated sidewalks to serve as pedestrian ways: in the district between 34th Street and 42nd Street, linking up the Grand Central and Pennsylvania terminals; around the Times Square theatre district, where the need is greatest of all; and connecting both districts with Columbus

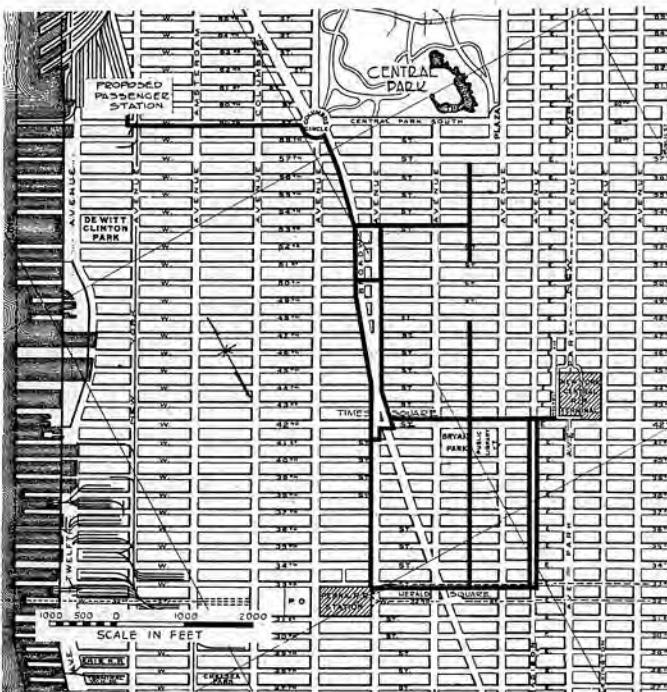


FIG. 52
MAP SHOWING PROPOSED SYSTEM OF ELEVATED PEDESTRIAN WAYS

Circle and, via 59th Street, with the proposed new railroad terminal on the Hudson River.

Studies of elevated and arcaded sidewalks were prepared by the architects' committee of which Mr. Harvey Wiley Corbett was chairman, and have been described in Chapter X.¹ Three of the drawings prepared by this committee are reproduced here-with and illustrate the ideal method of constructing those elevated sidewalks which would follow along the streets and avenues. They show them as second story arcades connected by bridges across the intersecting streets. The arcades running through the blocks might be carried across the intersecting streets by light bridges supported

¹ See pages 306-313.



THREE VIEWS SHOWING ARCHITECTURAL TREATMENT OF ELEVATED SIDEWALKS PROPOSED BY ADVISORY
COMMITTEE OF ARCHITECTS (HARVEY WILEY CORBETT, CHAIRMAN)

OPPORTUNITIES IN REBUILDING

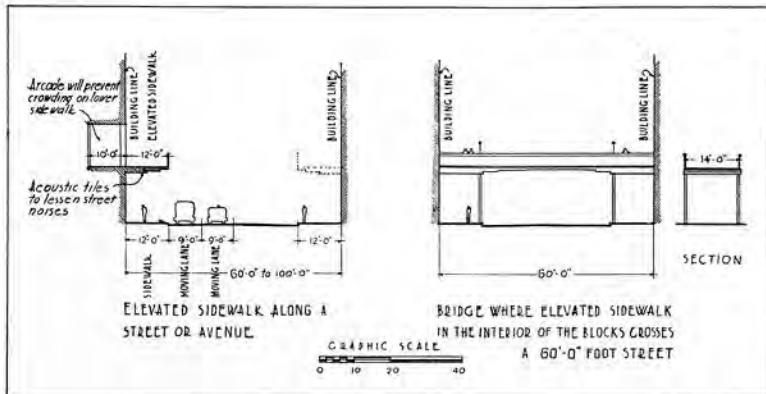


FIG. 53
SECTIONS SHOWING METHODS OF CONSTRUCTING ELEVATED SIDEWALKS

by columns on the outer edges of the sidewalks, as illustrated in Fig. 53. For both these types a width of 14 feet is proposed.

Where elevated sidewalks along the streets or avenues could not be incorporated in the design of the adjoining buildings, they would have to be constructed above the present sidewalks, somewhat similar to the first and second steps proposed by Mr. Corbett's committee.¹ In this case a width of 12 feet is proposed, as illustrated in

¹ See illustrations, pages 307 and 310.



Photo by Brown Bros.

TIMES SQUARE AS IT WOULD APPEAR WITH THE PROPOSED ELEVATED SIDEWALKS

IN DOWNTOWN AND MIDTOWN MANHATTAN

Fig. 53; this might be supplemented, where feasible, by an additional width of 10 feet as an arcade within the building.

One of the main centers of the proposed system of elevated sidewalks would be at Times Square. Due to the costly existing improvements in this section the walks would probably have to be located outside the buildings; also, because of the extreme pedestrian congestion, they should be wider than the 14 foot standard referred to above. The picture on the preceding page shows how a portion of this area would appear after our proposal was carried out.



THE STORE, OFFICE, AND THEATRE GROUP KNOWN
AS "RADIO CITY" NOW UNDER CONSTRUCTION IN
MIDTOWN MANHATTAN

OPPORTUNITIES IN REBUILDING

Summary of Proposed Improvements

We have described briefly some of the more important proposals. The following list includes these as well as a number of others which are delineated on the general plan of Manhattan (Fig. 46, page 383).

LIST OF PROPOSALS ON PLAN OF MIDTOWN AND LOWER MANHATTAN¹

Project number	Name of project	Beginning	Continuing	Ending
1	Battery Park Extension			
2	Civic Center improvements			
3	Pearl Street widening	Coenties Slip	Northeast	Brooklyn Bridge
4	Frankfort Street widening	Pearl Street	Northwest	Gold Street
5	Recreation pier and center	James Street	Inland to Cherry Street	Catherine Street
6	Civic Center approach	Broadway	North	Sixth Avenue Extension
7	Centre Street widening	Municipal Building	Northeast	Broome Street
8	Elevated roadways on Canal Street	Greenwich Street	Southeast	Upper levels of Manhattan Bridge
9	Additional upper level roadway, Manhattan Bridge ²	Bowery	Across East River	Brooklyn Plaza of Manhattan Bridge
10	Laight Street widening	Varick Street	West	West Street
11	Corlears Hook Park Extension	Rutgers Street	Along East River	East Fourth Street
12	New boulevard	East River at Gouverneur Street	Pitt Street and Avenue C	East River
13	New boulevard	East River	Rutgers Street	East Broadway
14	Pike Street widening	East River	North	Division Street
15	Allen Street widening ³	Division Street	Northeast	Schiff Parkway
16	Essex Street widening	East Broadway	Northeast	East Houston Street
17	Chrystie - Forsyth Street parkway	Manhattan Bridge Plaza	Northeast	East Houston Street
18	Second Avenue express roadway	Houston Street, connecting with Chrystie-Forsyth Street parkway, and continuing on lower level	Northeast	Harlem River Boulevard
19	Civic Center - East River boulevard	Municipal Building	East Broadway and Division Street, Grand Street	East River
20	Houston Street widening	East River	West	Sixth Avenue Extension
21	Kenmare Street widening	Bowery	West	Lafayette Street
22	Greene Street widening	Canal Street	Northeast	West Houston Street
23	Bleecker Street widening and extension	Eighth Avenue	South	West Houston Street at Sullivan Street
24	East River tunnel	Metropolitan Avenue, Brooklyn	Under East River	East Houston Street, Manhattan
25	14th Street overpass	Fourth Avenue	Over 14th Street by viaduct	Union Square
26	38th Street Tunnel	Long Island City	Under East River and 38th Street	Tenth Avenue
27	Upper level roadway along East River	East 33rd Street	Waterfront	East 51st Street
28	Upper level roadway	East 64th Street	Waterfront	East 82nd Street
29	Upper level roadway on the Queensboro Bridge ⁴	Two outlets in Queens	Over bridge	Outlet on East 57th Street and one on East 62nd Street
30	Plaza extension, Queensboro Bridge	Second Avenue	Between 59th and 60th streets	Third Avenue

¹ Inner Brooklyn proposals are also shown on the plan. (See Chapter XIV)

² Completed in June, 1931.

³ Project approved and demolition started in August, 1931.

⁴ Opened in June, 1931, including only the 57th Street connection in Manhattan.

IN DOWNTOWN AND MIDTOWN MANHATTAN

LIST OF PROPOSALS ON PLAN OF MIDTOWN AND LOWER MANHATTAN¹—Continued

Project number	Name of project	Beginning	Continuing	Ending
31	Elevated sidewalks	Madison Avenue Grand Central Station Midway between Fifth and Sixth avenues Columbus Circle	South side 33rd Street North side 42nd Street North side 53rd Street	Pennsylvania Station Broadway Broadway
		Columbus Circle	South side 59th Street	Eleventh Avenue and proposed passenger station Pennsylvania Station
		53rd Street	West side Broadway and west side Seventh Avenue	42nd Street
		33rd Street	East side Seventh Avenue and east side Broadway	48th Street
		51st Street	Midway between Fifth and Sixth avenues	57th Street
		33rd Street	Midway between Fifth and Sixth avenues Both sides of Madison Avenue	42nd Street
32	New street	West 34th Street	200 feet west of Tenth Avenue	West 50th Street
33	New street	Tenth Avenue at West 48th Street	Diagonal northerly	Eleventh Avenue at 59th Street
34	West Side Express Highway ²	Canal Street	Marginal way	West 72nd Street
35	Hudson River tunnel	38th Street Tunnel	Under river	New Jersey
36	New street system over railroad yards	West 59th Street		West 72nd Street
37	Riverside Park extension	Opposite 60th Street	Along Hudson River front	West 129th Street
38	72nd Street overpass	Broadway at 70th Street	Over 72nd Street by viaduct	Broadway at 74th Street
39	82nd Street East River tunnel	Broadway, Astoria	Under river and 82nd Street	Avenue A
40	New long piers on the West Side ³	42nd Street	Along Hudson River	57th Street

¹Inner Brooklyn proposals are also shown on the plan. (See Chapter XIV)

²Partly completed, 1930; further construction, 1931.

³An official New York City project; ground broken June, 1931.

Proposals for widening Central Park West and Fifth Avenue above 59th Street, and transverse roads across Central Park, are referred to in the next chapter.

A word may be added as to the great importance of all projects being planned in detail by skilled architects in cooperation with engineers. This applies in particular to the structures that are mainly of an engineering character and to the re-designing of small parks. Practically all of the small parks in the city need to be studied and re-planned to suit modern conditions.

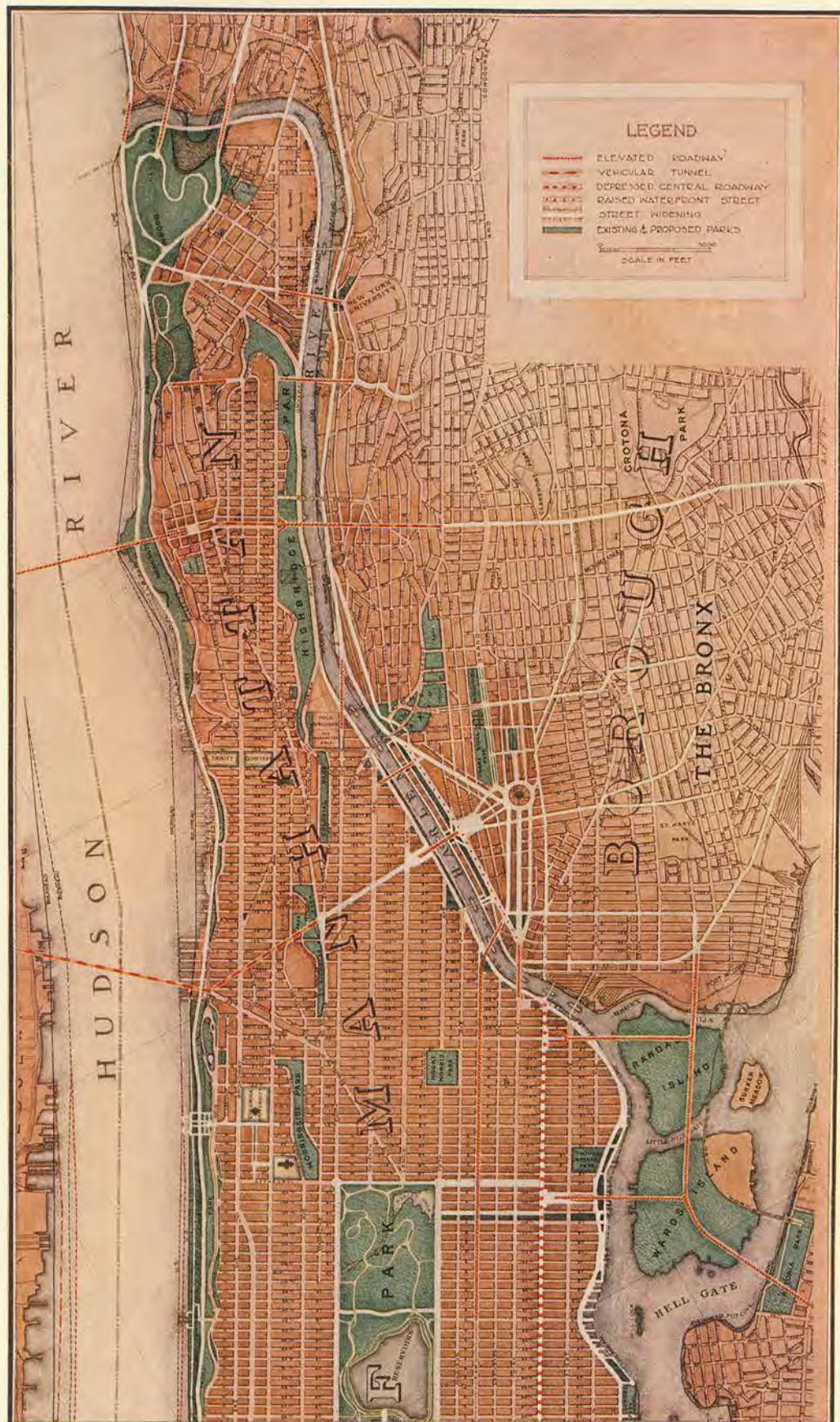


FIG. 54
GENERAL PLAN SHOWING PROPOSALS FOR MANHATTAN NORTH OF 86TH STREET, INCLUDING
THE LOWER BRONX



Francis S. Swales, Architect

ELEVATION OF THE PLAN FOR THE BRONX SIDE OF THE HARLEM RIVER, FEATURING THE PROJECTED MOTT HAVEN RAILROAD TERMINAL

XIII. IN UPPER MANHATTAN AND THE BRONX *Central Park*

IN passing from the consideration of opportunities in lower and midtown Manhattan to those in upper Manhattan and The Bronx, we are driven, for a number of reasons, to give first attention to park problems and particularly to the problem of Central Park. One reason is that Central Park extends for over a third of its area into the part of Manhattan discussed in the previous chapter, and therefore it is appropriate to deal with it between the waterfront and street proposals for the two sections of the island. Riverside Park and the East River Islands (which we propose should be largely converted for park uses) also extend into both sections.

The absence of any reasonable extent of park area below 59th Street means that the parks to the north of that street are, in a special degree, the pleasure and recreation resorts of the inhabitants of lower as well as of midtown Manhattan. The continued need and difficulty of extending park areas in Manhattan is the most important park problem in the City of New York.

Central Park is more necessary to preserve and extend and more in danger of injury and contraction than any city park in the Region. Its problems are the problems of every city park, but in an intensified degree. The value of the park for quiet enjoyment of natural beauty and for those forms of recreation that do not involve destruction of natural beauty has been referred to in the report on Public Recreation.¹

¹ Regional Survey, Volume V.

OPPORTUNITIES IN REBUILDING

SOME HISTORY

Central Park has gone through many vicissitudes and changes of surroundings since the days in 1857 when it was said that the sites around it were most in demand for "lager bier dealers and the keepers of corner grogeries,"¹ and the fear was expressed that the greatest of all the blunders made in civic improvement was the making of the park. Still earlier, in 1854, we find records of a petition² presented to the common council of the city by a large number of taxpayers from which we cull the following:

"The petitioners concede the future greatness of the city, but that every part of the island not otherwise appropriated will at no distant day be needed and used for the commerce upon which alone such future greatness depends; that in view of the contracted width of the island and restricted territory of area, *as compared with the extended waterfront*, to take up so much ground from business purposes would necessarily trench in an equal, if not greater, proportion, upon the necessities of trade and commerce, and thus prevent that anticipated greatness, *and the growth of the city will come to a stand.*"

"In regard to the wants of our fellow citizens, whether in the present or future, it was argued that such a park was not needed, or desired, for their health, comfort, or pleasure; that from the form and situation of the island, nature had done far more in that respect than nature and art combined had, or could, accomplish in any of the cities to which reference had been made; *that our rivers and the inviting opposite shores are easily and cheaply reached where nature may be seen, studied and enjoyed in its proper garb, for places for recreation far more attractive than any such park would do. . . .*

"The attractions of the park were altogether ideal, such as never had been realized in any country and never could be, unless in those where the toil and lives of the many are sacrificed to the luxuries and indulgences of the few; *and that the drives spoken of (if possible to be realized) would be of no moment, in comparison of the cost thereof, to the masses who could never participate in that enjoyment*, for these and very like reasons the petitioners urged that so large a park should not be had."

We have made this quotation not solely because of its historic interest in connection with Central Park, but also because it reveals how easy it is for apparently responsible citizens to mislead themselves in taking a view of the future without the exercise of imagination and painstaking study of all the implications of the problem they are considering.

In one of the sentences we have put in italics it is observed that when an inland park was proposed it was objected to because there existed too much waterfront in proportion to upland. During the same period, proposals for waterfront parks were objected to on the ground that there was too little waterfront. We still suffer from similar contradictions in the points of view of objectors to public improvements.

The point raised by the commissioners in 1811 as to the value of the open rivers for fresh air, open views and recreation, is again raised. Hardly any of this value remains below 59th Street. The reference to the drives through Central Park being of no moment is also a significant indication of the value of such forecasts.

¹ *New York Herald*, September 6, 1857.

² Petition accompanying report of the Minority of Committee on Lands and Places, March 27, 1854.

IN UPPER MANHATTAN AND THE BRONX

It is worth while to recall some of the history of the fight that has since had to be made to preserve the park, and some of the proposals that have been put forward for its improvement from time to time. In doing so we have no intention to lead up to the presentation of any plan for remodeling the park. Many suggestions have been made for bringing it up to date in design. We recall the irony of Mr. R. N. Titherington's lines in *Life* for July 28, 1910: "It's time," said Mr. Hustler, "to remodel Central Park; at present it's as out-of-date as Noah and his ark."

The trouble with a great deal of the proposed remodeling is that the motive behind it is some selfish commercial interest, even when that interest parades in the shape of a public authority wanting to save money in acquiring a site for an art center. There is still need to use vigilance against such depredations as were threatened before 1873. Then the Board of Commissioners of the park reported:¹

"Having become the resort of large assemblages of people, the park is considered too advantageous a field for advertising to be neglected by those who would force their wants or wares upon the public attention at every turn. The regulations on this subject have been enforced thoroughly, and these practices are thus far kept in abeyance. If all the applications for the erection and maintenances of towers, houses, drinking fountains, telescopes, mineral water fountains, cottages, Aeolian harps, gymnasiums, observatories, weighing scales, for the sale of eatables, velocipedes, perambulators, Indian work, tobacco, segars, for the privilege of using steam engines, snow-shoes, ice-boats, and for the use of the ice for fancy dress carnivals, were granted, they would occupy a large portion of the surface of the park, establish a very extensive and very various business, and give to it the appearance of the grounds of a country fair, or of a militia training field."

But the great modern need is to prevent the further destruction of the park and of its usefulness by fast vehicular traffic. It is primarily to this aspect of the problem that we will presently address ourselves. That it is not a new problem is shown by the following passage quoted in Volume II of the Olmsted Papers, from the original Olmsted and Vaux (Greensward) report:

"By far the most extensive and important of the constructed accommodations of the Central Park are those for convenience of locomotion. How to obtain simply the required amount of room for this purpose, without making this class of its constructions everywhere disagreeably conspicuous, harshly disruptive of all relations of composition between natural landscape elements on their opposite borders, and without the absolute destruction of many valuable topographical features, was the most difficult problem of the design."

Several serious attacks have been made on the park to aid traffic. At first these were not more successful than those to erect buildings and billboards. In 1888 a bill was brought before a legislative committee to construct a road 100 feet wide on the west side of the park for the purpose of a speedway.² Owing to much opposition nothing was done until 1892. On March 17, 1892, a bill was passed by the legislature, signed by the governor and approved by the mayor, to construct a road

¹ SEVENTH ANNUAL REPORT, Board of Commissioners of Central Park, 1873, pages 34-35.

² Article by Robert Wheelwright, *Landscape Architecture*, October, 1910.

OPPORTUNITIES IN REBUILDING

70 feet wide on the west side. The opposition of the newspapers led to the rescinding of the action and the act was finally repealed. This was before the arrival of the motor car. After that the danger of converting the park drives into speedways became ominous. A plan was proposed in 1904 to extend Sixth and Seventh avenues through the park with buildings in the park area between Fifth and Sixth avenues and Seventh and Eighth avenues and to clear all buildings south and north of the park between Sixth and Seventh avenues. This failed of realization, but in 1926 the city constructed an extension of Sixth Avenue into the park for through traffic.

FUNCTIONS OF THE PARK

When in 1924 proposals were made to erect a group of buildings in Central Park to form a Center of Arts and Letters, the question of whether this was a proper use of the park was investigated by the Regional Plan staff. A careful study of the history and functions of the park showed that any new development of such a character was inconsistent with the purpose for which the park existed and would be contrary to public welfare.

At that time the Regional Plan Committee sought the advice of Mr. Frederick Law Olmsted, Jr. In a brief report Mr. Olmsted referred to the purpose for which the park was designed. He recalled a statement of his father, which read:¹

"Its one comprehensive purpose is that of providing such small measure as is practicable so near at hand of natural, verdant and sylvan scenery for the refreshment of town-strained men, women and children, especially in those conditions of life that preclude resort to scenery of absolutely unsophisticated nature."

Mr. Olmsted then said:

"The function thus briefly indicated becomes upon the whole even more important as the city grows larger and more congested, at the same time it becomes more difficult to perform adequately.

"Few can be found who will deny that it is now, and is likely to remain, of very real importance that this function should be reasonably well performed. It is true that the immediate effect of each notable increase in radial transportation facilities is to make the unurbanized country or distant outlying parks relatively more accessible to city people, and thereby temporarily to make the function of a park like Central Park less important than it was just before the improvement in transportation; but the permanent tendency of each such advance in transportation facilities is to stimulate the expansion and in some respects the intensification of the urban conditions to which that park function is an antidote or palliative."

The following observation of Mr. Olmsted is of special interest because of the fact that the chief proposals of the Regional Plan for acquiring new park areas relate to waterfront lands.

"I believe that, as a matter of city planning, the selection of the site of Central Park was a mistake and that the original project of a great park on the East River front above 59th Street, supplemented by

¹ From a letter to Mr. Vaux, November 4, 1883.

IN UPPER MANHATTAN AND THE BRONX

a great park on the upper Hudson River heights, of which Riverside Park and Riverside Drive are the insufficient representatives, would have been a far better plan.

"So far as the shift to the Central Park site was determined by reasons based on public welfare and not by the jockeying of political and real estate schemers, those reasons appear to have attached far too great a weight to the possible value of the commercial use of the particular waterfronts with which the park would have interfered, and far too little weight to the mutual interference between a large park in the central location and the demands of internal transportation through the center of the island, both longitudinal and transverse."

The following quotation from a report of a special committee of the Board of Aldermen of New York City, dated January 2, 1852, is of interest in view of Mr. Olmsted's comment:

"It must be noted, as an objection to making Jones' Park,¹ that half a mile of valuable riverfront will thereby be forever abstracted from commercial uses. The rapid growth of this city, and its commercial character being its distinctive feature, it would seem to forbid the diminution of the riverfront, which will eventually, and probably very soon, be in demand along this part of the city."

It is noteworthy that eighty years after the above report was made a large part of the front of the East River is occupied by poor and partly derelict property. Had it been preserved as a park, the frontages overlooking the park and the river would have been immensely more valuable than they now are.

Mr. Olmsted concluded by stating that no dependable advice on specific matters could be given without careful study, and depended on the best method of adjustment in detail between what was, on the one hand, essential or important to enable the park in its present situation to perform its justifying function, and what was essential or important to the performance of such a vital function as the flow of the city's traffic.

In order to obtain some guidance on these related problems the Regional Plan staff made a study of traffic conditions within and surrounding the park in 1924-1925. When these studies were completed, they were submitted to Mr. Olmsted, who then presented a report, which we submit practically in full:

THE TRAFFIC PROBLEM—REPORT BY FREDERICK LAW OLMS TED, JR.

Street Traffic as Affected by Central Park:

The effect of the park on the street traffic system is mainly two-fold: On the one hand, its interruption of the longitudinal system of avenues and the transverse system of streets, which together constitute the traffic mesh of Manhattan, not only blocks the direct continuity of many of them so as to increase lengths of travel between points separated from each other by the locality of the park but also it materially reduces the number and the total capacity of the traffic routes connecting such points. On the other hand, by excluding from a large central area the ordinary uses of city land, it wholly eliminates the traffic which would otherwise be brought into existence by approximately 257,500 front feet of building lots and substitutes certain other very much less prolific sources of traffic.

¹ This tract extended along the shore of the East River from 64th Street to 75th Street, and comprised about 160 acres.

OPPORTUNITIES IN REBUILDING

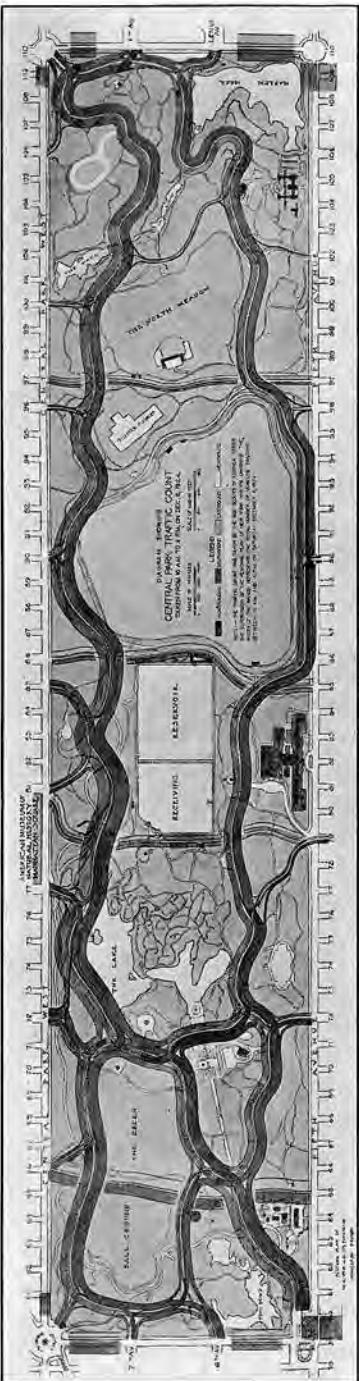


FIG. 55
DIAGRAM SHOWING CENTRAL
PARK TRAFFIC COUNT OF DECEMBER 6, 1924

While none of the propositions occasionally put forward for cutting new streets through Central Park have ever found much support in public opinion, it is worth while in this report to give some fairly definite measure of the price which Central Park costs in terms of added length of haul between points which it separates. If all the numbered streets between 59th and 110th streets were carried straight through Central Park, the average distance of travel between all points within half a mile east of the park and all points within half a mile west of it would be approximately 2.3 miles. The average distance of travel between all these points today by the use of the transverse traffic roads only (disregarding the diagonal short cuts by way of the park drives which are open only to passenger vehicles) is approximately 128 feet longer, an average difference of about 1.05 per cent. If Sixth and Seventh avenues were carried straight through the park, the average street distance between all points within half a mile south of the park and half a mile north of the park would be about 3.22 miles. The average street distance between all these points today, by going around the park (disregarding the use of the park drives by passenger vehicles), is about 0.133 mile longer, a difference of about 4.15 per cent. It is fairly obvious that these added lengths of street travel are in fact trifling in relation to the values desired and desirable from the park as a park free from the turmoil of general street traffic.

The question of reduced traffic capacity may be a more serious one.

As regards east and west traffic, the best evidence that a serious condition is not yet approaching lies in the fact that none of the transverse traffic roads is yet carrying nearly its full capacity of traffic.¹ Moreover, it would not be a very difficult matter to increase the capacity of these transverse roads by widening.

As regards the north and south traffic, all the through traffic of Seventh Avenue and of Sixth and Lenox avenues, except so far as passenger traffic uses the park drives for through movement, must be loaded on to Fifth Avenue and Central Park West, with some overflow into the avenues east and west of them.

Looking at the question with a view to framing a practical, flexible and economical program, looking toward a fairly well balanced series of north-south traffic routes, my own conclusions are as follows:

(1) Some increased traffic capacity will certainly be needed in Central Park West and in Fifth Avenue between 59th Street and 110th Street, together with suitable facilities for distribution of that traffic between the more numerous avenues north and south of the park.

¹ A report to this effect was made by Mr. Harold M. Lewis following the Central Park traffic count made on December 6, 1924.

IN UPPER MANHATTAN AND THE BRONX

(2) The traffic capacity of Fifth Avenue opposite the park can readily be increased by a series of steps as follows:

- (a) One additional lane can be provided on the east side by setting back the curb as has already been done south of 58th Street.
- (b) One more additional lane for through traffic can be provided on the west side, where there is no private frontage, by prohibiting parking on that side and providing loading stations back of the curb line for the southbound buses, without changing the west curb line or destroying the trees of the Mall. These two changes alone would nearly double the present capacity of this part of the avenue for through traffic.
- (c) Subsequently, if and when it is proved to be expedient, additional traffic capacity of two lanes could be obtained by curtailing the sidewalk on the park side and removing one of the two lines of trees.

(3) The traffic capacity of Central Park West can and should be increased, somewhat as has been proposed in connection with the west side subway construction, by the removal of the surface car tracks and again making it a two-way street. The precise cross section which would be most expedient, considering traffic needs and the appearance of the completed improvement, deserves more careful and detailed study than has yet been given to it, and should be correlated in detail with the subway construction plans before the latter are finally crystallized; the questionable points being distance between curbs and the location of permanent trees in relation to the curbs and to the underground construction.¹ The existing trees are in large measure rather stunted in growth and in rather poor condition, and their vitality will almost certainly be further impaired by the drying out and other changes resulting from subway construction.

(4) Improved connections should be planned from Seventh, Sixth and Lenox avenues around the park via Fifth Avenue and Central Park West. The actual traffic capacity of 59th and 110th streets opposite the park does not appear to be overtaxed or in any imminent danger of becoming overtaxed. If a river-to-river thoroughfare of great importance, or even an important thoroughfare from the Queensboro Bridge to Columbus Circle, were to be put through, this condition of 59th Street might be altered, and in that case its widening at the expense of the park might be justified. But apart from that contingency, the limitation on the maximum flow of traffic around the ends of the park is not so much the capacity of 59th Street as the bad traffic knot in the vicinity of 59th Street Plaza, and to a less degree that at Columbus Circle.

Unless and until a solution for the Plaza problem is found which will give materially greater traffic capacity without paying a prohibitive price in construction costs, in property damages, or in defacement of one of the city's most notable centers of interest, it would seem unbalanced planning to think seriously of further increasing the capacity of the wide portion of 59th Street.

Central Park as Affected by Traffic Conditions:

Immense as are the values annually derived by the people of the city from their enjoyment of Central Park, these values are much less today than would reasonably have been expected by the creators of the park, considering the present population of Manhattan. The main causes for this are three, of which one directly depends on traffic conditions.

The other two, while not directly part of the main subject of this report, deserve discussion, because what we have to consider are the park values as a whole, both actual and potential, in their relation to traffic conditions.

¹ In constructing the Eighth Avenue Subway the roadway in Central Park West was widened from 48 to 63 feet, leaving a 20 foot sidewalk on the east side and a 17 foot sidewalk on the west side; the location of the trolley tracks was not changed.

OPPORTUNITIES IN REBUILDING

The roads in Central Park are at times used by so many vehicles moving at such speed as to interfere seriously with the enjoyment and the safety of the great numbers of people who resort to the park on foot and in some degree of those in vehicles whose main purpose is to enjoy the park. A large part of this vehicular traffic is not essentially park traffic but general street traffic overflowing into the park, and for the greatest usefulness of the park this kind of traffic ought as far as practicable to be diverted.

An exact analysis of this general traffic use of the park drives is not possible with the data at hand; nor could such an analysis ever be precise.

A general indication of the nature of the traffic, however, can be drawn from rough estimates.

Longitudinal through traffic constitutes about a quarter of the traffic in the southerly part of the park, but rather less than that proportion in the latitude of 75th Street where the West Drive carries a larger volume than is found on one road at any other point. The majority of the traffic, therefore, as on most city streets, is "in-and-out" traffic, traversing less than the whole length of the park on any one direct route. Much of it appears to be engaged in making diagonal crossings.

More adequate facilities should be provided for routing through traffic around the park, as outlined in the first part of this report; and second, measures should be taken to discourage the use of park drives by vehicles not primarily or almost exclusively in search of enjoyment of the park as such, and to minimize the interference of all vehicular traffic in the park with pedestrians.

In the nature of the case these measures must be somewhat experimental and flexible. If the designers of the park had been confronted by the external conditions of today, they would presumably have arranged the roadways (other than the sunken transverse traffic roads) so as to afford even less convenient routes for vehicular short cutting through the park than they did, with fewer vehicular entrances than they did (instead of more, such having since been introduced by yielding to local demands). But the existing roads for the most part were so intricately woven into the fabric of the park landscapes that radical changes in them would now be an extremely delicate and difficult operation in what might be called aesthetic surgery. Presumably also, if confronted by the modern problem of automobile traffic, the designers would have introduced more liberally a device which they did introduce more largely than has been done in any other public park, namely, that of carrying important foot paths across the drives below grade with the least possible sense of interruption in the pleasant continuity of the landscape enjoyed from the paths. In a few important cases this device could even now be employed to advantage by the exercise of sufficient skill in design and execution.

But in general the problem can best be met by the one single expedient, simple in its nature and involving no costly and difficult changes, but certainly requiring much boldness, persistency, and firmness of administrative management and an increase in operating personnel—namely, the establishment and rigid enforcement of an abnormally low speed limit, and the systematic use of a police controlled block system at all important footway grade crossings. A very marked reduction in the speed of vehicular movement within the park, provided adequate street traffic capacity around it is first made available, would in itself automatically exclude from the park drives most of the vehicles whose main object is to get rapidly from one point outside the park to another, and would add to the safety, comfort and enjoyment of pedestrians. Even for those seeking enjoyment of the park in vehicles, while it might at first cause some irritation, it would upon the whole provide them with conditions actually more favorable for the kinds of enjoyment that justify the existence and maintenance of the park than are possible when one is hurried along at the rapid pace normal to modern vehicular highways.

The most advisable speed limit under such conditions is hard to determine in advance, but it is clear that a moderate reduction should first be put into effect, and *absolutely and consistently enforced and firmly established*; after which one or more further definite reductions could be undertaken and con-

IN UPPER MANHATTAN AND THE BRONX



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VIEW OF CENTRAL PARK SHOWING MASSIVE IRREGULARITY OF THE SKYLINE TO THE SOUTH

sistently adhered to for long enough periods to determine experimentally the limit most advantageous for all who want to use the park, both afoot and awheel, for proper park purposes.

It may be said with some force that to make the main reliance a matter of persistency in the maintenance and enforcement of administrative regulations is to lean upon a reed that has often broken in the past, and that structural changes less easily abandoned at the whim of a new administrator would be a less uncertain reliance. But in my opinion this objection is outweighed by two facts. First, it is difficult to conceive of any such magical structural change in the park as would in itself accomplish the objects in view without seriously impairing the park in other respects. Second, the very nature of the park and its purposes are such as to make it always and inevitably dependent for continued success on good administrative management. It absolutely cannot be made structurally fool-proof or unsusceptible to political weakness. It has been in the past, and will be in the future, open to deterioration through injudicious or insufficient administrative activity far more seriously in other respects than in respect to the control of vehicular traffic.

OPPORTUNITIES IN REBUILDING

Preservation of a Naturalistic Treatment:

This is very clearly illustrated by the discussion, below, of the second of the two other influences which, with traffic changes, have so largely impaired the public value of the park.

One of these two important depreciating influences, purely aesthetic in its action and wholly unforeseen by the designers of the park, is the development of an extraordinarily conspicuous and extraordinarily irregular skyline of lofty buildings around the park, especially in its southerly portion but steadily expanding northward. This result is due, of course, to the modern development of elevators and steel frame construction in the absence of such legal restrictions as have checked the irregularity and extent of skyline changes in most European cities.

One of the basic elements in the design of the park was to establish landscape conditions—not of a sort which were expected to deceive people into the belief that they were in the open country miles away from the city, any more than an opera is expected to deceive people into thinking they have been transported to the place where the scene is laid—but of a sort that would enable them, with a little imagination, to enjoy many of the refreshing sensations and emotions otherwise derivable only from pleasant, harmonious, and rather spacious natural landscapes in the country, markedly in contrast with urban conditions.

The effect of the high and irregular building skyline around the park has been greatly to reduce the apparent scale and spaciousness of the broader landscapes in the park across which the buildings are most conspicuously seen; frequently to force upon the attention, in a strident and distracting way, urban sights and urban thoughts which are inharmonious with the other qualities of the park scenes and which otherwise—though not absent—would be subordinated and uncompetitive; and finally, perhaps most serious of all, to present to the eye accidental compositions which, in many cases, are not only thus conspicuous and arresting, and inharmoniously foreign to the qualities of landscape which the park was designed to present, but are also inherently ugly, restless, and distressing except when seen under exceptionally favorable, softening conditions of light and atmosphere.

I find, for example, that where large areas of the façades of the surrounding buildings are seen from the park in positions where some nearby over-arching foliage masks the undesigned contortions of their combined silhouette, and the accentuation of its unhappy form by the sharp contrast of tone between the buildings and the sky, the mere fact of seeing these great urban façades as a near background of the park scenery does not take off from one's enjoyment of its quasi-rural beauty in any degree remotely approaching the unpleasant effect of seeing the unmasked disorder of the skyline of buildings. With rare exceptions, where a few buildings happen to form a composition pleasing in itself, and again in certain distant views lengthwise of the park when seen under favorable conditions of light, the present combinations of building skylines around Central Park as seen from within it are singularly lacking in the impressive qualities of the lower Manhattan skyline as seen from the water. They are just disorderly and aggressive.

The reason for discussing this point at such length is that a few people of some repute in matters of art have argued that whatever excuse there once may have been for designing the landscape of Central Park in a "naturalistic" manner—making the most of those qualities which are suggestive of natural rural scenery and subordinating those qualities that emphasize the element of deliberate human artifice—changed conditions have now made that conception wholly inappropriate, and as they believe patently puerile in its non-success. They think the park ought to be taken boldly in hand (preferably by someone who shares their consistent contempt for naturalistic landscape design under any conditions); that a fresh start should be made as though it were merely so much vacant land; and that it should be made over into a place of orderly, architectural, frankly urban magnificence, in the general key of the Tuileries Gardens or a diminished and circumscribed Versailles.

IN UPPER MANHATTAN AND THE BRONX

It is not to be denied that Central Park has fallen sadly from that degree of success in its own "naturalistic" manner at which its designers aimed, and which for years it attained. As already noted, its engirdling by conspicuous tall buildings has had a part in that falling off, although the other depreciating influence which will be referred to presently is much more important; but these critics—who are consistently prejudiced protagonists of another genre in landscape art—have failed to realize that the conspicuousness combined with the unhappily ill-composed, distressing irregularity of the silhouette of competitive buildings around the park is even more painfully out of key with the vast orderly perfection of regularity, symmetry, and architectural repose which is the delight of a place like Versailles than it is with the somewhat flexible and adaptable picturesqueness of the "naturalistic" landscapes into which the designers of Central Park shaped its insuperably irregular natural topography.

It is not beyond hope that the time will come, as more of these individually interesting and interestingly individualistic tall buildings are erected around Central Park, each designer trying out for himself new and ingenious methods of "stepping" and "pyramiding" in adaptation to the widely flexible "bulk limitations" of the zoning ordinance—the time may come when some sort of colossal harmony of skyline composition around Central Park will replace the present confusion and ugliness, just as unpremeditated harmony has arisen in the towered skyline of lower Manhattan. But if and when it comes nothing is more certain than that it will be a harmony of the picturesque and unpremeditated type which in a different way characterizes a "natural" landscape resulting from the play of innumerable activities, human and otherwise, operating under complex universal laws; and not the simple geometrical orderliness of a one man architectural composition.

Administrative Problems:

The other and more important of the main depreciating influences that have impaired the public value of Central Park is the abandonment, which began in the eighteen-seventies and has been carried to an extreme in recent decades, of a principle of operating management recognized by the designers of Central Park to be absolutely vital not only to its large and continued success as a work of art, but to its social usefulness as an instrument of public service in a democracy. The mechanism for putting this principle into effect was laboriously built up during all the earlier years of the park's history. It was more or less wrecked (through light-hearted indifference and an absorption of the management in matters of mere personal concern to them) during the Tweed Ring régime. It was laboriously rebuilt and largely reestablished, under difficulties, during the middle seventies. Then dry-rot set in; and except for occasional spasms of activity the principle has long come to be almost completely ignored.

In the custody of a valuable public work of art, especially a work of art that is delicate, fragile, easily destroyed or damaged if treated thoughtlessly or wantonly, a prime duty of the custodians to whom that work is entrusted on behalf of the public, often their most difficult and costly duty and the one requiring more of painstaking skill and ingenuity and resourcefulness than any other, is so to manage the public in its contact with that work of art, first, that the public shall be able to enjoy it in as full a measure as is consistent with protecting it from serious risk of destruction or defacement, and second, that in the process the individuals composing the public shall be constantly undergoing education, by an appropriate use in each case of informative, suggestive, and disciplinary measures. The purpose of that education, over and above the immediate effect of the measures in securing protection of the work of art, so that subsequent publics may continue to enjoy it, is to increase each individual's appreciative enjoyment of that work of art and respect for it, and that self-discipline which enables people to enjoy without damaging a beautiful and easily destructible thing intended for the common enjoyment of all, which gives them pride in its perfection and leads them measurably toward appreciating and protecting all things of fine and worthy quality.

OPPORTUNITIES IN REBUILDING

Just in so far as, through lack of interest or effort or skill on the part of the custodians, or through force of other circumstances, any appreciable portion of the public is permitted to fall into thoughtless or wanton destructive habits in relation to a work of art like Central Park without conspicuous evidence that the authorities regard such impairments of its perfection as serious matters and are doing their level best to prevent them and to repair them when they occur; just in so far as there is apparent an attitude of indifference to and tolerance of such thoughtless and wanton doings and their results on the park; to that extent the park is not only on the road to progressively rapid physical and artistic deterioration, as has become painfully evident of late, but what is perhaps even more fundamentally serious it becomes a potent miseducator of the people in anti-social habits.

Every breaking of a shrub, every trampling of a surface not meant for trampling, if acquiesced in, has a triple effect: it takes its little toll from the beauty of the park; it generally makes the physical conditions just a trifle worse for the remaining vegetation; and, more than all, it invites more and bolder lawlessness.

The principal reason why Central Park is less attractive, less valuable, than in years gone by is simply that it is showing more and more conspicuously the slowly cumulative and absolutely inevitable effects of a gradual change of administrative method and attitude, dating back more than a generation and merely inherited with the already much depreciated park by recent administrations. There is no cure except by a radical reversal of long intrenched methods and attitudes in the relation of the Park Department to the combined subject of park maintenance and repair and of the control, education and discipline of the users of the park.

To get satisfactory results, even very slowly, now that physical conditions and public habits in using and abusing the park have drifted so far to the bad, presents a far more difficult problem in administration than the sufficiently difficult one that was successfully met in the earlier years of the park, when a new treasure, visibly improving from year to year, was offered to a public which had yet formed no habits in relation to it, while at the same time unremitting effort was made to educate that public in habits of using it most effectively and least destructively. Unless this problem of public education and discipline is manfully and systematically faced conjointly with the repair and restoration of depreciated elements of the park, any general improvement is impossible, and progressively rapid deterioration inevitable.

We have presented this report of Mr. Olmsted because we believe it is logically sound as a "code of doctrine" which should guide all efforts to solve the problem of Central Park. Subsequent reports have been made by the Fifth Avenue Association and by Olmsted Brothers, entering into greater detail in regard to problems of restoration and administration, which, although somewhat outside the scope of the Regional Plan, are of vital importance.

PROPOSALS

Happily those of our proposals that affect Central Park, although mainly intended to solve the traffic problem, do not conflict with Mr. Olmsted's ideas and conclusions. We do not put forward any proposals for re-designing the park as a whole, but content ourselves with the above statement of underlying principles. We have collaborated, however, with members of the New York Chapter of the American Society of Landscape Architects in suggesting a design for the area formerly occupied by the lower reservoir (Fig. 56). We admit that it would have been

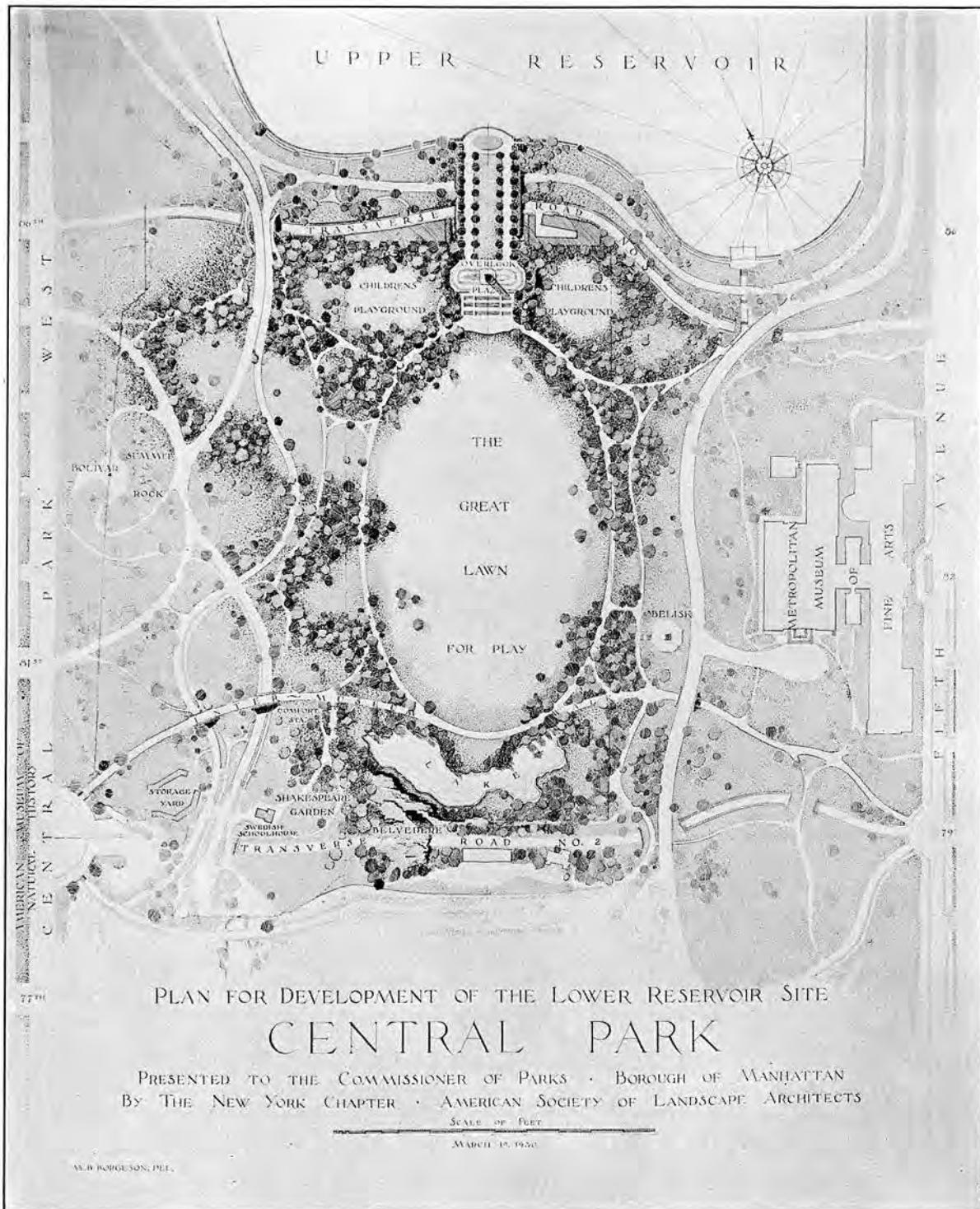


FIG. 56

OPPORTUNITIES IN REBUILDING

desirable for this design to have been prepared as part of a comprehensive study of the whole park, not with a view to remodeling its landscape features but to rearrange its surface drives and entrances so as to discourage through traffic, to widen its sunken transverse roads and to separate the grades of more pedestrian paths. We also believe that it should be practicable to maintain the spirit of the original design and provide a more appropriate promenade connection between the Metropolitan and Natural History museums and a fitting foreground within the park to the new Roosevelt Memorial, which promises to be one of the finest monumental buildings in the world.

Any park plan should include provision for suitable enlargement of the Metropolitan Museum so as to make it a finished building. It is less desirable that this



John Russell Pope, Architect

Courtesy of the American Museum of Natural History

THE ROOSEVELT MEMORIAL

Being erected as an extension of the American Museum of Natural History, opposite Central Park at West 79th Street.

public building should remain uncompleted than that a small part of the open space of the park be preserved from building. Mrs. Theodora Kimball Hubbard, who has compiled and edited the Olmsted papers, says that although a museum of art was not actually included in the original plan, yet a museum was in mind. A site for a future hall for concerts and exhibitions was called for by the commissioners in the competition program. In 1859 they indicated that institutions like museums could be fitly placed in the park. The site of the Metropolitan Museum was decided upon in 1872 and the selection of this site was the result of the development of uses over a period of fifteen years. To leave the museum with ragged edges as a half-finished structure is bad for the appearance of the park and the enjoyment of those who use it.

IN UPPER MANHATTAN AND THE BRONX

The Arsenal Building should be demolished and the zoo should be removed to a properly laid out animal park on Wards Island, as part of our plan for utilizing the East River Islands.¹ On Wards Island it will be accessible to both Manhattan and Queens after the completion of the Tri-borough Bridge and connections.

The park needs to be safeguarded from any increase in use for active recreation. More facilities in the form of grass meadows and shelters for mothers and small children can be included without damaging the beauty of the park; but organized athletics should be provided for in other places, for instance, on the East River Islands.

Before making suggestions for slight curtailment of the park areas for purposes of enlarging traffic space around the park, we draw attention to the fact that our proposals as a whole involve the great increase of park spaces both in lower and upper Manhattan. We believe that provision of more park space and more traffic space should go together, and the hope of getting the one depends on getting the other at the same time.

North and South Avenues.—The roadway of Fifth Avenue should be widened from 59th to 110th streets to the fullest extent that is practicable outside the existing wall of the park. For the greater part of this length the pavement could be increased in width to take three additional lanes of traffic. This would involve encroachment on the area now used as a promenade sidewalk, which should be compensated for by supplementary walks within the park carefully designed to fit into its general plan. Provision should be made for more pedestrian entrances to the park.

Central Park West is a one-way, northbound street with street car tracks near the park side. It should be altered to accommodate an additional lane of traffic by removing the trolley tracks, now that the new subway is completed, and adding five feet to the width of the pavement from the east sidewalk, leaving 15 feet outside the park wall. Provision for more pedestrian entrances and for a walk roughly paralleling the wall, inside the park, is especially desirable on the west side in any event. There are now only 14 pedestrian entrances in 51 blocks, from 520 to 1,500 feet apart. These should be increased in number and evenly distributed.

East and West Streets.—The four sunken transverse roads should be widened under skilful advice as to method and plan. No new transverse roads should be constructed. Any advantage to be gained to traffic by constructing additional roads through the park from east to west would be offset in substantial degree by adding to the crossings over Fifth Avenue and Central Park West.

The widening of 59th Street as a fine crosstown parkway will be ultimately desirable. There is no immediate need for making any extensive widening. Probably an additional nine feet added to the pavement, reducing the sidewalk on the park side to nine feet, would provide all the traffic space necessary for several years.

¹ See pages 437-441.

OPPORTUNITIES IN REBUILDING



THE TRI-BOROUGH BRIDGE, TO CONNECT Q
An additional connection from Wards Island, between 108th and 109th streets, Manhattan, is here
In the background, the existing Hell Gate Br

On the north side, 110th Street should be altered to permit a pavement of 68 foot width, or an increase of 23 feet, which, if taken from the sidewalk on the south side of the street would leave seven feet outside the park boundary. Supplementary walks should be made within the boundary.

Restriction of Use of Park.—The proposals we have made for curtailing the park should not be put into effect unless additional park area is substituted for that taken away and the use of the park drives is restricted to slow moving vehicles. We shall present proposals to accomplish the first. The methods of reducing the speed of traffic would have to combine the rearrangement of the park drives so as to make them more circuitous and the application of drastic rules for limiting speed such as are applied in great parks in Europe.

By-passing Central Avenues.—The widenings we have proposed are local measures of relief designed to enable traffic that must use the center of the island to by-pass

IN UPPER MANHATTAN AND THE BRONX



QUEENS WITH THE BRONX AND MANHATTAN

shown, together with the projected parkway connecting Central Park with the East River front.
edge of the New York Connecting Railroad.

the park. But much traffic that uses the central avenues can be deflected to the edges of the island. Our general proposals if carried out would lead to much by-passing of the middle of the island. East and west waterfront express roads and a sunken express road in Second Avenue will attract much traffic away from the interior avenues.

If and when the New York Central tracks are placed in a subway in Park Avenue above 96th Street, we propose that a raised road be constructed on the railroad viaduct at the same level as the tracks now are. This proposal is shown on the general plan (Fig. 54, page 418). A speedway, free of crossings on grade, from 96th Street to the Grand Concourse, would take an enormous amount of traffic away from Fifth, Sixth, Lenox and Seventh avenues and from the approaches to the park.

With regard to the loss of space as a result of what practically amounts to shaving off part of the park borders, it is suggested that this loss would be

OPPORTUNITIES IN REBUILDING

more than counterbalanced by the greater safety and comfort with which the park could be used, if proper control of park traffic were effected at the same time. But as Manhattan already has too little park space, we propose that, even were the widenings justified on the above grounds, more public space should be acquired. In our proposals for the midtown section we showed an appropriate location for a parkway development between Columbus Circle and the Hudson River. But the real opportunity for connecting Central Park with a riverfront exists on the East Side between 106th and 107th streets.

Proposed New Parks

EAST RIVER PARKWAY

It is a misfortune that no parkway was preserved between Central Park and the East River when the park area was acquired. Part of the land in the blocks between 100th and 107th streets was suitable for such a park connection. It consisted of swamp land that should never have been built upon. Had it been preserved as a park, aggregate property values in the neighborhood would almost certainly have been greater than they are today. The buildings in this district are in poor condition, and in a recent count they were found to have the second highest percentage of vacancies in the city.

We propose that a parkway be constructed across the East Side between 106th and 107th streets, linking up with a bridge approach at Second Avenue leading to Wards Island and, indirectly, to Randalls Island, both of which should be made into parks. The parkway would also connect with Thomas Jefferson Park and a river-front parkway on the Manhattan shore. In addition it would be part of a link between Central Park and Westchester and Queens over the Tri-borough Bridge.

The building of this parkway should be part of a great improvement scheme for the area between 96th and 110th streets on the east of the park. One immediate effect would be to increase greatly the values of all land to the south of 107th Street, which would become the boundary between two districts of different character. The uptown drift in Manhattan is such as to make it necessary to have additional areas of high class residential development which could be accommodated in the area south of the proposed parkway.

Taken alone this project would be well worth while; added to Central Park improvements it would be more worth while; and if linked up with a waterfront improvement on Manhattan and the development of parks on Wards and Randalls islands, the combination thus created would be a highly profitable investment of immense social value for the City of New York. What then of the East River Islands?

IN UPPER MANHATTAN AND THE BRONX

EAST RIVER ISLANDS

The need and opportunity of developing the East River Islands as potential recreation grounds is dealt with in the Regional Survey.¹ The advantages of island parks and their possible types are there discussed by Mr. Lee F. Hanmer. Reference is also made to the special communication facilities needed to make use of the East River Islands for recreation.

At an early stage in the studies of the Regional Plan the conclusion was reached that the East River Islands were strategically situated to afford the best kind of opportunity for increasing the park area of the city. They are not only near to crowded populations, but centrally located in relation to the system of communications that is likely to be developed in the near future. In the latter respect they are more central than Central Park. The islands comprise about 500 acres. Their unique quality is due in part to their detachment from the crowded traffic ways of the city and their consequent safety.

Referring to the two uses for which the islands are especially adaptable, Mr. Henry James, in a statement prepared for the Regional Plan and submitted to the Mayor's Committee on Plan and Survey in September, 1926, said:

"In the first place, they have proved themselves to be adaptable to the accommodation of nuisance uses; for, without intending anything invidious, it may be said fairly enough that prisons and asylums were put on the islands because people did not want to have them near their doors. In accordance with this view of their function it has also been proposed that a part of Wards Island should be made to accommodate an interborough sewage treatment plant. This view of their most useful function derives a certain kind of sanction from the fact that people have so long thought of the islands as outlying spots to which criminals, paupers, and persons of broken health can be dismissed—much as a farmer's broken machinery and rubbish are consigned to some inconspicuous and worthless corner of his farm. And it has a sanction from common sense too. For if the municipal machinery requires certain unpleasant parts for its healthy operation, such as penitentiaries and sewage treatment plants—and these cannot be placed on the mainland without greater expense and more annoyance than would result from their being placed on the islands—then, clearly, the islands are appropriate places for these parts.

"But, to arrive at a satisfactory conclusion, it is necessary to ask whether the other rôle which the islands might play in the city's economy is or is not more important than the rôle of abiding places for prisons and nuisances.

"Without attempting to prejudice the decision, an attempt will be made in this memorandum to indicate what might be done if the islands were used as they never have been. It will be assumed that there is no need of explaining how they can be used for prisons and asylums because that has been demonstrated; what new function might be assigned to them does require explanation."

With reference to the value of the islands for hospitals, it is pertinent to note that the question was considered by the Public Health Committee of the New York Academy of Medicine and that the committee recorded its conclusions in the following resolutions:

¹ Regional Survey, Volume V, pages 181-186.

OPPORTUNITIES IN REBUILDING

"That municipal hospital plans for the future should aim to eliminate the acute services from hospitals on Welfare Island and to reserve the existing facilities there for the treatment and care of patients who are chronically ill and for convalescent care; and

"That when the penal institutions are removed from Welfare Island, the available space obtained should be devoted to park purposes and recreational facilities."

As part of any possible program looking to new uses for the islands, it would be necessary to consider a feasible schedule for their removal. The greater proportion of the buildings now in use on the islands are so shockingly below modern standards that they ought to be pulled down anyway.

In concluding the statement already referred to, Mr. Henry James said:

"It is reasonable to say, looking at the East River Islands as a whole and in their relation to the city's total economy, first, that, with the exception of the Metropolitan Hospital and the City Hospital, the institutions which now occupy them had better be removed or must be largely rebuilt somewhere; and, second, that as an alternative to refilling vacated space with new asylums, hospitals and penal institutions, there will be an opportunity for much needed recreational facilities, and that for such the islands possess a quite special fitness."

Recreational Possibilities on a Part of Welfare Island.—The answer to the question as to what should be done with the islands if the greater part of the institutions that

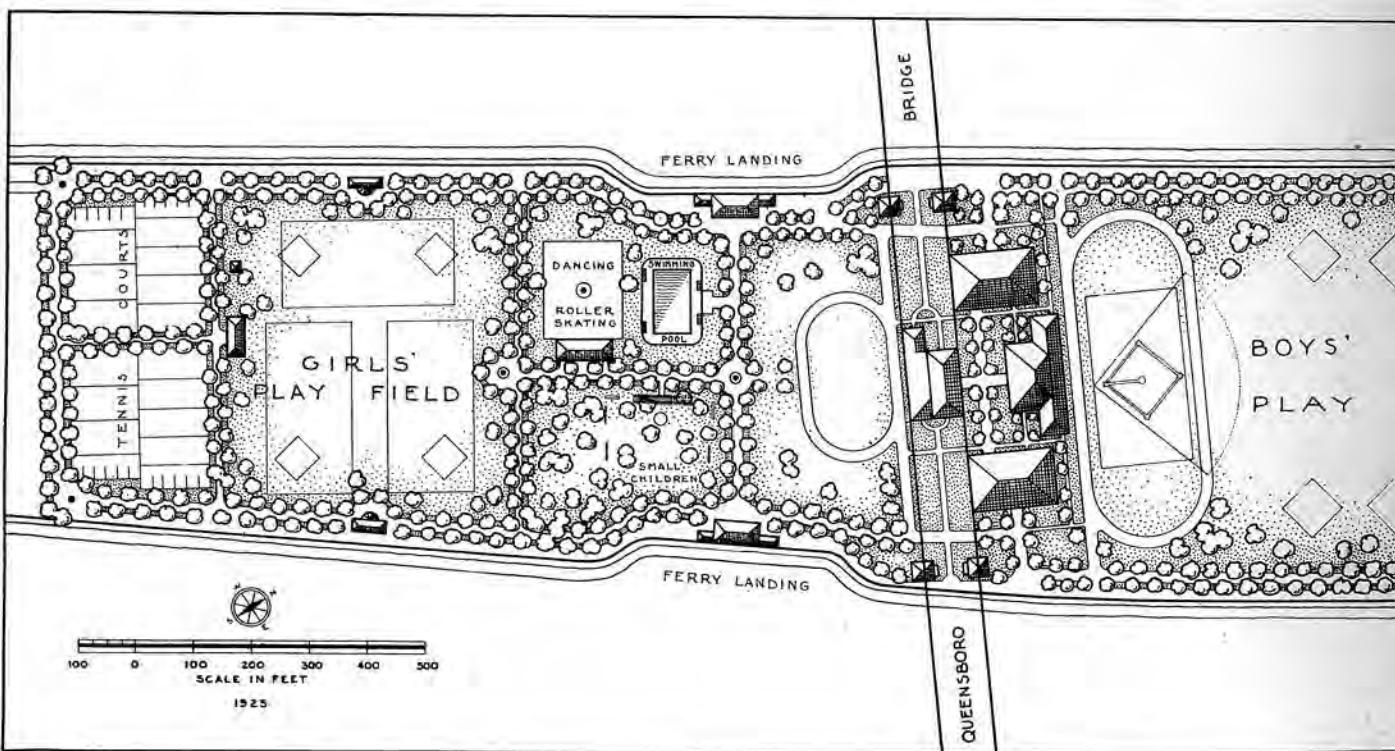


FIG.
A STUDY OF THE RECREATIONAL

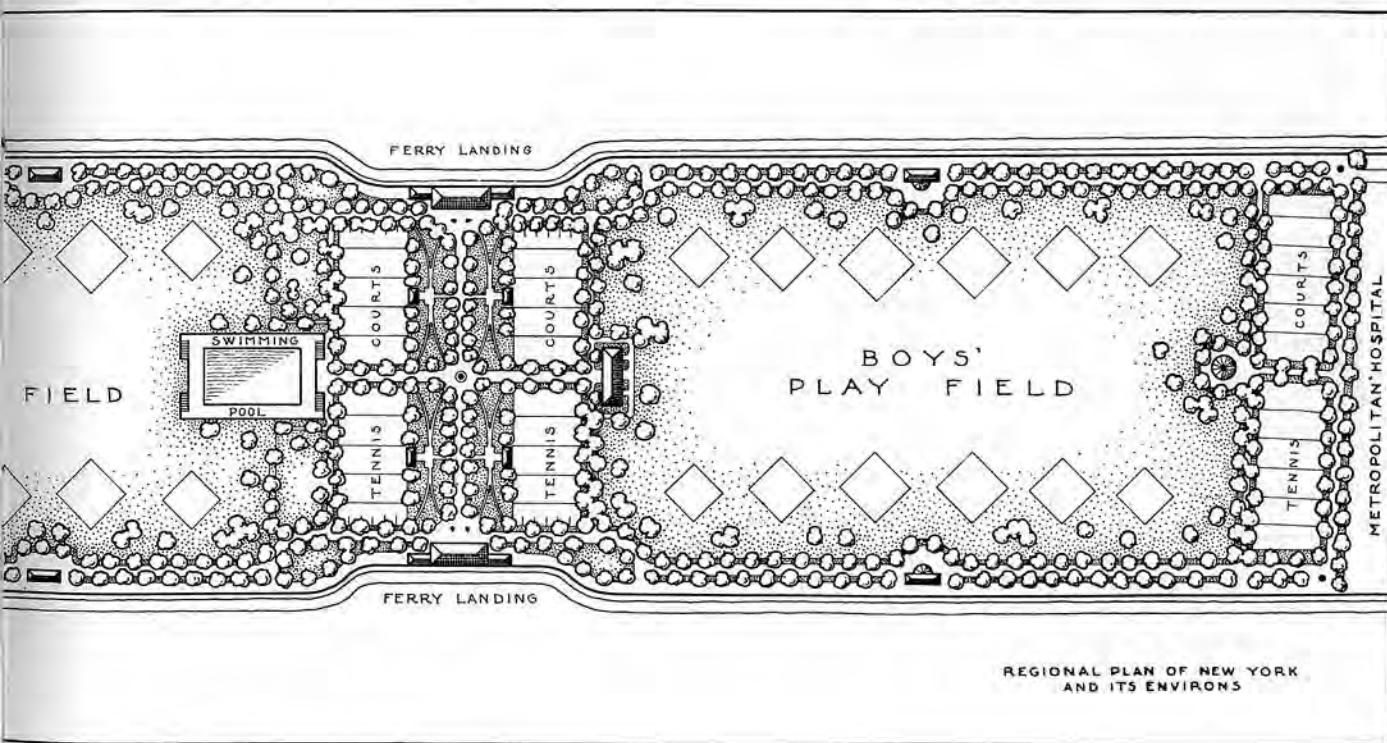
IN UPPER MANHATTAN AND THE BRONX

now occupy them are removed was given by Mr. James, on behalf of the staff of the Plan, after stating certain facts set forth elsewhere.¹ That answer we now repeat in the form of a sample study of the possibilities of one of the islands.

The study is illustrated by the accompanying plan (Fig. 57). The proposed development assumes the removal of the penal institutions now on the island and the consolidation of the welfare institutions which would remain with the hospitals at the north and south ends, thus clearing the middle of the island entirely. It assumes that the Metropolitan Hospital and City Hospital should continue to occupy the space they now have; although we consider it would be desirable eventually to concentrate them both on the northern end of the island. The controlling consideration has been that an island playfield would be used chiefly for boys and girls who are old enough to go to the island unattended, that is, from 12 or 14 to 20 years of age. The facilities that might be included are as follows:

It is proposed that 70 to 75 acres of park should be filled to the bulkhead line, cleared of existing buildings, and provided with a peripheral driveway and walk and four cross roads, with a moderate amount of plantation along each. It would then

¹ Regional Survey, Volume V, pages 181-186.



OPPORTUNITIES IN REBUILDING

be possible to install accommodations for boys of: 20 baseball diamonds; 26 tennis courts; 36 handball courts; an outdoor swimming pool; a gymnasium; an indoor swimming pool; and a small grandstand. There could also be, for girls: 24 handball courts; 14 tennis courts; a large field for athletics and pageantry; a one-acre children's playground; a field 70 feet by 600 feet for volley ball, bowling and other field sports engaged in by girls; outdoor and indoor swimming pools; and a large dance pavilion.

It is estimated that these facilities would at any time permit 3,000 boys and 2,500 girls and women to participate in play, without counting those in the dancing pavilion. To these numbers may be added a certain number of those awaiting turns, or walking about on the waterfront and elsewhere; and the value of all this equipment to mere onlookers is not to be ignored. The foregoing estimates, however, are based on tentative designs. In making working drawings it will doubtless be found necessary to allow space for obstacles and accessory conveniences which would somewhat reduce the number of recreational facilities we have enumerated.

If the space were lighted, a good proportion of the facilities could be used at night, especially swimming pools, basketball and handball courts, dancing pavilion and running track. The capacity at any one moment is estimated to exceed 2,500.

To some extent the foregoing facilities could be made available for winter use, baseball fields being turned into fields for football and soccer, tennis courts and some other spaces being sprayed for skating.

This would greatly augment New York City's total athletic equipment for the use of adolescent boys and girls, and would lessen the danger of Central Park becoming an immense athletic field.

The proposals for the East River Islands have to be considered in relation to the construction of the Tri-borough Bridge with supports on Wards and Randalls islands and with connections between Queens, The Bronx and Manhattan. One arm of this bridge is proposed to connect with Manhattan at an open square between 108th and 109th streets, as shown on the general plan (Fig. 54, page 418). The Tri-borough Bridge will provide a connection from the islands to the parkways of The Bronx and Westchester County and thereby give further unity to the existing and proposed park and parkway system. Its erection should be accompanied by improvement of the Harlem River Valley and Bronx River Valley to the south of Bronx Park.

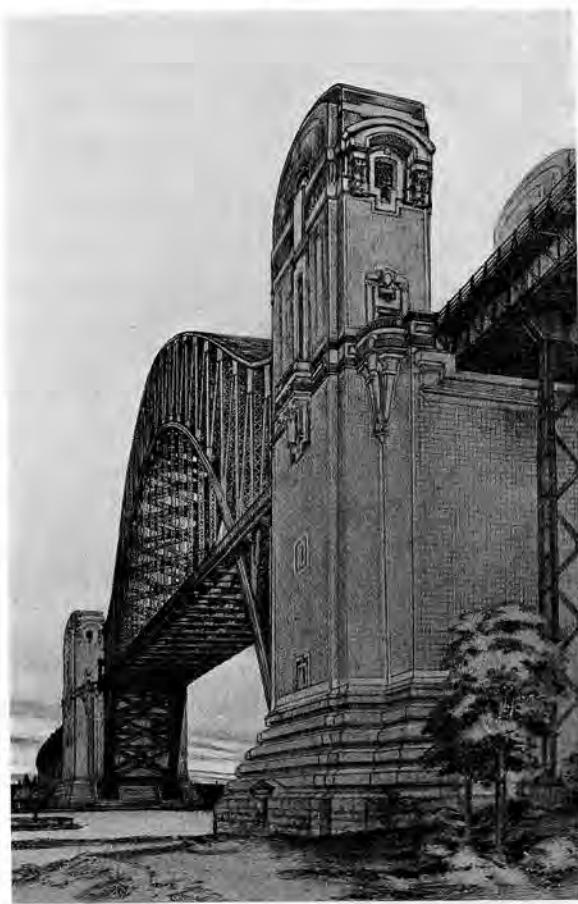
Sewage Disposal Plant on Wards Island.—The report of the Metropolitan Sewerage Commission of New York in 1914 indicated a sewage disposal plant on the north-eastern part of Wards Island. This plant was to serve the east side of the Borough of Manhattan, north of 82nd Street, and practically all of the Borough of The Bronx west of the Bronx River.

IN UPPER MANHATTAN AND THE BRONX

In 1931 a start was made under the Sanitary Commission, established in 1930, on a huge treatment plant at this site, after a thorough study of the project by different city departments. The plant is designed to treat at once all sewage now entering the East and Harlem rivers from Manhattan between East 73rd and East 155th streets and that entering these rivers from The Bronx between the West 138th Street outlet on the Harlem and the East 138th Street outlet on the East River. Areas discharging sewage into the Harlem River further north, and a small additional section draining into the East River, will later connect with this plant, which would thus serve all the most intensively developed portions of The Bronx and all the northeast section of Manhattan.¹ While the earlier plans called for treatment by plain sedimentation, it is now proposed that activated sludge treatment be used, which will give a much purer effluent and permit local treatment along the lower parts of the East River. That part of Wards Island proposed for a disposal site is cut off from the rest of the island by the New York Connecting Railroad. It is vacant and of moderate elevation above tide level. The following quotation from a paper by the late Kenneth Allen, Sanitary Engineer of the Board of Estimate and Apportionment, forcibly states the advantages of the site for the purpose proposed: "The strategic advantages of Wards Island as a point for disposal are great. It lies close to three boroughs, two of which are densely populated in this vicinity, while the deep, turbulent waters of Hell Gate offer ideal conditions for rapid diffusion and dilution of the effluent."

As the method of sewage disposal suggested could be carried out on part of the island without seriously interfering with the use of the remaining, much larger, part for park purposes, we see no reason for its being regarded as objectionable. The plans provide for suitable landscaping of the site.

¹ Regional Survey, Volume VIII, pages 62-68.



THE HELL GATE BRIDGE, CARRYING THE NEW YORK CONNECTING RAILROAD ACROSS THE EAST RIVER

OPPORTUNITIES IN REBUILDING

LOWER BRONX RIVER VALLEY

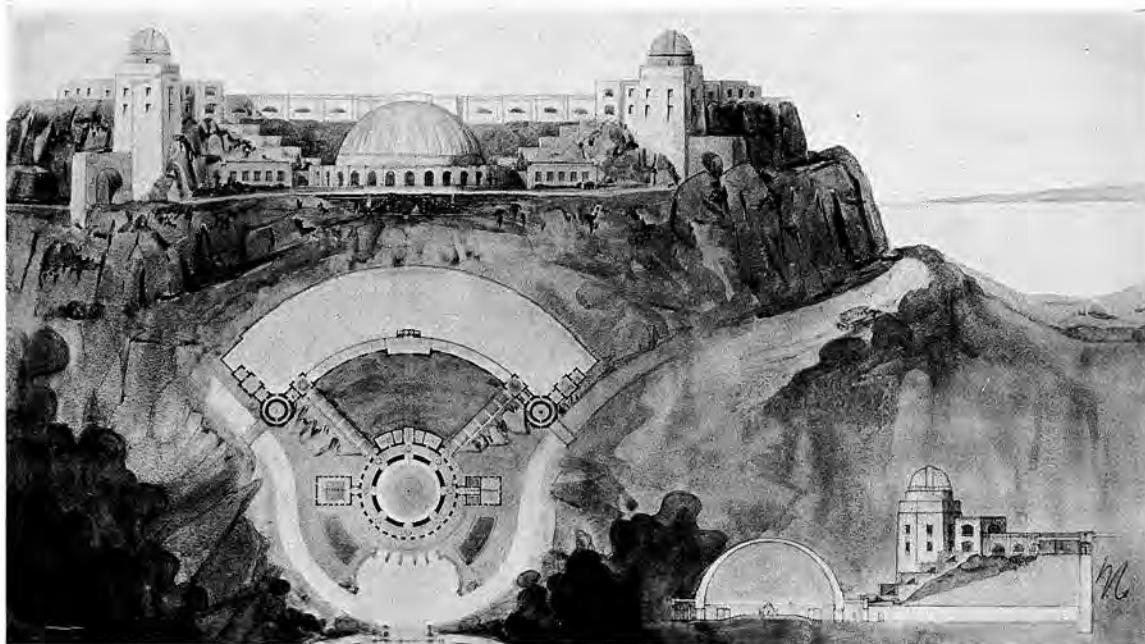
As a further part of the upper East River park system, it is desirable for more park areas to be reserved in the lower part of The Bronx. Although The Bronx possesses the most extensive park system in the city, it is desirable that it should have more public reservations on its southern shore, and particularly that the valley of the lower Bronx River should be improved to harmonize in some degree with the beauty of its upper reaches.¹ This would have to be done and could be done without great interference with major commercial uses. A natural parkway would be impracticable but an orderly development with occasional park and boulevard treatment would serve the need.

The proper development of the flat lands adjacent to the East River in The Bronx will depend on the prevention of disorderly uses of the land that is least adaptable for building, and some of which would make good parks and athletic fields. The making of open reservations should, of course, fit in with the planning of the harbor and industrial development and include an auxiliary airport and seaplane base.

UPPER WEST SIDE AND HARLEM RIVER PARKS AND PARKWAYS

One of the lost opportunities of the City of New York was that of connecting Central Park with Van Cortlandt Park, and thence with the present Westchester

¹ See Regional Plan, Volume I, illustrations on page 355.



Frederick J. Adams, Architect

DESIGN FOR DEVELOPMENT OF FORT TRYON PARK AS AN OBSERVATORY

A project prepared for the Columbia University School of Architecture.

IN UPPER MANHATTAN AND THE BRONX

County park system. The logical place for this connection would have been a strip of park including the existing Morningside Park, connecting with Highbridge Park and thence up the valley of Tibbetts Brook in The Bronx. A branch of this system should have continued to Inwood Hill Park through the valley occupied by Dyckman Street.

Fortunately in this district a number of important park reservations have been made, although it seems impracticable to establish physical connection between



Jacques Lambert, Architect

ARCHITECTURAL STUDY FOR THE DEVELOPMENT OF FORT TRYON PARK

some of them. Had such a connection been possible, the desire of the New York Bridle Paths Association for a riding trail, with pedestrian and cycling trails adjacent, from Central Park to the Hudson River front and into the Westchester parks, could have been gratified. In a sense this lack of unity does not altogether destroy the position of Central Park as the point of a wedge in a northwestern system of parks. The development of the upper Riverside Drive, the improvement of access to and across Inwood Hill Park, the projected layout of the new Fort Tryon Park, the

OPPORTUNITIES IN REBUILDING

proposed development along the Harlem River Valley, and the erection of any new bridges over the Harlem River are all elements in the upper West Side park system. We will refer to most of these elements in discussing our proposals for the upper West Side waterfront and the Harlem River Valley.

Fort Tryon Park.—It is fitting to conclude our discussion of Manhattan parks with a reference to Fort Tryon Park, recently presented to the City of New York by Mr. John D. Rockefeller, Jr. One of the earliest proposals of the Regional Plan in 1923 was the reservation of the property then known as the Billings Estate, between Broadway and Riverside Drive, as a public park. This magnificent site, with its fine view over the Hudson River to the Palisades, presents an unusual opportunity for developing a park of great beauty. The Regional Plan Committee retained

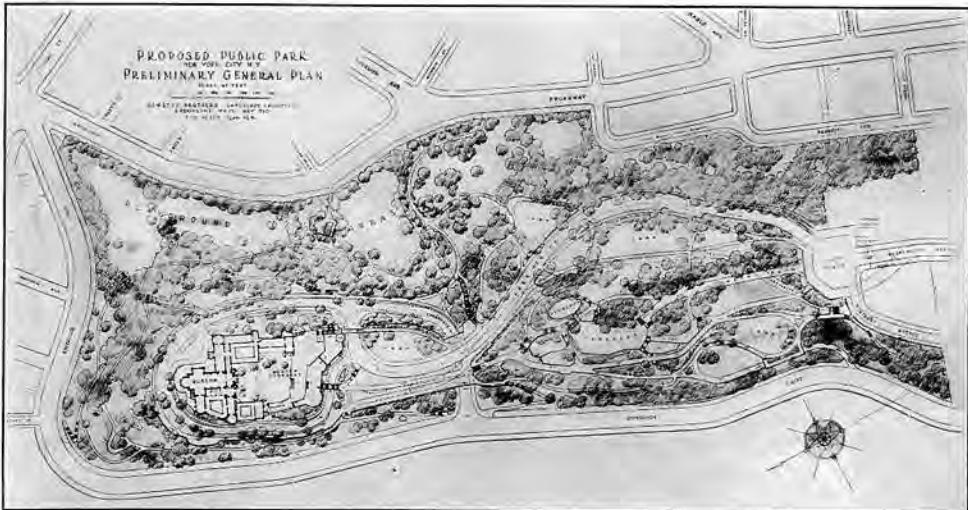


FIG. 58

Courtesy of Olmsted Brothers

PLAN FOR THE DEVELOPMENT OF FORT TRYON PARK PREPARED FOR THE DONOR, MR. ROCKEFELLER, BY OLMS TED BROTHERS

Mr. Jacques Lambert of Paris to suggest a possible treatment of this estate, and he recommended that it should be architecturally developed in the manner shown in the sketch on page 443. At a subsequent date, the writer proposed that the natural features of the greater part of the estate be preserved and improved and that part be transferred to the trustees of the Metropolitan Museum of Art for the purpose of developing an outdoor museum of early examples of American architecture.

Another possible treatment, namely the use of part of the area for a large observatory, was suggested in a design prepared as a project of the Columbia University School of Architecture. (See illustration, page 442)

IN UPPER MANHATTAN AND THE BRONX

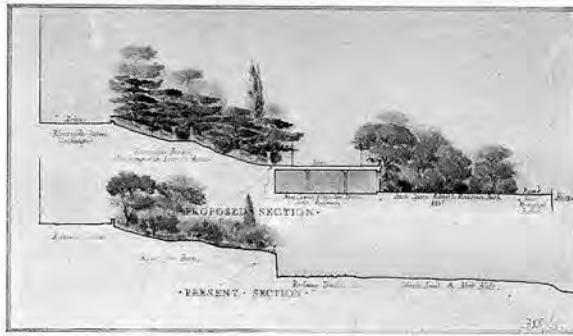
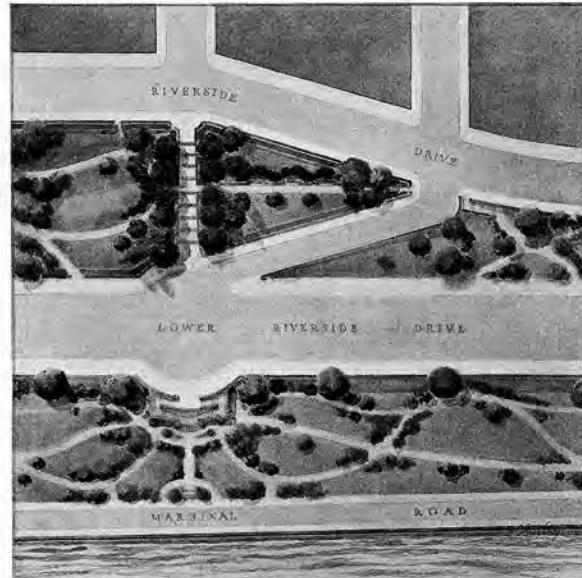


FIG. 59

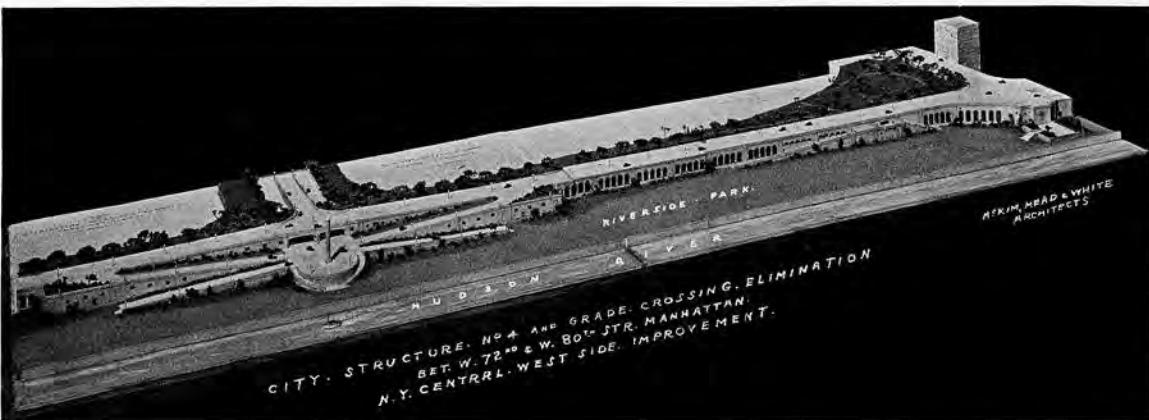
SUGGESTIONS FOR THE TREATMENT OF LOWER RIVERSIDE DRIVE, ADVISORY COMMITTEE OF ARCHITECTS (THOMAS HASTINGS, CHAIRMAN)

This was one of the early architectural proposals made in 1923. Discussion and illustrations of other proposals appear on following pages.

Since the early plans for the Billings Estate were made, the opportunity has arisen for carrying out a definite project. This has been made possible by Mr. Rockefeller's gift to the city of the 56 acres comprised in the property. The land, valued at \$7,000,000, has been presented with a further gift of \$5,000,000 to be used for the erection of a building to house an extension of the Metropolitan Museum and for developing the landscape features of the park. A preliminary plan of the project has been prepared by Olmsted Brothers (Fig. 58). In making the gift, Mr. Rockefeller said that the museum building, situated at the northerly end of a ridge some 220 feet above the Hudson and enjoying unimpeded views across the river, would be "the culminating point in the architectural design of the park."



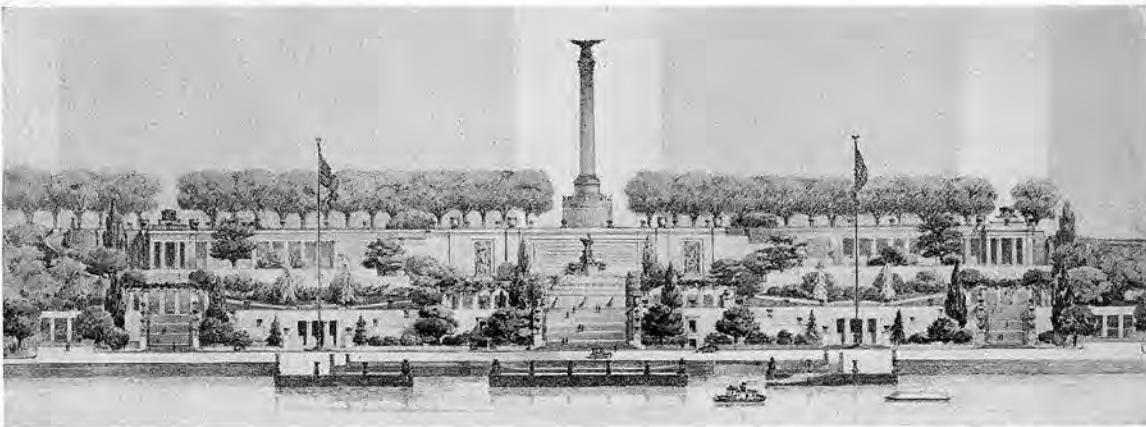
OPPORTUNITIES IN REBUILDING



PHOTOGRAPH OF A MODEL PREPARED BY MESSRS. MCKIM, MEAD AND WHITE FOR THE TREATMENT OF THE WEST SIDE EXPRESS HIGHWAY THROUGH RIVERSIDE PARK NORTH FROM 72ND STREET

Upper West Side Waterfront

The length of Manhattan's waterfront from 72nd Street to the Harlem River at Spuyten Duyvil is about $7\frac{1}{2}$ miles, and the city boundary in The Bronx is another $2\frac{3}{4}$ miles beyond the Harlem. Riverside Park, Fort Washington Park, and Inwood Hill Park occupy over five miles of this frontage between 72nd Street and the Harlem River. Riverside Drive, with its beautiful views over the Hudson, extends as far as Dyckman Street in Manhattan, where it will join the West Side Express Highway and continue to the north over the entrance to the Harlem Ship Canal. The Regional Plan proposes that this should ultimately continue northward as a Hudson River drive through The Bronx and Westchester.



Francis S. Swales and William A. Boring, Architects
ELEVATION OF THE WATERGATE PROPOSED FOR THE HUDSON RIVER FRONT AT 116TH STREET

IN UPPER MANHATTAN AND THE BRONX

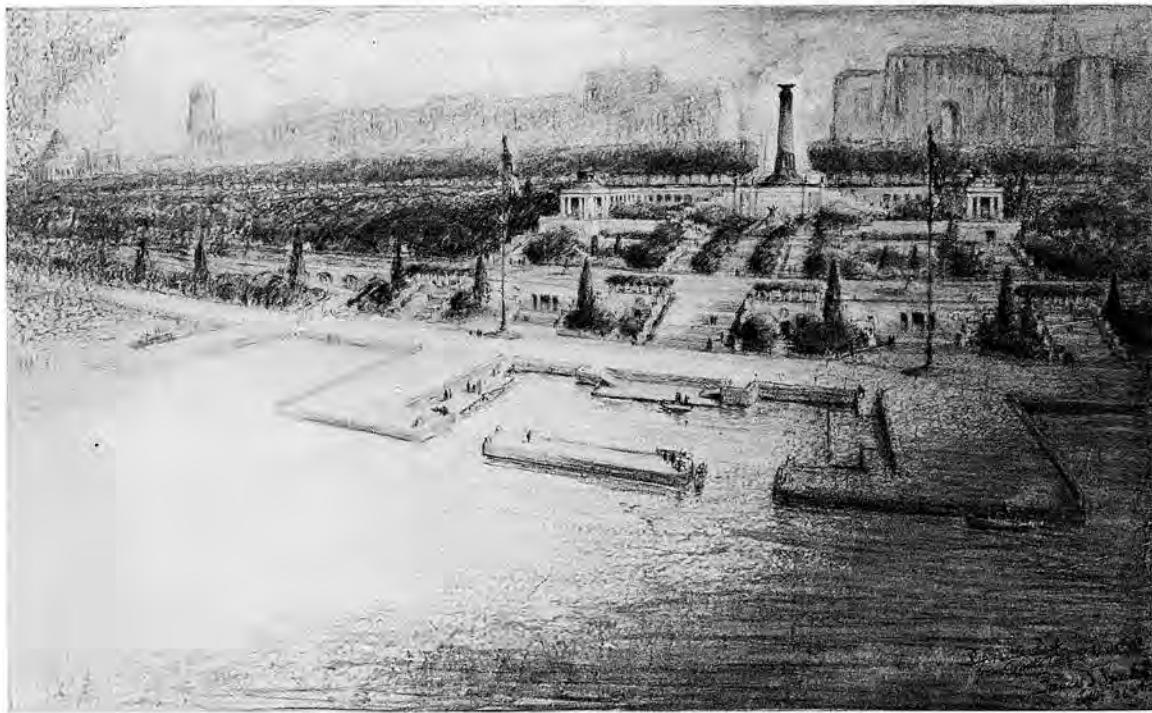
We do not make any suggestion for a general plan of this waterfront. The need of a coordinated plan prepared by skilled architects has long been evident and should be undertaken as a specific task for early execution.

Large parts of the Hudson River front are used for commercial purposes that are likely to be permanent. When the railroad is electrified, other parts devoted to park purposes can be extended over the railroad to the river's edge. There is no reason why commercial and park use should not be planned and controlled in an agreeable combination.

The City of New York, following the recommendation of the Regional Plan, has obtained the advice of architects and engineers in preparing plans for this part of the waterfront. It is hoped that the preliminary studies and plans already made will lead in time to the preparation of a complete plan for the whole of the West Side areas.

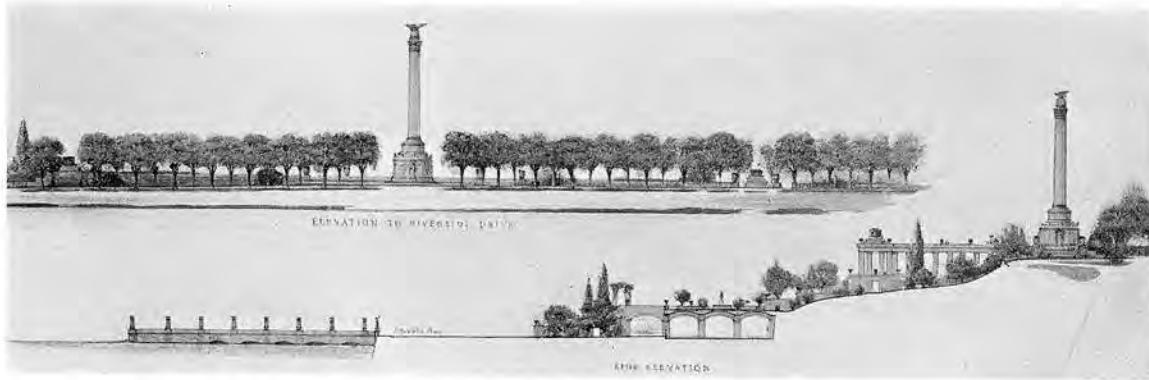
WATERGATE AND OTHER PROPOSALS SOUTH OF 125TH STREET

In our proposals we limit ourselves to a few illustrations of types of development needed as parts of a general plan for the riverside areas. Four suggestions are shown as indicative of the possibilities of the park development between 72nd



PERSPECTIVE OF THE PROPOSED WATERGATE AND RIVERSIDE DRIVE

OPPORTUNITIES IN REBUILDING



and 86th streets. One is the plan by Mr. Swales (Fig. 43, page 357); another is by the West Side committee of architects (Fig. 59, page 445); a third is a model by Messrs. McKim, Mead and White (page 446); and a fourth is the Park Department plan on the opposite page. These indicate the possibilities.

Further north, in the neighborhood of 116th Street, we show a watergate designed by Mr. Swales in collaboration with Professor William A. Boring. Here there is an admirable waterfront site in a neighborhood where a great university is gradually forcing itself toward the river. As a chief center of culture in the city, Columbia University should have on one of its sides a great open expanse, and between the façades of its buildings and the river edge there should be built a watergate of magnificent proportions, integrating with Riverside Park, on the one hand, and the university, on the other.

The plan and perspectives we show illustrate one method of treatment. The motive of the design is to express the dignity and refinement that should characterize the face of a great educational institution and one of the ornamental approaches to the city. This requires monumental treatment. The site between 115th and 117th



ELEVATION AND SECTION OF THE PROPOSED WATERGATE AT 116TH STREET
Includes illustration at top of page.

IN UPPER MANHATTAN AND THE BRONX

streets is the only one suitable for such a purpose. The contours of the land make it easily susceptible of fine architectural treatment and permit the coordination of this treatment with the landscape features of Riverside Park above and below the site. Its center can be developed on the axis of 116th Street, leading to Columbia University. From its terraces, easily fitted into the rising levels of the ground, there is excellent visibility over the river and toward the Palisades. These terraces afford ample space for sightseers. There would be an admirable situation for a large monument which might appropriately be built in memory of the heroic sons of the university. The watergate could be used as a ceremonial entrance to the city and as a landing for Navy vessels anchored in the river.

We also show, on the following page, a view of Grant's Tomb and a perspective of a design by John Russell Pope for the improvement of its surroundings.

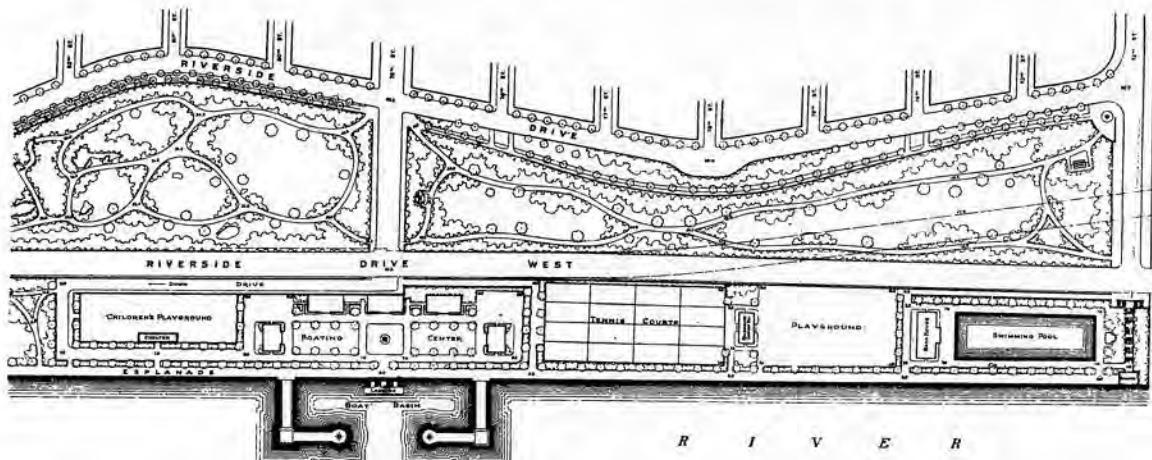


FIG. 60
PARK DEPARTMENT PLAN FOR LOWER RIVERSIDE DRIVE, SUBMITTED IN 1927

It will be noted on the general plan (Fig. 54, page 418) that a vehicular tunnel is proposed, beginning near the waterfront at the western end of 125th Street, and extending in a diagonal line through the hill between 130th and 137th streets, connecting with a proposed diagonal avenue which extends the line of the tunnel to the Harlem River near 145th Street. This will be referred to presently in discussing Harlem River proposals.

SECTION BETWEEN 135TH AND 158TH STREETS

In the section of the riverfront between 135th and 158th streets, the latter being the southerly terminus of Fort Washington Park, the need for adoption of a plan is unusually urgent.



Photo by William Frane

A RECENT VIEW OF GRANT'S TOMB AND VICINITY



John Russell Pope, Architect

A DESIGN FOR THE IMPROVEMENT OF GRANT'S TOMB AND ITS SETTING

IN UPPER MANHATTAN AND THE BRONX

There are now only four piers and two bulkheads between these streets, as listed in the War Department's report on the Port of New York. All these are in city ownership. The piers and one bulkhead are located between 154th and 158th streets and are used for public wharfage, for tying up summer boats during the winter months and for a repair yard for lighters and barges. The other bulkhead is between 135th and 136th streets, and is used for landing building materials.

There seems to be little need for commercial use between 136th and 154th streets except for the restricted use of the area below 145th Street for a milk depot. Between 154th and 158th streets facilities should be maintained for the handling of building materials. Some slight expansion for the same purpose might be permitted near 135th Street.



Courtesy of the Port of New York Authority

APPROACHES TO THE EASTERN END OF THE GEORGE WASHINGTON BRIDGE
This view shows especially the connections with Riverside Drive. For connections to the east, see page 461.

Most of the waters fronting the area under consideration have been used for anchoring and landing small pleasure boats. The Park Department should be given control of all such lands as are not essential for railroad developments between 145th and 154th streets. These park areas ultimately should be extended over the railroad and additional rail facilities within this area by utilizing the air rights after electrification. This additional park area could be devoted to recreation and a public boating center which could be reached via the proposed ramp from 145th Street. Some provision for parking space would be required at the foot of this ramp.

The city should obtain the air rights which would enable it to cover over, when and if desirable, the railroad facilities needed for a milk depot between 135th and

OPPORTUNITIES IN REBUILDING

145th streets. In this connection it should be noted that an electrically operated milk depot, even if considerably larger than the present depot, should be much less of a public nuisance. The city should maintain for itself a strip of land along the waterfront outside the milk depot.

Without delaying the execution of improvements by the railroad, the plans prepared by the Park Department for the extension of Riverside Park to the waterfront, and such other plans as they may have for the whole area between 72nd Street and Spuyten Duyvil, should be reviewed as one problem and adopted as a working program under the best architectural advice obtainable.

VICINITY OF GEORGE WASHINGTON BRIDGE

At 178th Street the Fort Washington section of the city is being transformed by the construction of the George Washington Bridge over the Hudson River, now far advanced toward completion.¹ We show two perspectives of the approaches to the bridge. (See illustrations, pages 451 and 461)

Detail studies for rail and highway connections to the east were presented in Plan Volume I.² It is unfortunate that property has not been acquired between Broadway and Amsterdam Avenue to facilitate the future construction of an adequate rail terminal at this point. Through highway connections to Amsterdam Avenue and the Harlem River Driveway have been planned by a vehicular subway under construction in West 178th Street and a future subway projected in West 179th Street. A new Harlem River bridge to connect with East 170th Street in The Bronx, as proposed in the Graphic Regional Plan, is essential.

Harlem River Valley

BRIDGES AND APPROACHES AT WESTERN EXTREMITY

Proposals have been made showing the extension of Riverside Drive as a main traffic artery through Inwood Hill Park to connect with Spuyten Duyvil over the proposed Hendrick Hudson Memorial Bridge. If this scheme were carried out, it would cut Inwood Hill in two, destroying its unity as a park and much of its natural beauty. The proposal has no real justification, since the projected highway is not on the line of any through route that can be completed into Westchester County, and its purpose will be adequately and better served by the construction of the proposed express highway over a new railroad bridge on the edge of the Hudson River. It would be an extravagance because of its limited utility, excessive width and high cost in building retaining walls and elaborate ramps, apart from its effect in impairing the beauty and usefulness of Inwood Hill Park.

¹ October 24, 1931, was set for the formal opening.

² Regional Plan, Volume I, pages 202 and 223.

IN UPPER MANHATTAN AND THE BRONX



Photo by Fairchild Aerial Surveys, Inc.

PARKS AND MAIN HIGHWAY CONNECTIONS NEAR THE JUNCTION OF THE HUDSON AND HARLEM RIVERS
Showing especially the inter-connection of Riverside Drive and the West Side Express Highway at Dyckman Street, and their extensions skirting Inwood Hill Park. Three new bridges over the Harlem are included.

The proposals we put forward are based on extending the express highway over the New York Central tracks on the Hudson waterfront, and on providing another outlet in a northerly direction along the eastern boundary of Inwood Hill Park and the western boundary of Baker Field, crossing by a new bridge to the low land east of Spuyten Duyvil, following the foot of the bluff west of Tibbetts Brook to 239th Street, thence turning east into Van Cortlandt Park. The lines of these connections are shown on the general plan (page 418) and on the accompanying air view.

The express highway should extend, in course of time, through The Bronx and Westchester County to Kingsland Point, a distance of 13 miles from the boundary of New York City, with the ultimate intention of continuing the drive to the Bear Mountain Bridge approach at Peekskill Creek. The line has been surveyed as far as Kingsland Point by the Westchester County Park Commission. Its construction will involve relatively high cost (estimated at \$34,000,000 for 13 miles), but it is the proper and probably the only line for a speedway.

OPPORTUNITIES IN REBUILDING

The proposal, long under consideration, to build a monumental memorial bridge of large capacity from the high point in Inwood Hill Park to Spuyten Duyvil, has led to the suggestion, already referred to, that a wide road should pass through the middle of the park to connect with it. Our proposal is that this memorial bridge should rather be of the nature of a park bridge with 75 feet clearance above the river.¹ This type of bridge would not close the gap between the two hills to so great an extent as would a higher and more bulky bridge. The roads leading to and from it need not be laid out in a straight line or be of great width. The proposed road through Inwood Hill Park would thus be a park drive so planned as to fit in agreeably with the landscape features of the park, conform with the existing levels of the land, and



ON THE HEIGHTS ABOVE THE HARLEM RIVER VALLEY
View from the Hall of Fame, New York University.

be limited to such vehicular and pedestrian traffic as would not destroy the recreational value of the park.

A glance at the accompanying views of the hilly land above the Harlem River at this point will show how desirable it is to make any bridge fit in with the landscape and leave as open as possible the beautiful prospect between the hills toward the Hudson River and the Palisades. The proposed bridge connecting Manhattan and The Bronx to the east of the park would have a 35 foot clearance, and a movable span capable of being opened for ships requiring greater clearance. These occasions are comparatively rare.

¹ A standard of 90 feet minimum clearance above the Harlem River has so far been maintained by the War Department. We believe this could be reduced to 75 feet or less.

IN UPPER MANHATTAN AND THE BRONX

STRATEGIC ADVANTAGES OF HARLEM VALLEY

It is well in approaching our statement of proposals for the Harlem River Valley to have before us the aerial view over the valley at its junction with the Hudson River which appears on page 453. If the reader is not familiar with New York or has never seen the north end of Manhattan Island except from a railroad train, it will scarcely seem credible that this is a view of a part of the city that lies on the edge of Manhattan, over $2\frac{1}{2}$ miles from the northern boundary of the city and but six miles from the northern end of Central Park. It reveals in a striking manner the beauty which the Harlem Valley possesses in its comparatively natural condition at one end, in contrast with its disorderly development in other places. Contrast this aerial view with the random views on page 336, and the one on this page. A place so poorly developed in any growing city offers good opportunities for redevelopment.

The Plan indicates the strategic situation of the Harlem Valley in relation to the City of New York, the Hudson River Bridge, the Tri-borough Bridge and the whole of the west-south Bronx area, across to Long Island Sound. Consider, in addition, the tendency for business in Manhattan to recentralize itself periodically in a north-easterly direction. It is now steadily increasing between 42nd Street and 59th Street. Where will it go next? Not to 86th Street or 96th Street, split as they are by Central Park; nor yet to 110th Street or even 125th Street. Existing characteristics of the 125th Street district will continue, although it will grow in importance. More likely the next great business stride in New York will be to the Harlem Valley, partly in upper Manhattan and partly in lower and western Bronx, unless something happens to destroy the natural advantages of this location. Vital factors in its



DISORDERLY DEVELOPMENT AT THE EASTERN END OF THE HARLEM RIVER

OPPORTUNITIES IN REBUILDING

development are the building of a new "Grand Central" sub-terminal at Mott Haven, and of a great civic and business center adjacent to the lower end of the Grand Boulevard and Concourse, together with the linking up of these transportation and business centers in The Bronx with Manhattan above 125th Street under a comprehensive plan for development of both banks of the Harlem River.

There is no part of the City or Region which is better fitted for development of a great new union terminal than this neighborhood. As Mr. Frederic A. Delano has suggested, if and when any of the great railroads that terminate in New Jersey is able to force its way across the Hudson, one of the directions for an important by-pass route would be towards 130th Street. Going by such a route it would cross Manhattan through the ridge west of Eighth Avenue and find its outlet in the southern end of The Bronx. The nucleus of a large sub-central terminal is already there.

Much has to be done to lay the foundations in the valley for the great future it may have if the citizens of New York will it. To begin with, the river, as with all rivers around New York, must be cleansed by proper sewage disposal. The Wards Island sewage disposal plant will largely accomplish this. We shall now consider some of the conditions affecting the whole problem.

There is enough low land along the banks of the Harlem River to accommodate a considerable industrial and commercial development. If it were practicable, only light industry should be permitted or encouraged to come into this neighborhood.

The 60 miles of undeveloped waterfront within the New York port district, available and well adaptable for port developments, can provide about three times the wharfage that will be needed by 1965. These facilities are present elsewhere without the obstructions to navigation which exist in the Harlem River and which will increase with time. Additional bridges for traffic and transit must be built, and even if fixed bridges with a 35 foot clearance were built, the disadvantages to shipping would be more than compensated by great advantages to highway traffic.

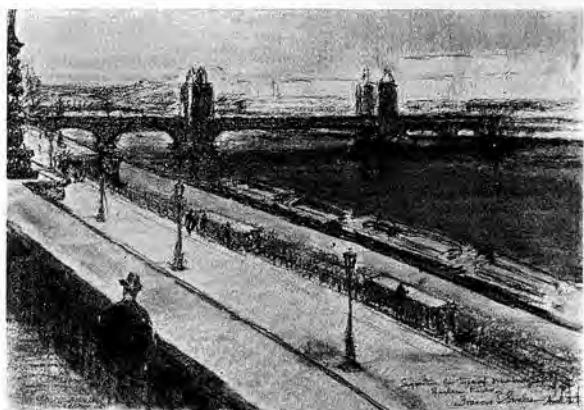
THE WATERWAY AND ITS BRIDGES

The projected channel depth in the Harlem River is 15 feet. The river is narrow and quite crooked. It is crossed by 11 drawbridges and two fixed bridges. These form the principal connections between Manhattan Island and the mainland. Seven of the drawbridges and one fixed bridge carry vehicular traffic; the other fixed bridge carries a water supply aqueduct. There are four railroad drawbridges.

The Harlem River provides a valuable short cut between the Hudson River and the East River. Its use for masted shipping is restricted by the approximately 90 foot clearance of the reconstructed High Bridge. The primary use of this waterway would seem to be as a connection for barge canal traffic passing between the Hudson River and the East River, for railroad carfloats using the railroad stations in the



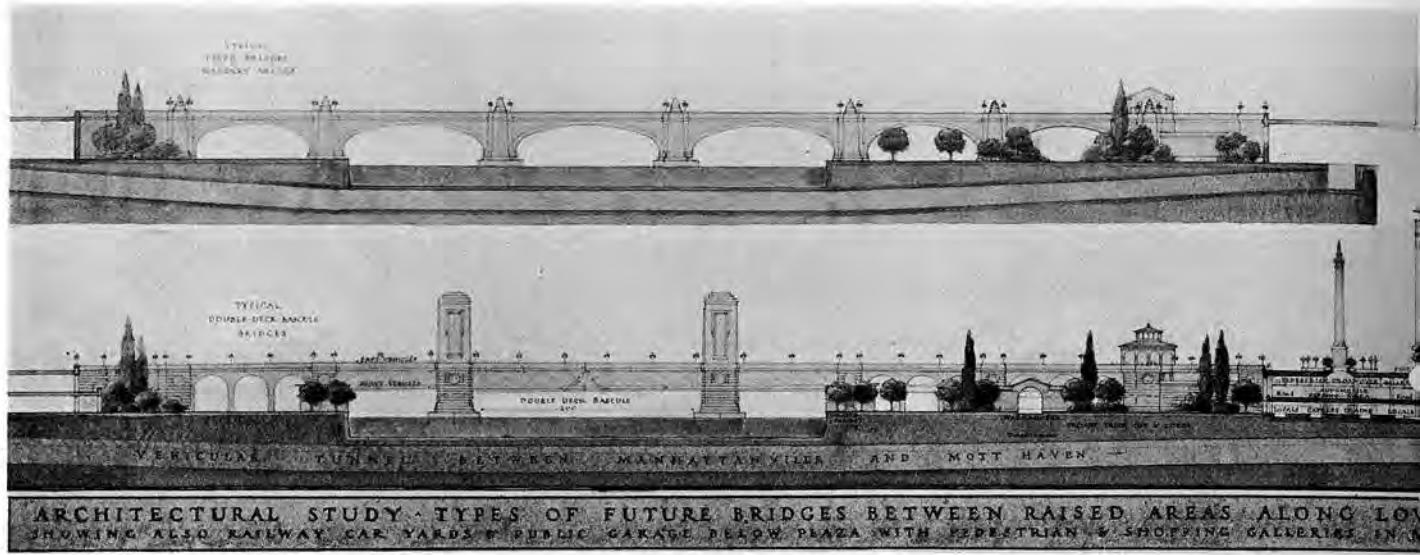
Sketch suggestion for type of draw-bridge over Harlem River



Sketches of possible types of bridges over the Harlem River



OPPORTUNITIES IN REBUILDING



ARCHITECTURAL STUDY SHOWING POSSIBLE TREATMENT OF

southerly part and entering from the East River, and for the bringing of building materials to the adjacent parts of Manhattan and The Bronx.

At a hearing held before the District Engineer of the War Department on May 17, 1927, the staff of the Regional Plan Committee submitted a statement in favor of fixed bridges over the Harlem River. It was claimed that fixed bridges with clearances approximating that of High Bridge would be unduly expensive to construct due to the difficulty of providing approaches through built-up territory. It was stated that:

"From the points of view of the physical growth of the city and of securing the conditions that are necessary to fit in the Harlem River with the important business uses of upper Manhattan and the lower Bronx, it is of vital importance that communications across the Harlem River should be made as free from obstructions to cross traffic as possible. There being no question as to the tremendous value to the City of New York of improving its means of communication across the Harlem, the only question that remains is whether, and to what extent, it is necessary to interrupt circulation for purposes of navigation. From the study of available data, it appears that there would be little interference with navigation if fixed bridges were erected with a clearance of 35 feet."

An analysis of waterway traffic through the Harlem in 1922 showed that the number of vessels passing through the seven highway drawbridges varied from 76,262 at the Willis Avenue Bridge to 16,304 at the Broadway Bridge. The number of vessels which passed under these bridges when the draws were open corresponded to a maximum of 11.4 per cent of the total at the Third Avenue Bridge and a minimum of 3.9 per cent of the total at the 207th Street Bridge. Having established these facts, the staff, at the hearing referred to, pointed out that:

IN UPPER MANHATTAN AND THE BRONX



LANDS OF HARLEM RIVER VALLEY & TUNNELS CONNECTING LOW LEVEL LAND AREAS
SUBSTANTIALLY OF GARAGE ALONG ADJOINING BUILDINGS EXTENSION OF GALLERIES AS CROSS-OVERS OF VEHICULAR TRAFFIC

Francis S. Smeles, Architect

SEVERAL FEATURES OF THE HARLEM RIVER VALLEY PLAN

"If this condition still prevails, 88.6 per cent to 96.1 per cent of the traffic would gain an advantage in freedom of movement from fixed bridges. Of the 3.9 to 11.4 per cent, a considerable proportion of the vessels could be adjusted to pass under 35 feet.

"It is also shown that great interference occurs to traffic and business interests of New York by the opening of the seven movable highway bridges now existing, with comparatively small advantage to shipping."

The 1928 report of the Department of Plant and Structures showed that the number of boats passing the Willis Avenue Bridge had increased to 83,935 and the number passing the Broadway Bridge was 16,402. These represented increases of 10 per cent and 0.6 per cent respectively.

We believe that it still remains true, as we pointed out in 1927, that the construction of fixed bridges having a clearance of 35 to 40 feet should be permitted over the Harlem River, in the interests not only of business growth, natural expansion and circulation of traffic in the City of New York, but of probably nine-tenths of the vessels using the river.

With the increase in communication between Manhattan and the territory north of the Harlem it will be necessary to build more bridges. Assuming a 35 foot clearance for all new bridges, and a gradual scrapping of the existing low level structures, a minimum of interference with all types of traffic would be occasioned. It is suggested that most of the 11 new bridges described below be constructed within the next ten years. Ultimately it will be necessary to construct more. The bridges proposed at this time in the order of their location, beginning at the Hudson River, may be enumerated as follows:

OPPORTUNITIES IN REBUILDING

(1) A two level bridge will have to be built at the mouth of the river to carry the express highway planned for the West Side of Manhattan above the New York Central Railroad tracks.

(2) The proposed Hendrick Hudson Memorial Bridge should be constructed as a link for light traffic connecting a park drive in Inwood Hill Park with the high land of Spuyten Duyvil, with a clearance of 75 feet.

(3) The parkway connection between Riverside Drive near Dyckman Street, and Van Cortlandt Park, would cross the Harlem at a point immediately west of Baker Field, and between the railroad sidings and the bluff on the Bronx side of the river.

(4) There is no simple, easy way of getting from Sedgwick Avenue in The Bronx across to the Dyckman Street Ferry. It is proposed to provide such a connection by means of a bridge starting from Sedgwick Avenue at New York University and continuing in a straight line toward the junction of Broadway and Dyckman Street. Wherever such a bridge reached the level of the ground the roadway should be continued until it intersected the Broadway-Dyckman Street junction.

(5) Another bridge is proposed from Tremont Avenue in The Bronx to the end of Amsterdam Avenue in Manhattan. Traffic headed west thus accommodated would continue around Fort George Avenue across a new viaduct to Fort Washington Avenue. Although somewhat local in significance this bridge will be necessary.

(6) The next bridge is opposite the George Washington Bridge now under construction at 178th Street and forms an approach from the east. When constructed this bridge will form a link in the Metropolitan Highway Loop circling the more closely developed portion of the Region. The Washington Bridge over the Harlem is only three blocks north of the proposed site, but it cannot take care of the situation, especially as crossing must be provided for rapid transit and railroad trains. (Studies were presented in Plan Volume I, showing how this proposed new bridge might also be used for carrying railroad and rapid transit tracks.¹⁾)

(7) Eighth Avenue should be continued northerly in a straight line across the Harlem to connect with a proposed waterfront highway over the railroad.

(8) At 151st Street and Seventh Avenue a new bridge would facilitate circulation to and from the Yankee Stadium and the Bronx Municipal Market.

(9) A major proposal of great importance is to replace the present 145th Street Bridge with a new one that would form a connection across the Harlem between the proposed 125th Street tunnel under the Hudson and the proposed railroad center at the Mott Haven Yards.

(10) It is proposed, as already stated, to remove the railroad tracks from Park Avenue north of 96th Street, putting them underground. It is possible for the railroad line to get to the surface at Mott Haven Yards on easy gradient after it passes

¹ See Regional Plan, Volume I, pages 200-202 and 223.

IN UPPER MANHATTAN AND THE BRONX



Photo by Fairchild Aerial Surveys, Inc

AIR VIEW OF APPROACHES TO THE EASTERN END OF THE GEORGE WASHINGTON BRIDGE
Showing especially the connections to the east, including tunnels in northern Manhattan, a new Harlem River Bridge, and a through highway route across The Bronx.

under the Harlem River. The present upper level in Park Avenue could then be converted to vehicular use. A new bridge on the site of the present structure would take traffic in a very nearly direct line to the Grand Boulevard and Concourse.

(11) Third Avenue should be extended in a straight line across the Harlem, scrapping the present bridge. It would then be on the axis of the approach to the railroad center at Mott Haven Yards and would also furnish easy connection to the Grand Boulevard and Concourse.

These bridges will ultimately be necessary whatever plan is adopted. While we advocate fixed bridges in preference to movable ones, as logical and proper for all requirements, we present rough sketches by Mr. Francis S. Swales of different types. (See page 457) Two of these sketches show a double deck bascule type of bridge.

OPPORTUNITIES IN REBUILDING



FIG.

LAND DEVELOPMENT

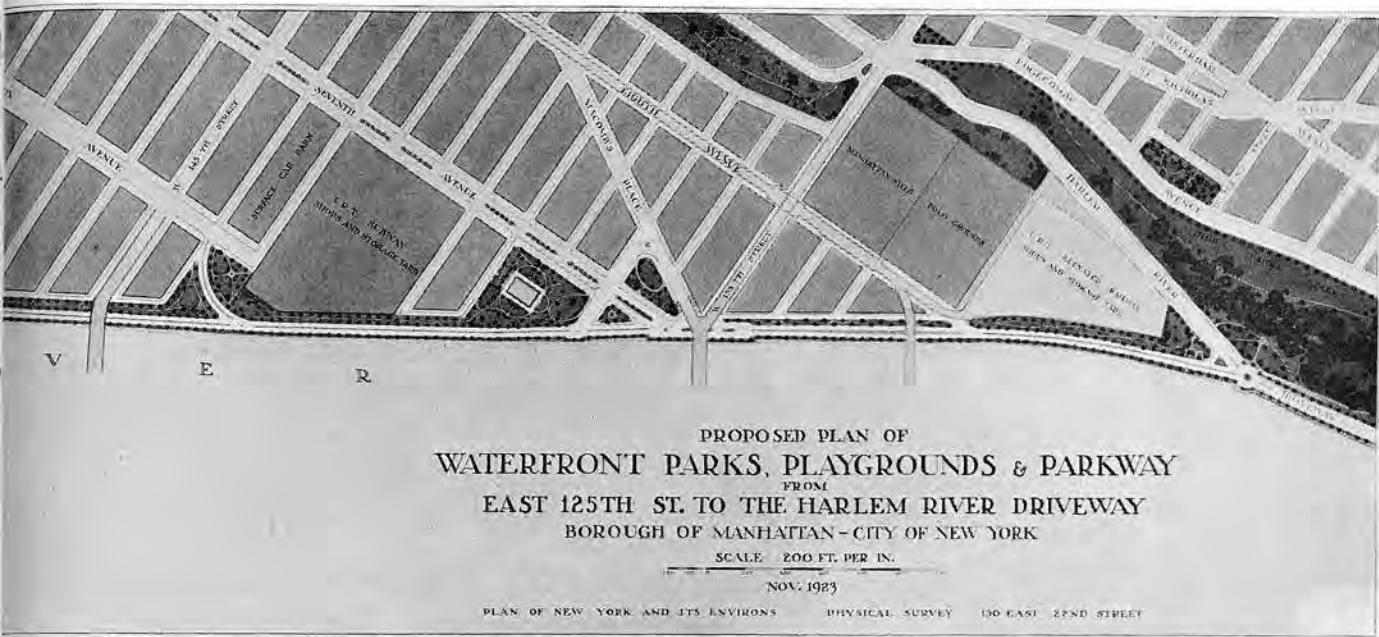
Since the Harlem Valley is neither suitable nor necessary for large scale industry or shipping, and is admirably adapted as a great center for light industry, business, transportation, marketing and auxiliary economic activities, steps should be taken to encourage its growth in the latter direction. It has a water highway of appropriate scale, with the prospective qualities only needing to be developed, to make it the Seine or Thames of New York.

That development must begin by providing adequately for future railroad needs, including assignment of the low lands bordering the river for future railroad extensions, and continue by providing a liberal spaciousness of street, waterfront boulevard, parks and parkways to a large extent on two levels to fit in with topographic conditions.

We propose, in keeping with our policy of submitting ideas for consideration rather than definite plans as perfect solutions, to present two conceptions of what should be done. These conceptions are not in conflict in principle, and in so far as they are in conflict in detail they can be harmonized. One deals only with the Manhattan side of the river. It is frankly more practical because more limited in scope. The two plans may be considered as complementary—the one as the starting point for a part and the other as a conception of the possibilities of the whole.

Parkway along the West Side of the Harlem River.—The first plan, prepared in 1922, suggests a park development on the Manhattan side of the river. It is shown on the

IN UPPER MANHATTAN AND THE BRONX



accompanying map (Fig. 61). Another small scale drawing (Fig. 62) shows the existing waterfront conditions in the area covered by the plan.

The plan shows a roadway adjacent to a combined pierhead and bulkhead line, passing under each one of the existing low level bridges and affording adequate connections with all the north and south avenues between these points. A six lane driveway along the waterfront is suggested, with a 20 foot service drive adjacent to property left for building development. Throughout most of this area the bulkhead and pierhead lines are already coincident. Where this is not so, the bulkhead line would have to be moved out to the pierhead line to make the proposed treatment possible.

It is believed that such a parkway would not only greatly increase the availability of the less congested avenues connected with it for through north and south traffic, but, upon the completion of the Tri-borough Bridge, would form an important part of a by-pass connection from Long Island to northern Manhattan.

Sufficient accommodation for waterfront terminals for this particular part of Manhattan could undoubtedly be maintained along that part of the East River directly south of 125th Street.

The Plan of Ultimate Development.—In considering the plan prepared by Mr. Francis S. Swales and Professor William A. Boring in collaboration with the writer, we have taken into account the fact that the lands abutting on Harlem River permit of economical development on two levels. The plan provides for the economic

OPPORTUNITIES IN REBUILDING

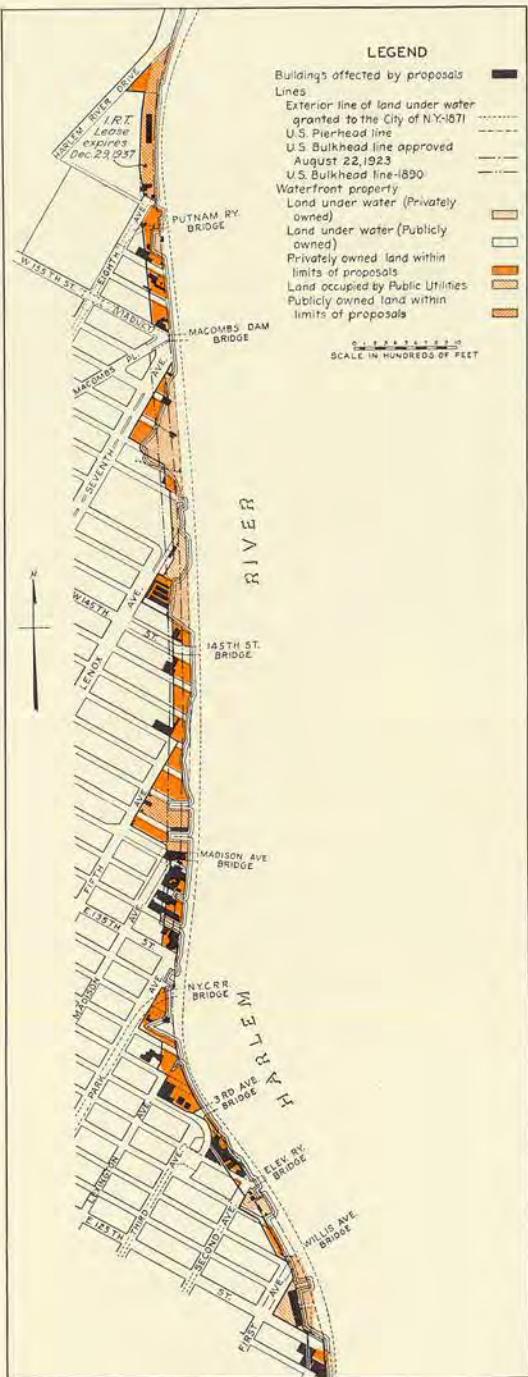


FIG. 62
THE PROPOSED HARLEM RIVER PARKWAY IN MANHATTAN, SHOWING ITS RELATION TO EXISTING STRUCTURES AND LAND USES

use of both levels by the construction of marginal roads and avenues thereon, and the building of a number of new bridges already described. Different kinds of zoning regulations would have to apply on different levels so as to permit free commercial use of certain lower areas and restrict the higher areas to business and residence.

Perhaps the chief controlling element is the railroad development. We have already stated our belief that in course of time the Mott Haven Terminal will be one of the great terminals of the city. The prospective development of the terminal and its surroundings are indicated on the plan and illustrated by sketches and cross sections. It will be seen that a great tower is suggested in the design. This would be on the axis of Third Avenue extended, and also on the axis of the proposed roadway to connect with 125th Street and the Hudson River. From the north it would be on the axis of Sherman Avenue. The building would be a union passenger terminal with office space in the upper floors, and would form one of the principal transportation centers in the series of terminals shown on the Graphic Regional Plan.

This district would also be the center of a large volume of traffic. From the south it is approached readily from Park Avenue and Third Avenue by new bridges. A huge triangular open space serves as a plaza for circulation of traffic from both these bridges and also as a terminus to the boulevard proposed on Exterior Street. Traffic from Manhattan headed northeast or north along the Harlem would not have to pass through the area.

IN UPPER MANHATTAN AND THE BRONX

One proposal for ultimate development is to run an automobile speedway above the tracks of the New York Central and its Putnam Division and across the low lands of Tibbetts Brook to Broadway at 234th Street. This would provide a speedway from Yonkers to the East River and, by means of higher level bridges over the Harlem, provide direct access to the northerly end of all the avenues of Manhattan between and including Second and Eighth avenues.

Traffic from the west would cross over the Harlem at the present 145th Street Bridge site into or under a great raised plaza from which it could pass on either side of the station or go directly to the station.



Francis S. Swales, Architect

PERSPECTIVE OF THE PROPOSED MOTT HAVEN TERMINAL AND SURROUNDINGS
Including a great open plaza extending to the Harlem River.

Traffic from the north could also go directly to the station without causing any undue congestion. Ample spaciousness is provided and while the station can be approached simply and directly from all sides, it can also be by-passed by traffic wishing to go beyond. The air rights over the Mott Haven Yards will eventually be used for buildings in much the same way that the air rights have been used at the Grand Central Terminal.

The sketches show the effect of the great plaza at 149th Street (Bronx side), a view of a civic and commercial center at Mott Haven, a view looking toward Manhattan from the tower at Mott Haven, and suggested types of architectural development. The complete plan is shown in perspective on the following page.

OPPORTUNITIES IN REBUILDING

On the Manhattan side the low land would be a bridged area 300 or 400 feet wide, parallel to the Harlem, reached by low ramps or split streets. The effect of this would be to make the entire Harlem River a magnificent avenue between the Hudson and the East rivers, serving as the principal crosstown distributor of traffic to or from all the avenues.

The proposed wide diagonal avenue shown on the plan approximately at the line of the 145th Street Bridge follows the axis of the bridge, connecting Mott Haven to Eighth Avenue; beyond that point it extends, partly on the surface and partly depressed or in tunnel, to dock level at Manhattanville, connecting with a proposed vehicular tunnel under the Hudson River. As the routes along the Harlem would



A BIRD'S-EYE VIEW OF THE PLAN OF DEVELOPMENT FOR THE HARLEM RIVER VALLEY

distribute traffic between Manhattan avenues and points north and northwest, so this diagonal would serve in a similar way to distribute suburban automobile traffic from Jerome Avenue and the Harlem River Valley to the avenues north and west of Central Park. The diagonal would also facilitate traffic circulation in Eighth Avenue, which should be widened. The Polo Grounds, Yankee Stadium and athletic fields at McComb's Dam Park at present attract about 150,000 people on busy afternoons and this athletic center will doubtless develop on a much larger scale.

The marginal boulevard along the Harlem River would distribute traffic from the proposed sunken level roadway in Second Avenue. The traffic from this speedway would pass along the boulevard to the proposed new diagonal, where it could

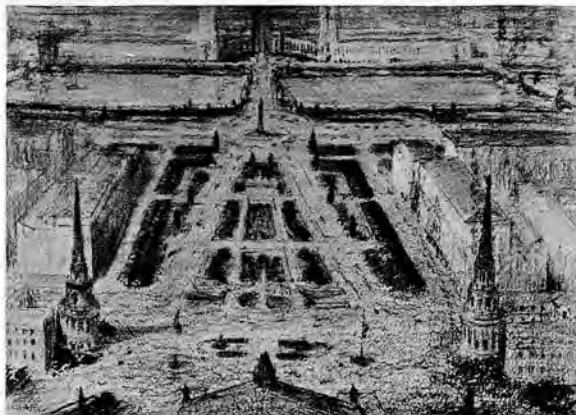
IN UPPER MANHATTAN AND THE BRONX

pass in a sunken roadway to the vehicular tunnel at St. Nicholas Avenue, thence through the tunnel to Riverside Drive on the Hudson River.

We refrain from giving detailed description of the numerous features of the plan. To do so would indicate an assumption of its immediate practicability. It visualizes marginal roads and highways, great improvements of upper and lower lands, important future connections between Manhattan and The Bronx, that would bring about their unity in a marked degree. If the preliminary plan is carried out first, it will provide a boulevard along the Manhattan side of the river south of the Harlem River Driveway as an important part of a waterfront highway encircling Manhattan and as a direct outlet for all the avenues east of and including Eighth Avenue. This boulevard would pass under all the bridges over the river, and connect with the proposed East Side highway along the East River.

As a part of this waterfront highway it is also proposed to extend the Harlem River Driveway northerly around the Manhattan shore, finally connecting with the proposed speedway on the West Side over the railroad tracks. It would pass under all present or future bridges, thus providing lanes for express traffic. It should be a boulevard in character, which would limit its use to pleasure vehicles. The roadway should be far enough away from the river to leave space for a planting strip and a promenade. Much of the material required for filling in behind the quays could be obtained from dredging the river.

On the assumption that the War Department will carry out its plan for the further straightening of the Harlem River at Spuyten Duyvil it is proposed that Inwood Hill Park be extended by filling in the area between the present shore and the projected line of the river. The level space thus acquired might reasonably include such park uses as a swimming pool, athletic courts and play spaces.



A.—LOOKING TOWARD THE HARLEM RIVER

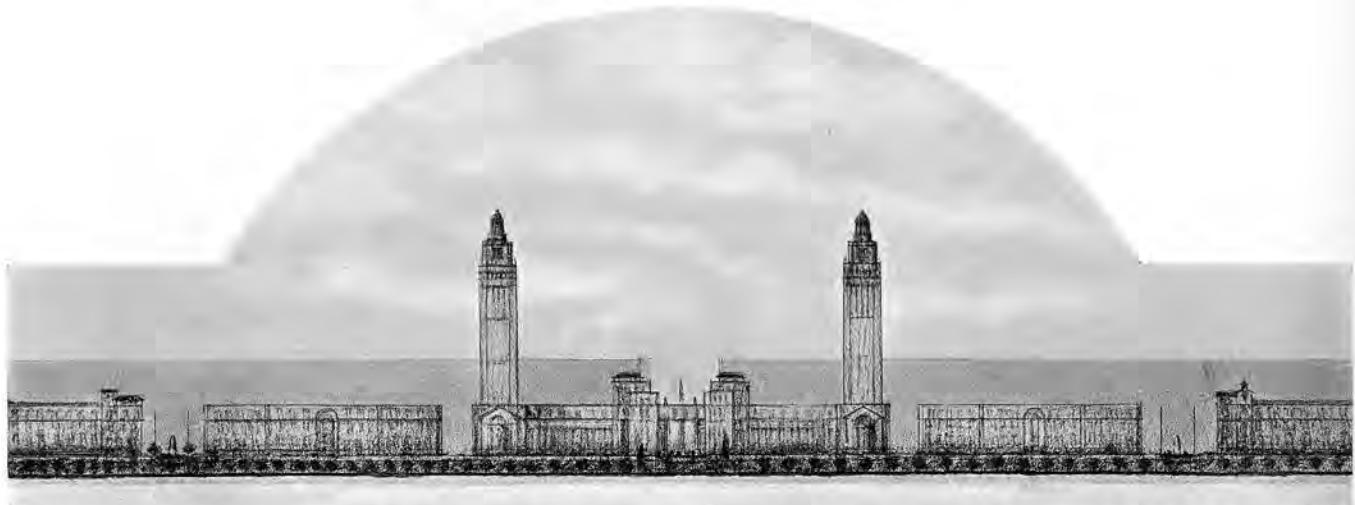


Francis S. Swales, Architect

B.—LOOKING TOWARD THE RAILROAD TERMINAL

STUDIES OF THE GREAT PLAZA BETWEEN THE PROJECTED
RAILROAD TERMINAL AND THE RIVER

OPPORTUNITIES IN REBUILDING



Francis S. Swales, Architect

ELEVATION OF THE MANHATTAN SIDE OF THE HARLEM RIVER, SUGGESTING TYPES OF DEVELOPMENT EXPECTED TO FOLLOW THE CONSTRUCTION OF THE PROPOSED DRIVEWAY

We have particularly avoided attempting to deal with the specific opportunities of the Harlem River area for improvement of railroad facilities, other than our suggestion that they are of primary importance and that a new union terminal should be developed on a large scale. However, Mr. Frederic A. Delano's plan for a New Jersey railroad connection across the Hudson and from 130th Street in Manhattan to yards in southern Bronx, presents interesting possibilities that should be investigated.

Need of Public and Private Cooperation.—No part of our conception of future possibilities in the New York region is of such striking interest from the point of view of the opportunities presented as this plan for Harlem River Valley. To a person of limited imagination the plan may seem visionary. It contemplates a treatment which may seem impossible of realization. To carry it out gradually in the form proposed would involve great expenditure. We frankly present the project as an ideal, but it may be made a reality in time if proper steps are taken to lay the foundations now by planning, zoning, land acquisition and cooperation between the railroads and the public authorities.

Harlem River links rather than separates Manhattan and The Bronx. The forces that have caused growth in Manhattan to move northward have made Manhattan and The Bronx a unit somewhat resembling the unity of Brooklyn and Queens.

Looking back on what has happened in twenty-five years in mid-Manhattan, we get some idea of what may happen in northern Manhattan and lower Bronx in the next twenty-five or thirty years. With these possibilities in mind it is proper to have an ideal plan as a basis for working out the gradual improvement of the

IN UPPER MANHATTAN AND THE BRONX

valley. To reduce this ideal to practice would be the function of a comprehensive city plan and there is urgent need for the preparation of such a plan.

The views we have shown of existing conditions along the Harlem River Valley indicate that now is the time to plan improvements and to obtain the necessary control over new developments.

In a city of the aggressiveness and unity of spirit of Chicago such opportunities would probably be seized with the same vigor that that city has applied to the improvement of its waterfront. New York may yet wake up to the importance of planning ahead with sufficient courage to obtain the right kind of improvements in such an area; but the rapidity of change will mean that the awakening will be too late after another few years.

It will be observed that the plan makes the most of the advantages offered by the differences in levels along the two sides of the river. Incidentally it will be

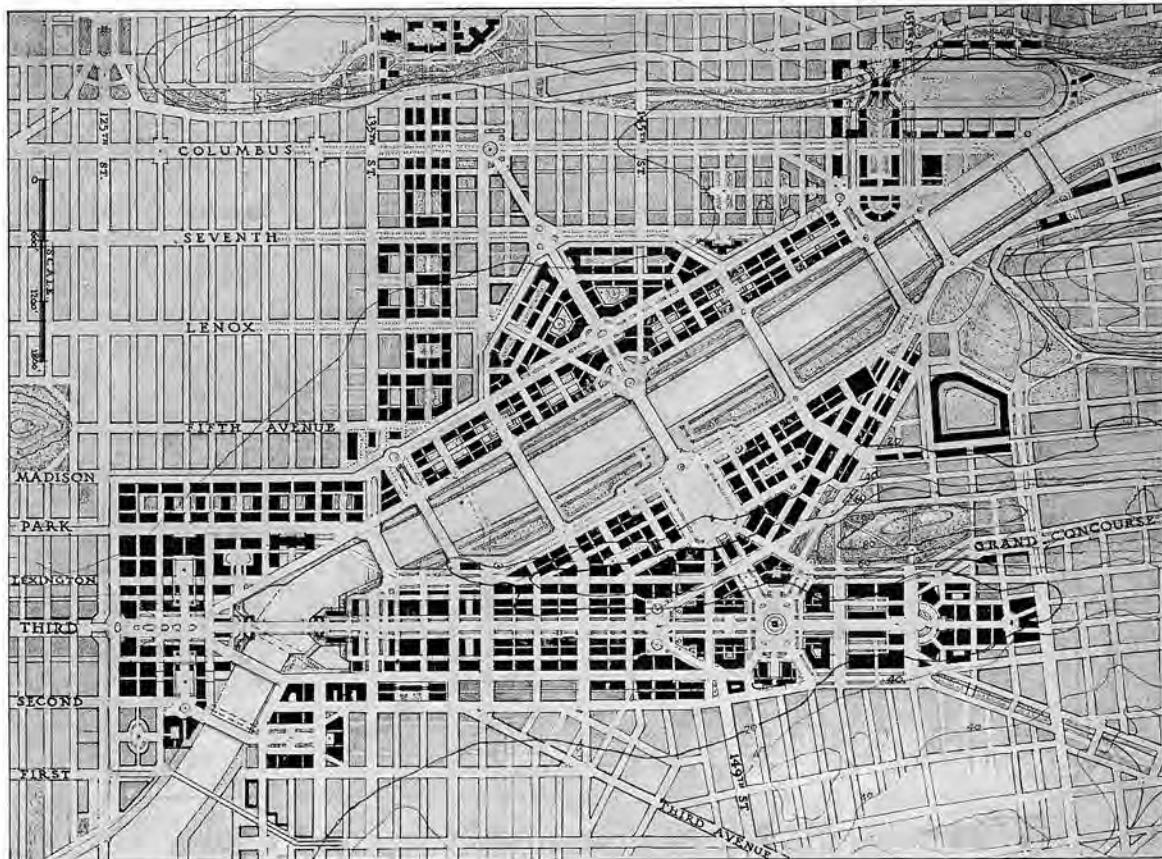


FIG. 63

Francis S. Swales, Architect

PLAN SHOWING A CONCEPTION OF THE POSSIBILITIES FOR RE-PLANNING ON A GRAND SCALE ON BOTH SIDES
OF THE HARLEM RIVER VALLEY

OPPORTUNITIES IN REBUILDING

observed how important Second and Third avenues become in relation to Mott Haven and the Grand Concourse. This adds to the importance of removing the elevated railways from these avenues.

EAST AND WEST CONCOURSE IN THE BRONX

The importance of developing a wide cross-borough highway to connect the Hudson River Bridge and the Tri-borough Bridge, as well as the bridge likely to be erected in the future between Old Ferry Point in The Bronx and Whitestone in Queens cannot be too strongly emphasized. A drawing is shown (Fig. 64) of a cross-borough boulevard prepared by the borough authorities in 1905. Our proposal for a great highway and bridge connection is shown in the Graphic Plan and is part of the Metropolitan Loop Highway.

Upper East Side of Manhattan

From the entrance to Harlem River south to 86th Street—the only part of the waterfront of Manhattan to which we have not referred—there is much poor development and scope for improvement. At the northern end of this stretch we have a proposed connecting bridge from 125th Street to Tri-borough Bridge over Randalls Island. Further south we pass Jefferson Park to the site of the proposed bridge centering between 108th and 109th streets, connecting with the Tri-borough Bridge over Wards Island, and indirectly with Central Park by a parkway to the west of Second Avenue. At the southern end Carl Schurz Park extends on both sides of 86th Street. The whole of Randalls Island and the greater part of Wards Island are proposed as city parks.

If our proposals for developing the East River Islands as parks are carried out, it is evident that the land along the riverfront in Manhattan will be of very high value for apartment residences. The waterfront should be laid out to harmonize with this prospect and assist in giving it the most attractive environment.

Avenue A begins in this area at 93rd Street and extends southward as a fine avenue to 53rd Street. Between this and the river good apartment development is already taking place. Our plan for the middle East Side shows ambitious proposals for the blocks to the east of this avenue up to 88th Street.

From Carl Schurz Park north an elevated roadway could be justified to assist by-passing of interior avenues, but we think this is one of the places where its omission would be an advantage. We would much prefer to see continuous quay development along the irregular shore between 100th Street and 125th Street, with occasional places for tidy commercial use. Between 92nd and 100th streets the riverfront is now used for handling building materials and this could be continued with improved landing facilities and behind it a wide marginal way planted with trees.

IN UPPER MANHATTAN AND THE BRONX

Below 92nd Street the marginal way should be laid out as a broad marginal boulevard to Carl Schurz Park. With the island parks opposite in a northeast direction and the wide expanse of the upper East River beyond, this would form one of the finest sites of New York. Fast through traffic will be taken care of by the improved First Avenue with the markets removed, the sunken roadway in Second Avenue, and Third Avenue as eventually cleared of surface obstructions.

The bay north of Carl Schurz Park makes a deep indentation in Manhattan. The land falls off abruptly from the crest of a hill between 83rd and 84th streets to 90th Street, beyond which the land is only about 20 feet above water level.

In connection with the proposed removal of the Harlem wholesale market and street vendors from upper First Avenue, these should be well housed in the neighborhood, with ample space for future needs. Better sanitary conditions would pre-



FIG. 64

vail at retail markets if they could be built in long stretches of narrow buildings rather than on broad rectangular or large square sites. Between 103rd and 109th streets and east of Pleasant Avenue a long stretch of shallow market buildings could be erected with broad open space between and with shipping facilities on the quays.

SOME GENERAL CONSIDERATIONS

Whatever difficulties may appear to stand in the way of such projects as we have been describing, the problem should be approached from the point of view of the advantages that would accrue to one owner in possession of all the waterfront land, rather than of the conflicting interests of many small property holdings.

There are important property interests concerned with securing the proper development of the East Side area of Manhattan. These include the Rockefeller Institute, residents of Sutton and Beekman places and the owners of Tudor City. The best

OPPORTUNITIES IN REBUILDING

opportunities for the development of good residential districts in Manhattan are on its waterfronts.

The distribution along the waterfronts of tree-planted quays similar to those of the Thames embankment of London and the quays of Paris, connecting up the existing waterfront parks, is visualized as part of the treatment of the marginal ways.

In places other than those indicated on the plan, it may be desirable to develop raised drives forming setback terraces over certain valleys between high lands, as at Manhattanville, and between high bluffs and low land, as suggested at East 42nd Street between Prospect Place and First Avenue.

Summary of Proposed Improvements

The following is a summary of the proposals for the areas discussed in this chapter:

LIST OF PROPOSALS ON PLAN OF UPPER MANHATTAN AND ADJACENT PORTIONS OF THE BRONX

Project number	Name of project	Beginning	Continuing	Ending
1	Widening of Central Park West roadway	West 59th Street		Cathedral Parkway
2	Widening of transverse road at 79th Street	Central Park West	Across Central Park	Fifth Avenue
3	Widening of transverse road at 97th Street	Central Park West	Across Central Park	Fifth Avenue
4	Tri-borough Bridge ¹	Borough of Queens	Across Wards and Randalls Islands	East 125th Street, Manhattan; Southern Boulevard, The Bronx
5	Welfare Island Park	South end of island	Entire island west of New York Connecting Railroad	Opposite 72nd Street
6	Park on Wards Island		Entire island	
7	Park on Randalls Island		Across channel	
8	Tri-borough Bridge connection	Second Avenue between 108th and 109th streets		Tri-borough Bridge at Wards Island
9	Marginal boulevard	89th Street (Carl Schurz Park)	Waterfront	125th Street
10	Parkway	Central Park	Between 106th and 107th streets to East River, north along East River	116th Street
11	110th Street roadway widening	Second Avenue		Central Park
12	Sunken road in Second Avenue	East Houston Street		
13	Fifth Avenue roadway widening	59th Street	Along Central Park	Harlem River 110th Street
14	Square and vista	Cathedral Parkway	Between Broadway and Amsterdam Avenue	Columbia University
15	Watergate	Opposite West 115th Street	Across Riverside Park	Opposite West 117th Street
16	Vehicular tunnel	125th Street	Under Hudson River	New Jersey
17	Vehicular tunnel	125th Street at Hudson River	East	St. Nicholas Avenue at West 137th Street
18	Diagonal street	St. Nicholas Avenue at West 137th Street	East	Harlem River
19	Parkway	Third Avenue	Along west bank of Harlem River	Harlem River Driveway
20	Elevated highway		Park Avenue	
21	New bridge	96th Street	Over Harlem River at Third Avenue	Harlem River
22	New bridge		On present site over Harlem River at Park Avenue	

¹ Construction started October, 1929.

IN UPPER MANHATTAN AND THE BRONX

LIST OF PROPOSALS ON PLAN OF UPPER MANHATTAN AND ADJACENT PORTIONS OF THE BRONX—*Continued*

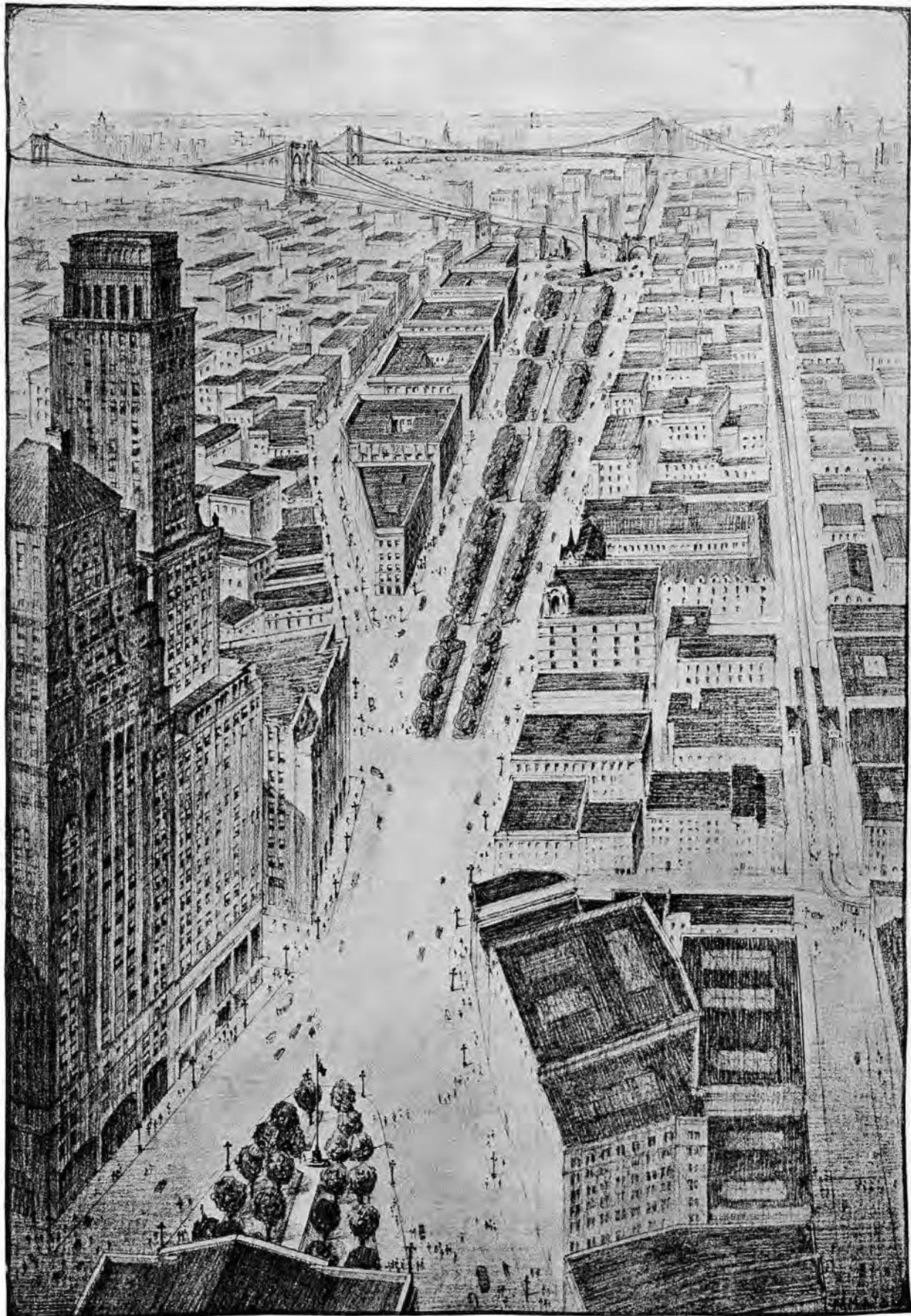
Project number	Name of project	Beginning	Continuing	Ending
23	New bridge		Over Harlem River at 145th Street	
24	Improved Exterior Street	Third Avenue Bridge	On upper level parallel to river	McComb's Dam Park
25	Union passenger terminal		South end of Mott Haven railroad yards	
26	Third Avenue Extension	Harlem Bridge	Over railroad tracks	Proposed railroad terminal
27	Plaza	Third Avenue Bridge		Park Avenue Bridge
28	Plaza	At 145th Street Bridge		
29	New street	Third Avenue Bridge	Along Canal Place and extending beyond	Railroad terminal
30	New street	Park Avenue Bridge	One block west of Third Avenue extension	Railroad terminal
31	System of new streets	145th Street Bridge Plaza		Railroad terminal
32	Grand Concourse Extension	East 163rd Street	Southerly	Railroad terminal
33	New highway over railroad	Railroad terminal	To and along Harlem River	Broadway at 234th Street
34	New bridge	Seventh Avenue at 151st Street	Right angles to river	Highway over railroad
35	New bridge	Eighth Avenue	Diagonally across river	Highway over railroad
36	Hudson River Bridge ¹	New Jersey		178th Street
37	Tunnel	Bridge plaza	Easterly	Amsterdam Avenue
38	Bridge	178th Street at Amsterdam Avenue	Over Harlem River	Sedgwick Avenue
39	Tunnel	Sedgwick Avenue		Jerome Avenue
40	New bridge	Fort George Avenue	Over Harlem River	Tremont Avenue
41	New bridge	New York University	Over Harlem River	Manhattan
42	New street	Broadway at Dyckman Street	Diagonally	Proposed New York University Bridge
43	Harlem River Driveway Extension	Highbridge Park	Along Harlem River	Hudson River
44	Harlem River straightening ²		Across northerly tip of Manhattan	
45	Inwood Hill Park Extension		Fill in present crook of river	
46	Hendrick Hudson Memorial Bridge	Inwood Hill Park	With 75 feet clearance, as park roadway	Spuyten Duyvil
47	Riverside Drive Extension	One block south of Dyckman Street	East Side of Inwood Hill Park	New bridge connecting with proposed parkway along Tibbetts Brook
48	Two level bridge		Over mouth of Harlem River on site of present railroad bridge	
49	Express highway	72nd Street	Over railroad tracks	Spuyten Duyvil
50	Express highway extension	Spuyten Duyvil	Along waterfront	Yonkers
51	New bridge	East of Inwood Hill Park, Manhattan	Over Harlem River	Proposed parkway along Tibbetts Brook

¹ Under construction; formal opening scheduled October 24, 1931.

² U. S. War Department project.



A VIEW ALONG THE FUTURE HARLEM RIVER



PROPOSED BROOKLYN BRIDGE APPROACH AS SEEN FROM BOROUGH HALL (PLAN I)



Photo by William Frane

THE SKYLINE OF DOWNTOWN BROOKLYN

XIV. IN BROOKLYN, QUEENS AND STATEN ISLAND

Inner Brooklyn

GENERAL CONDITIONS

The in-town section of Brooklyn surrounding Borough Hall and including Brooklyn Heights and the adjacent waterfront is second in importance to lower Manhattan as a nerve center of the metropolis. This center is bounded by the eastern shore of Upper New York Bay and East River, the line of Atlantic Avenue from the bay front to Smith Street, and the line of Smith Street and Jay Street. These boundaries enclose a triangular area within which there lies the great business and civic heart of Brooklyn.

This borough, with its 2,560,000 inhabitants, not only surpasses Manhattan in population, but possesses, in size and potentialities for further growth, a much greater scope for expansion. Its in-town section has within it a fine old residential district suffering gradual deterioration and a most important part of the Brooklyn waterfront. In an important sense this section is the least developed and most disordered part of the borough.

Were Brooklyn a separate city, it would probably now have a civic and business center worthy of its immense population and commercial importance. As a part of New York City it has been handicapped in asserting its civic independence and developing its civic unity. This has been due in part to its rapidity of growth as well as to other factors connected with its proximity to Manhattan.

Immense bridges over the East River have brought the elevated railways that carry multitudes of commuters into and beyond the borough. These elevated structures converge upon Brooklyn Bridge through the heart of its municipal and business district, and in doing so have created scarred and blighted areas that have made it impracticable to secure any sense of order where it is most needed in a great community. Fine modern buildings have been erected and a few street improvements have been carried out in the central district, but these have increased rather than

OPPORTUNITIES IN REBUILDING

lessened the disorderly appearance by throwing ugly railway structures and deteriorated buildings into bolder relief against the new developments.

The civic and business center, the residential district of Brooklyn Heights, the approaches to Brooklyn Bridge and the waterfront development on the northern end of the Upper Bay must be dealt with together in a bold scheme to make Brooklyn's center one of appropriate dignity and distinction.

The Graphic Regional Plan showed no highway proposals for this inner section of Brooklyn. It did, however, contain suggestions for a marginal waterfront railroad corresponding to that shown in the Comprehensive Plan of the Port of New York Authority, and for a trunk line and suburban rapid transit loop in Atlantic Avenue to connect the tracks of the Long Island Railroad system with Manhattan, and through Manhattan with New Jersey.

In respect to land uses, the immediate waterfront was shown on the Graphic Plan as industrial and it was assumed that residential areas would be maintained between the commercial waterfront and the main business center. The most important part of these residential areas which should be maintained consists of what is known as Brooklyn Heights. On these heights many apartment buildings have been constructed in the past few years, providing excellent housing accommodations only five to ten minutes by subway from the downtown business section of Manhattan.

Changes in Streets and Buildings.—The only major street changes which have been carried out in this downtown section are the widening of Livingston Street, in 1905, from 50 feet to 80 feet, and the cutting through of Flatbush Avenue Extension, completed in 1909, as the approach to the Manhattan Bridge over the East River. The principal retail center of Brooklyn has remained along Fulton Street, which has an elevated railway throughout its length leading to the Brooklyn Bridge and the site of the old Fulton Ferry.

In the immediate vicinity of the old City Hall, now the Borough Hall, and the new Municipal Building to the south of it, are many new buildings, including several skyscrapers and office buildings that have been erected during the past ten years. A fine new Court House is now nearing completion at Smith and Schermerhorn streets.

One of the great defects of Brooklyn is the lack of a good approach to the Brooklyn Bridge. The roadways leading onto the bridge are crossed by a maze of trolley tracks. Above these is the ugly tangle of elevated railways. As a result, building development directly south of the bridge has been retarded and much of this area is still comparatively unused.

Plan of 1913.—Plans for a rearrangement of this part of the city were prepared by Mr. Edward H. Bennett and submitted to Comptroller William A. Prendergast in 1913 in a report on downtown Brooklyn,¹ prepared under the guidance of a com-

¹ DOWNTOWN BROOKLYN—A REPORT TO THE COMPTROLLER OF THE CITY OF NEW YORK ON SITES FOR PUBLIC BUILDINGS AND THE RELOCATION OF THE ELEVATED RAILROAD TRACKS NOW IN LOWER FULTON STREET, Borough of Brooklyn, 1913.

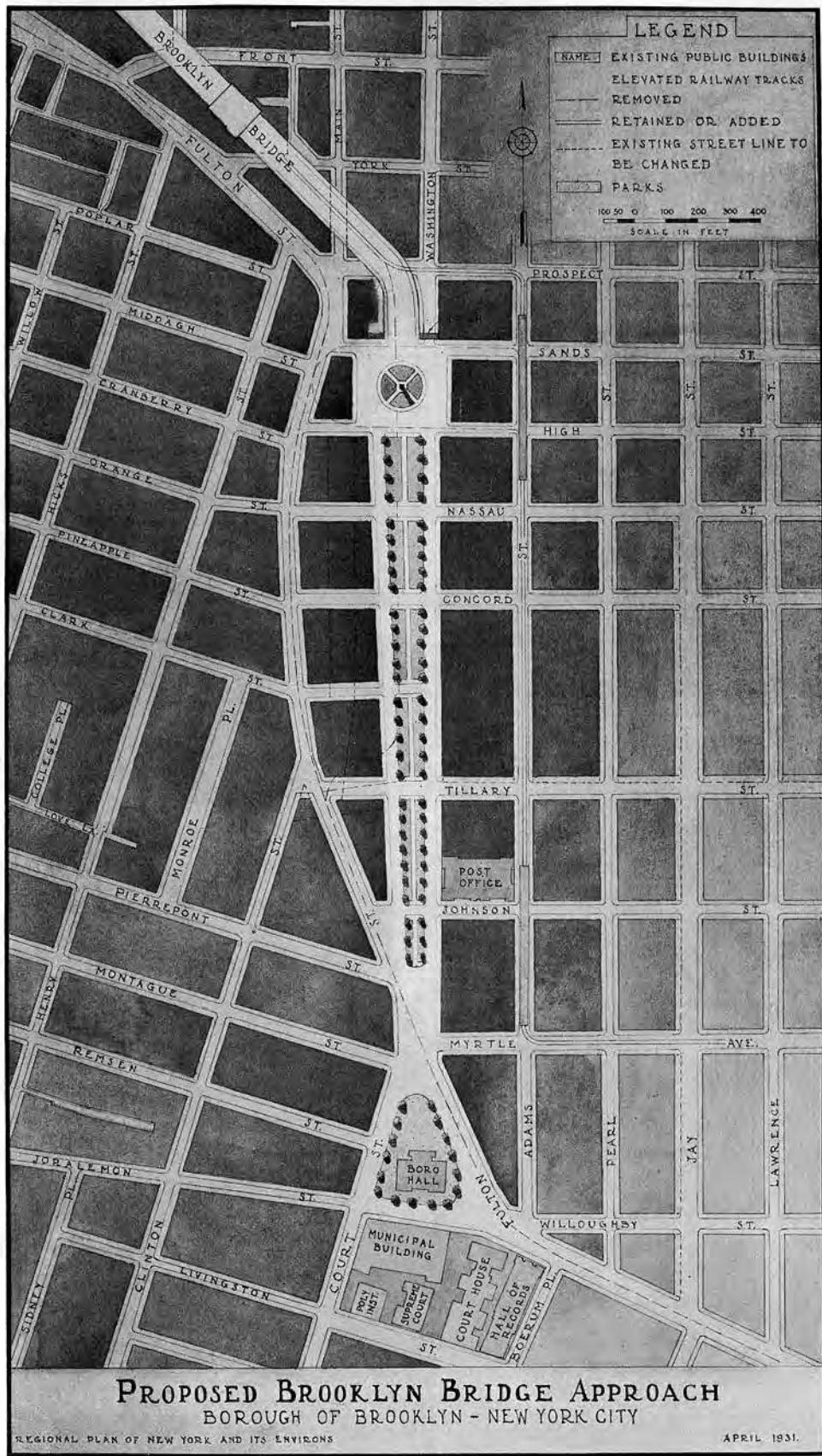


FIG. 65
PLAN I—AN ALTERNATIVE (PLAN II) IS SHOWN ON PAGE 481

OPPORTUNITIES IN REBUILDING

mittee of ten Brooklyn citizens. This plan called for the diversion of the Fulton Street elevated railway tracks alongside Adams Street as an approach to the Brooklyn Bridge, combining them with the Myrtle Avenue elevated railroad. Since that time construction has been started on a subway line in Fulton Street which brings nearer to realization the elimination of the elevated railway tracks in this street. Mr. Bennett's plans also contemplated the retention of Liberty Street in its present location.

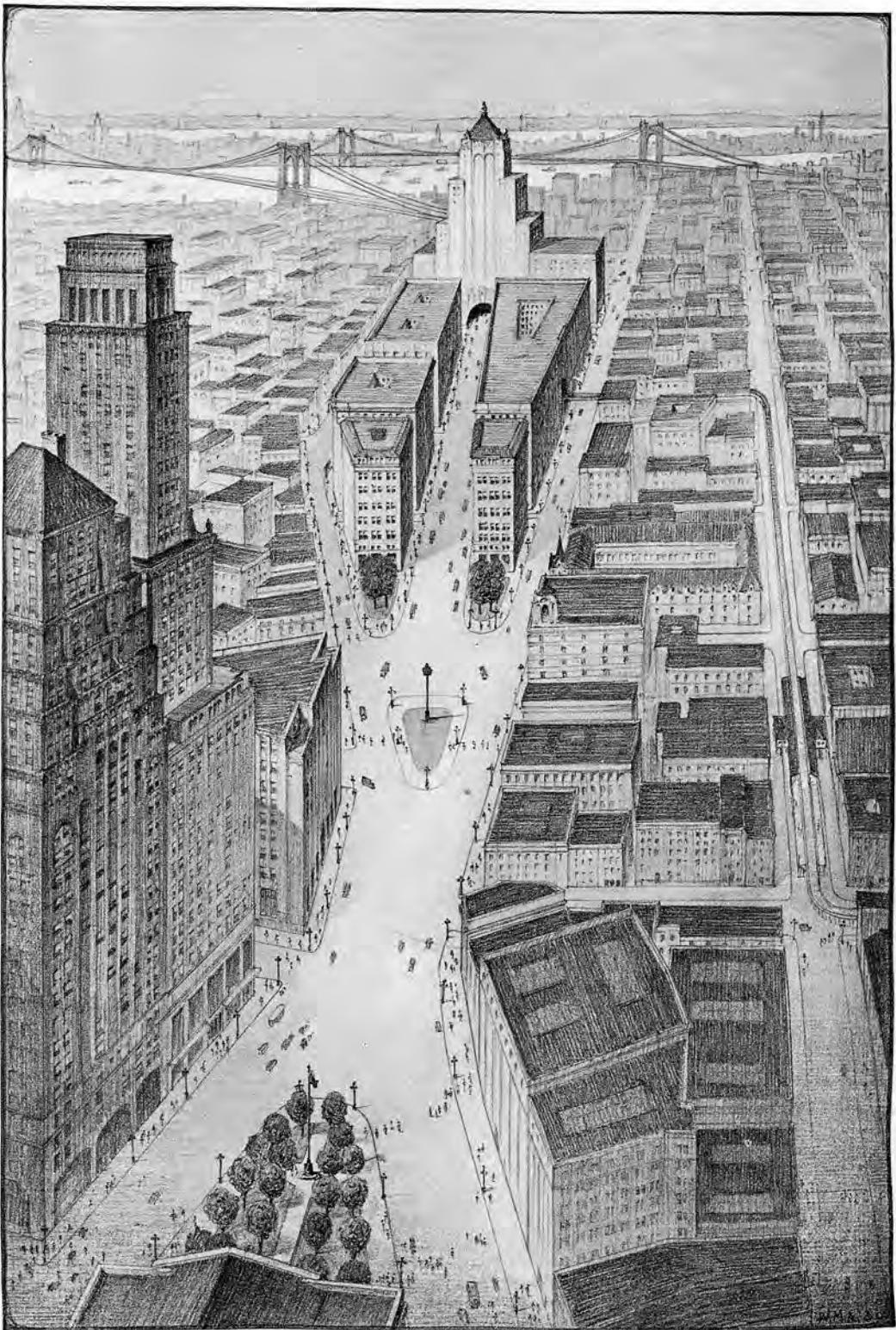
Scope of Present Proposals.—The proposals we will now make deal with the two contiguous areas we have referred to—as somewhat distinct but definitely related units.

In the studies made we have given consideration: (a) to the treatment that is most desirable to obtain better utilization of the area immediately to the south of Brooklyn Bridge as an extension of the existing civic and business center; (b) to the best arrangement of streets and building blocks for an improved type of apartment development on Brooklyn Heights, with views preserved over the Upper Bay; and (c) as to how the proposed marginal railroad, shown diagrammatically on the Graphic Plan, might be laid out.

RE-PLANNING OF CIVIC CENTER AND BROOKLYN BRIDGE APPROACH

In making any plan for improving the area south of Brooklyn Bridge we have to recognize that the bridge is not and never can be of importance as a vehicular traffic artery equal to the other East River bridges. In 1930 it carried less than 40 per cent of the traffic that passed over the Manhattan Bridge, upon which an additional roadway was added on the upper level in 1931. A wide new approach to the Brooklyn Bridge cannot therefore be justified purely from a traffic viewpoint. The main justification for the proposal we are making for improving the approaches is that it would make possible a better utilization of the property lying between Fulton Street, Washington Street and the Brooklyn Bridge, and provide a proper setting for buildings and an improved approach to the existing civic center.

We have prepared alternative studies in plan and perspective for this area. The preferred plan, which will be alluded to as Plan I, is shown in Fig. 65 and is also illustrated by a perspective sketch on page 474. It proposes that the present Liberty Street be abandoned and be replaced by an extensive widening of Washington Street on the west side to give a wide boulevard between Borough Hall and a rearranged Brooklyn Bridge entrance in front of which an open plaza is shown. This would take advantage of the fact that a tower of the Manhattan Bridge is on the axis of Washington Street, although no view of the Brooklyn Bridge can be obtained from this part of Brooklyn. In place of the 10 small and irregular blocks now existing between Fulton and Washington streets, six new blocks providing adequate sites for modern buildings would result. Attractive sites would also be found on the east



PERSPECTIVE OF PLAN II FOR AN EXPANSION OF BROOKLYN'S CIVIC AND BUSINESS CENTER AND A
NEW BROOKLYN BRIDGE APPROACH

View from Borough Hall looking toward the Brooklyn Bridge.

OPPORTUNITIES IN REBUILDING

side of Washington Street and the west side of Fulton Street. A widening of Jay Street as projected in connection with subway construction in that street, and a widening of Tillary Street to improve connections with the Williamsburg and Greenpoint sections of Brooklyn are included in the plan.

It has been assumed that the Fulton Street elevated railway will be taken down after the completion of the subway now under construction. With the trains using this railway removed from the Brooklyn Bridge it will be possible for all of the trains now entering the bridge from Myrtle Avenue to continue through to Manhattan, whereas it is now necessary for a large proportion of them to turn back over the loop running through Sands and High streets. It is proposed that this loop be removed, as well as all the present tracks and terminal west of Adams Street. A new station would be constructed on Adams Street between Prospect and Nassau streets, and from this trains would reach the Brooklyn Bridge via Prospect Street. The crossing of Washington Street could be screened from view by an architectural treatment of the north side of the proposed plaza in front of the bridge.



EXISTING CONDITIONS IN AREA PROPOSED FOR EXPANSION OF BROOKLYN'S CIVIC AND BUSINESS CENTER;
VIEW LOOKING TOWARD BROOKLYN BRIDGE

White lines on photograph show proposed new street layout under Plan II.

IN BROOKLYN, QUEENS AND STATEN ISLAND

The alternative study, presented as Plan II, shows a realignment of Liberty Street as the main axis of the new development, with new building sites developed on both sides thereof and along the adjacent frontages of Fulton and Washington streets. Its details are shown in Fig. 66 and the perspective sketch on page 479. The proposed rearrangement of the street system would provide larger blocks than those now existing, but they would not be as well shaped as those which would result from Plan I. At the northerly end of the new Liberty Street a building has been suggested



FIG. 66
PLAN II—ALTERNATIVE TO PLAN I, SHOWN ON PAGE 477

to span the street and provide a structure to balance the Borough Hall and Municipal Building at the other end.

Plan II also shows a plaza in front of Brooklyn Bridge, made possible by the elimination of the present elevated railway loop, and a new elevated terminal moved south of Nassau Street, where an office building could be erected around and above it. The station would connect with the elevated line in Adams Street by the existing connection above Washington Street. A loop for local bridge trolleys within the open plaza thus created would greatly simplify the trolley situation, the through trolleys being carried alongside the elevated railway tracks as at present.

OPPORTUNITIES IN REBUILDING

The lack of modern improvements in the area proposed to be redeveloped is shown by the insert in the upper right-hand corner of the picture on page 489 and is still more evident in the close-up view on page 480 which was taken looking toward the Brooklyn Bridge. The white lines on the latter represent the proposed new street system under Plan II.

Still a third scheme is that recently advanced by Mr. Edward F. O'Brien, construction engineer of the United States Treasury Department, which would eliminate all buildings from the area between Washington and Fulton streets south of the bridge and use it all for widened streets, plazas and public park.

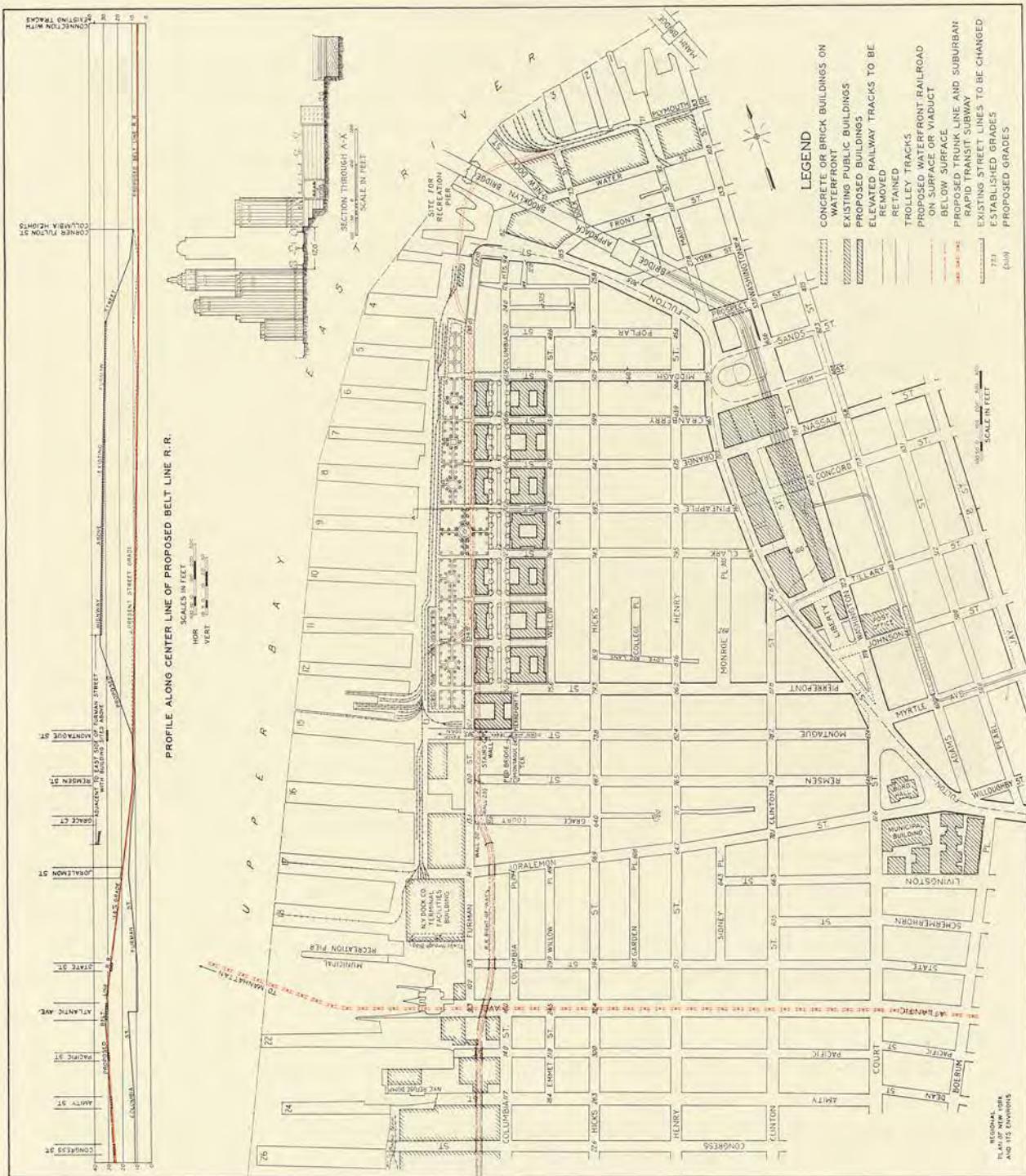
The city authorities must determine which plan can best be carried out. We are convinced that a re-planning of this area is well justified and that our proposals are practical and will justify themselves in increased values and in helping to provide a fitting civic and business center for Brooklyn.

COLUMBIA HEIGHTS

Since Brooklyn's earliest days the high ground facing the East River, with fine views over it, between Fulton Street and Atlantic Avenue, and generally known as Brooklyn Heights, has had a high value for residential purposes.

A unique condition exists for the six blocks from Middagh Street to Montague Street facing the river. Immediately along a private marginal way, at the foot of the docks and a few feet above tidewater, there is a long row of warehouses from five to six stories in height. Behind these warehouses, and at about the same level as the ground in the front, is Furman Street, 50 feet in width. On the land side of Furman Street the grade rises abruptly about 65 feet and along this bluff were grouped, in older days, the mansions of leading citizens of Brooklyn. These houses are served on the land side, at the upper level, by Columbia Heights, a street 50 feet in width, extending from Pierrepont Street to Fulton Street, but from Middagh Street to Fulton Street falling off rapidly at a steep grade. As the warehouses on Furman Street, below, are limited in height to that of the rear yards of the houses on Columbia Heights, the residences along the latter street command an extensive view of the East River and the Upper Bay.

Owing in part to the obsolescence of large numbers of houses on Brooklyn Heights and the migration to Manhattan of many of the families which owned them, this section of the city has lost the place of leadership in value and social distinction that it once had. While this waterfront commands a view which in certain respects is unequalled in the entire city, it has attracted little new building development, notwithstanding the fact that the first station beyond Wall Street on the Clark Street subway of the Interborough is but a few hundred feet east of Columbia Heights. The new Municipal Subway will traverse the northerly end of this section, running beneath Cranberry Street.



OPPORTUNITIES IN REBUILDING

The lack of new development is due, in large measure, to the fact that the streets in this neighborhood are too narrow. Under the requirements of the zoning and the Multiple Dwelling laws the kind of intensive development that is necessary to make building pay in this locality cannot be carried out because of these narrow streets. The cross streets, as well as Furman Street and Columbia Heights, are only 50 feet in width. There are few sections of the city where a change in street planning would result in such a great increase in values as in this area.

The proposals for this section of Brooklyn are shown in Fig. 67, which also shows their relationship to the proposals already described for the area between Borough Hall and the Brooklyn Bridge.

Proposed Street Changes.—Suggestions have been made at various times that a marginal boulevard of the type of Riverside Drive might be constructed along that part of the Brooklyn waterfront between Fulton Street and Atlantic Avenue. From a traffic point of view the construction of such a boulevard would not seem to be justified. The attractiveness of Columbia Heights for residential use has been largely the result of its being in a "backwater" and not subject to the noise, danger and confusion of through traffic. There would seem to be many disadvantages in developing an upper route for through traffic along this shore. A marginal highway on a lower level to serve commercial developments would, however, be of great use as a traffic artery. This



EXISTING CONDITIONS ON FURMAN STREET BELOW COLUMBIA HEIGHTS

The garden on the roofs of the buildings is an example of what might be done, in a more satisfactory way, on the roofs of the warehouses seen at the left of the picture.

already exists in Furman Street and it is important that this lower level route be maintained. On the upper level it seems advisable, however, to limit a boulevard treatment to that section which is most suitable for high class apartment development.

It is therefore proposed that Columbia Heights be widened from Middagh Street to Pierrepont Street to a width of 120 feet, developing the avenue thus created with planted central strips. The southerly and northerly approaches to this widened Columbia Heights would be provided by Pierrepont Street and Middagh Street, respectively. The former of these is 60 feet in width and is already quite intensively developed; the width of the latter, which is still lined with relatively cheap construction, it is proposed to increase from 50 to 60 feet.

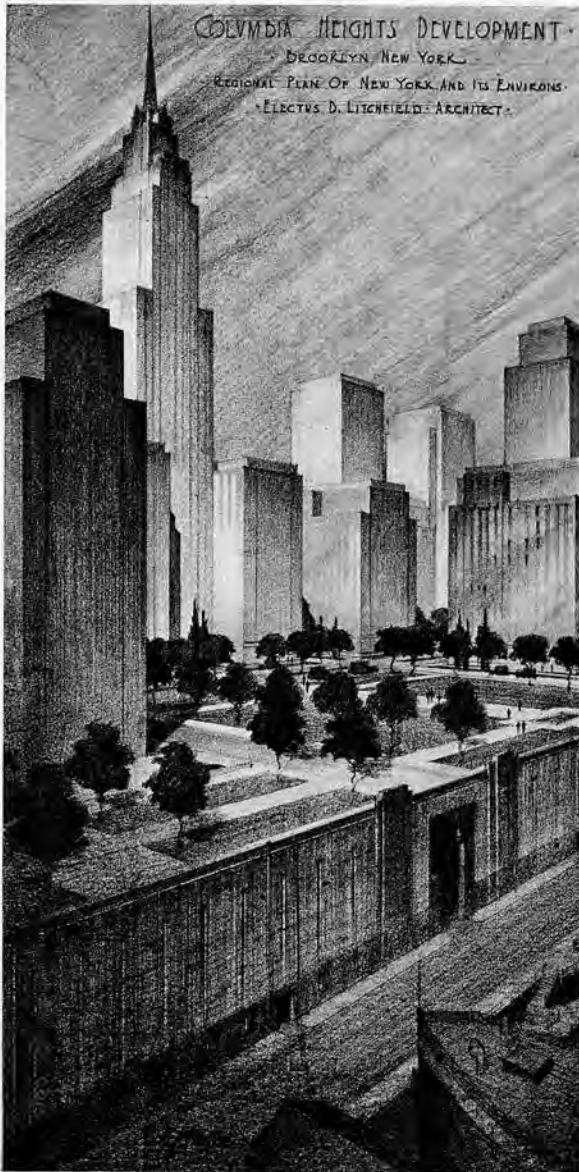
IN BROOKLYN, QUEENS AND STATEN ISLAND

Apartment and Park Developments.

—Accompanying drawings, prepared by Mr. Electus D. Litchfield as co-operating architect, who, in studying the problem with the Regional Plan, showed the possibility of this great development, indicate the type of apartment house that might be created along this new boulevard. The illustrations show a bulk and height of building somewhat greater than those we proposed for residential buildings in sub-central areas, but they are here intended merely to give a graphic illustration of the architectural possibilities.

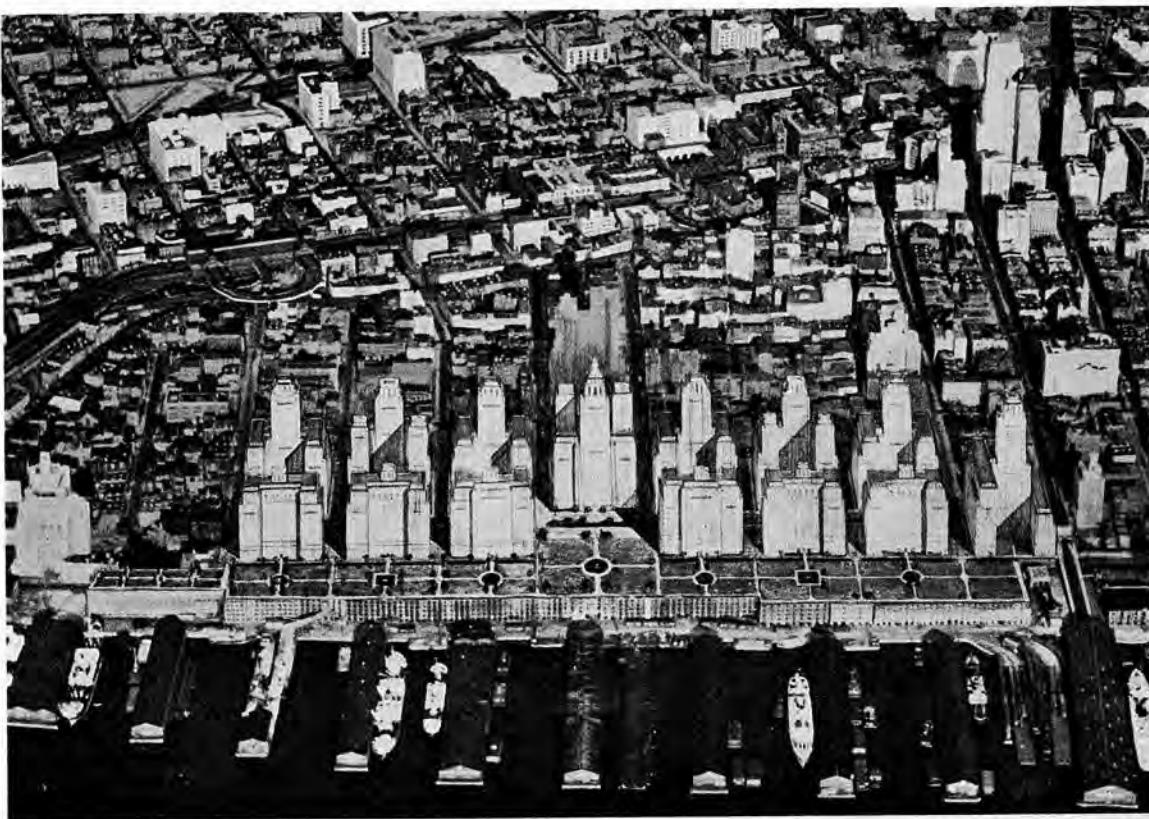
The additional width proposed for Columbia Heights would be obtained by moving the building line of the property on the water side 70 feet to the west. This would reduce the depth of the properties on the heights facing the water to 80 feet, and would leave an area of 16,000 square feet in each block available for development on that side of the widened Columbia Heights. With the increased width of the street on which these properties would face, and with appropriate setbacks at a height of 50 feet, apartment buildings could be erected here to a height of 150 feet.

Such a widening of Columbia Heights would also permit the development of the properties between the east side of Columbia Heights and Willow Street to a similar height. In addition, owing to the fact that these blocks would each have an area for development of not less than 40,000 square feet, the buildings could be developed with towers extending up to a total of 300 feet. Apartments in such towers would have an unobstructed view above the buildings on the other side of the avenue, as the area of the build-



A CLOSE-UP VIEW OF THE PROPOSED APARTMENT AND PARK DEVELOPMENT ON COLUMBIA HEIGHTS

OPPORTUNITIES IN REBUILDING



Electus D. Litchfield, Architect

VIEW OF BROOKLYN HEIGHTS SHOWING PROPOSED WATERFRONT APARTMENT AND PARK DEVELOPMENT

ings on the water side would be less than the 30,000 square feet necessary for permission to erect towers under the Multiple Dwelling Law.

There are now five small parks between Columbia Heights and Furman Street opposite the ends of Clark to Middagh streets inclusive. These would be used for access to much larger park areas, with unobstructed waterfront views, included in the project. The latter would be obtained by definitely limiting the height of the warehouses on the waterfront between Montague and Poplar streets to the grade of Columbia Heights and by reconstructing them with roofs carrying a public park accessible by bridges at the ends of the streets. For the block between Clark and Pineapple streets the park would be extended back to the west side of the widened street. An alternate scheme of carrying this park through one block further to the east might be considered, thus affording the recently built Leverich Towers Hotel, and behind it the new tower of the St. George Hotel, an unobstructed view of the East River.

There would thus be created for Brooklyn a readily accessible high level waterfront park, affording a magnificent view of Manhattan, the East River and the Upper

IN BROOKLYN, QUEENS AND STATEN ISLAND

Bay, and a new apartment house district of the highest quality adjoining the first station beyond Wall Street on the Clark Street subway of the Interborough and directly served by the new Municipal Subway. It is reasonable to expect that the share of the cost of this improvement which would have to be borne by the city would be recovered in a few years as a result of the increase in taxable values.

The appearance from the waterfront of this fine apartment development is shown in the sketch on page 486. The existing conditions and the areas dealt with in the plans under discussion are shown in the air view on this page. The area in this view extends to Atlantic Avenue on the south and includes the recently constructed New York Dock Company Terminal Facilities Building.



Photo by Air Map Corporation of America

AIRPLANE VIEW OF EXISTING CONDITIONS IN DOWNTOWN BROOKLYN

(A) Shows limits of proposals for Brooklyn Bridge Approach and an extension of the business and civic centers.

(B) Shows limits of proposals along Columbia Heights.

OPPORTUNITIES IN REBUILDING

MARGINAL RAILROAD

The waterfront railroad line in Brooklyn, included as part of the proposed trunk line railroad system of the Graphic Plan, was described in Plan Volume I as a line to "serve industrial areas and such important developments as the Bush Terminal, State Barge Canal Terminal, Erie Basin, Atlantic Basin and Brooklyn Navy Yard."¹ It corresponds to part of belt line No. 3 of the Port Authority Plan and was proposed by the Brooklyn Committee on City Plan in its plan presented in 1913. In Fig. 67 (page 483) a suggested location of this line was shown from Congress Street to a connection with the existing tracks north of the Brooklyn Bridge. Such a line must be free from highway grade crossings. The plan suggested takes it above Atlantic Avenue and south of that point proposes its construction on a viaduct about 100 feet

west of Columbia Street in a way similar to that to be used for the line to be constructed by the New York Central Railroad west of Washington Street on the West Side of Manhattan. North of Atlantic Avenue a private right-of-way is suggested which would swing to the east side of Furman Street at about Grace Court. For some distance north of this point the property on the east side of Furman Street rises abruptly above the street level and is practically unused. A railroad might be constructed on this property and building sites made available above it, to be reached from the streets east of Furman Street.



THE PRESENT BROOKLYN WATERFRONT AS SEEN FROM A PIER OF THE BROOKLYN BRIDGE

On the left is Furman Street. On the right is the extensive system of piers which serves the commercial waterfront.

At a point about 600 feet north of Montague Street the railroad line is shown as swinging into the present line of Furman Street, with a highway constructed above the railroad tracks. About opposite Poplar Street the line swings west onto private property so as to permit this upper roadway to come down to the existing grades of Fulton Street. A cross connection between this proposed new line and the existing tracks of the New York Dock Company is included to facilitate connection with their transfer bridges and their Terminal Facilities Building south of Joralemon Street. The maximum grade on the route as proposed would be 1.6 per cent, the same as the maximum on the projected new line of the New York Central Railroad on the West Side of Manhattan. With the construction of the proposed freight tunnel under the Upper Bay, direct rail connection would be provided to all parts of the Port.

¹ Regional Plan, Volume I, page 189, Route 19.

IN BROOKLYN, QUEENS AND STATEN ISLAND

SUMMARY OF PROPOSED MAJOR STREET IMPROVEMENTS

Most of the proposed changes in the major street system have been mentioned. On the basis of Plan I for the civic center and Brooklyn Bridge approach, they may be summarized as follows:

(1) Washington Street, between Borough Hall and Brooklyn Bridge, would be widened on the west to give a total width of 150 to 225 feet and form an esplanade through the center of a proposed extension of the civic and business center. It would also serve as an improved approach to the Brooklyn Bridge.

(2) Fulton Street north of Borough Hall would, through the elimination of the elevated railroad, be made available for modern office and commercial developments.

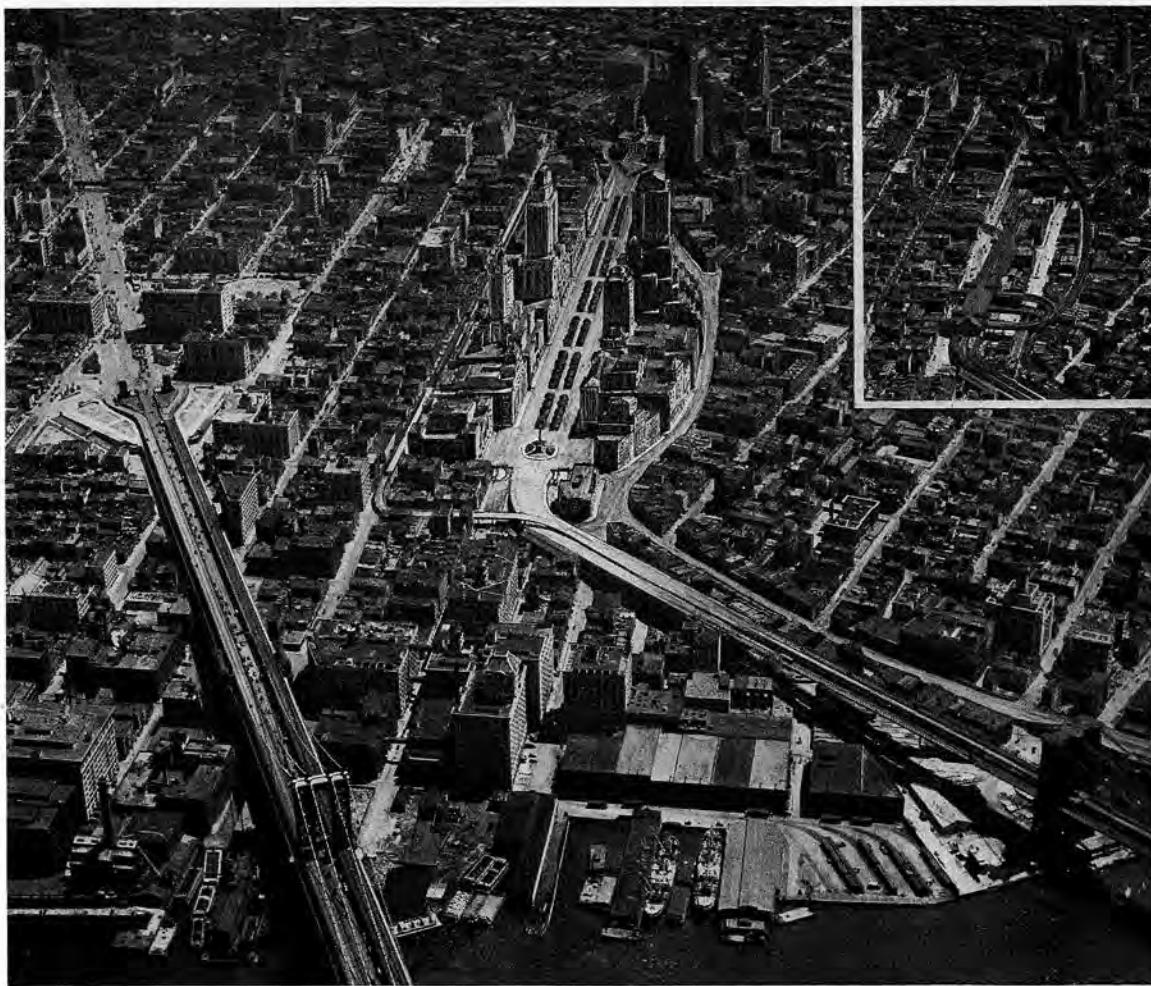


Photo by Air Map Corporation of America

AN AIRPLANE VIEW OF DOWNTOWN BROOKLYN LOOKING TOWARD BOROUGH HALL, SHOWING HOW IT WOULD
APPEAR WITH PLAN I CARRIED OUT

Insert in upper right-hand corner shows existing conditions in the area where changes are proposed.

OPPORTUNITIES IN REBUILDING

(3) Furman Street would furnish a four lane express highway for commercial traffic along the waterfront between Fulton Street and Atlantic Avenue.

(4) The widening of Jay Street to 80 feet from Fulton to Nassau streets, as projected by the Borough of Brooklyn and shown in Figs. 65, 66 and 67, would serve partly as a new connection to the Manhattan Bridge and also as a by-pass around the business center to the Brooklyn Bridge via Nassau and Washington streets.

(5) Through a widened Prospect Street beneath the Brooklyn Bridge approach an improved connection would be obtained with the northerly part of Fulton Street and the marginal express highway.

(6) Adequate circulation to and from the proposed widened Columbia Heights would be furnished through Pierrepont Street and a widened Middagh Street. These would connect with the two ends of the proposed new civic and business center.

(7) The widening of Tillary Street to 100 feet, with a direct connection to Flushing Avenue on the east, would improve access to downtown Brooklyn from the Williamsburg and Greenpoint sections.

On the basis of Plan II, street changes (2) to (7) inclusive would be identical, although the Tillary Street widening is not shown in Figs. 66 and 67. In place of the widened Washington Street, however, there would be substituted the following:

(1-a) The proposed new Liberty Street, 100 feet in width, would serve primarily as a local business street superior to any in this section of Brooklyn and also as an improved approach to the Brooklyn Bridge.

Outer Brooklyn

PARKWAY CIRCUIT IN SOUTH BROOKLYN

Among the proposals on the Graphic Plan that are of special importance is the development of a wide parkway around the shore of Gravesend Bay, continuing along the line of Coney Island Creek on the north of Coney Island and thence along the north shore of Sheepshead Bay to a proposed parkway system in Marine Park.

A collateral feature in this proposal was the laying out of a large park on the marsh land between Gravesend and Coney Island. There is probably no part of the environs of Brooklyn where there is greater need of obtaining more park area, or where a better opportunity exists for promoting sound economic development, than in this southwestern section. If we consider this proposal solely from the point of view of its effect in improving the approaches to Coney Island by replacing the present disorderly conditions on the low land to the north by a beautiful park and parkway, it would be a good investment for the city.¹

The efficient improvement of the undeveloped areas bordering Coney Island Creek was first made possible when the Board of Estimate and Apportionment, in 1926, approved a change in the official map which eliminated the old Coney Island Ship and Drainage Canal. In the May 1, 1926, issue of *Brooklyn*, it was stated that "the possibility of such a canal being constructed at that point made it impracticable

¹ Regional Plan, Volume I, illustration on page 354.

IN BROOKLYN, QUEENS AND STATEN ISLAND

for the city to fix upon the layout of an adequate drainage system for the area on both sides of the Canal, or the layout and paving of streets." Incidentally this statement confirms the view expressed later with regard to the effect of the great harbor plan for Jamaica Bay in stultifying development around the bay. For many years the public had been led to believe in the desirability of the canal, and only recently has it been discovered that it would not be worth the immense cost plus the interference it would cause to the expansion of Brooklyn.

Until an adequate drainage system is adopted the owners along Coney Island Creek cannot proceed with the proper development of their land. The essential fact is that it is now possible to fill in the unsightly creek east of Shell Road and reclaim large areas for recreation. It is vitally important that as much as possible of this land should be left free from building because of its strategic position in relation to the approaches to Coney Island.



Cass Gilbert, Architect

UNITED STATES ARMY SUPPLY BASE IN SOUTH BROOKLYN

The southerly terminus of the commercial development on the Brooklyn shore of Upper New York Bay.

The new city map provided for improved connections to Coney Island on the west through a widening of Cropsey and Harway¹ avenues to 120 feet, and in the central portion by a widening of Shell Road to 120 feet north to 86th Street, these two routes both connecting with Neptune Avenue, also widened to 120 feet, which is two blocks north of Surf Avenue in Coney Island. On the east a connection was shown along the line of Coney Island Creek from Shell Road across Ocean Parkway to Emmons Avenue on the north side of Sheepshead Bay, this being identical with the parkway route proposed on the Regional Plan. All of these improvements except the connection east of Shell Road had been completed in 1931.

In addition, an extension of Shore Road through Fort Hamilton Reservation and Dyker Beach Park was completed in 1931, and its extension further south has

¹ Now called a portion of Cropsey Avenue, the old portion of Cropsey Avenue south of Bay 38th Street being renamed Harway Avenue.

OPPORTUNITIES IN REBUILDING

been suggested by the city officials. Thus the complete parkway circuit, which is almost identical with a plan recently put forward by Park Commissioner James J. Browne, is well on the way to realization.

Additional parkway connections should be provided to the east as shown on the Graphic Plan and should be taken into consideration in the development plans for Marine Park.

GENERAL NEEDS

In general, Brooklyn requires the improvement of its street system by cutting new streets. Both Brooklyn and Queens need, as a vital link in their communica-



VIEW OF LOWER MANHATTAN FROM EXISTING PARK AT THE FOOT OF MONTAGUE STREET
OVERLOOKING A COMMERCIAL DEVELOPMENT BELOW
An example of a practical use of a portion of Brooklyn's waterfront.

tions, not only the projected express highway between downtown Brooklyn and the Tri-borough Bridge via Long Island City, but also the building of the connecting boulevard proposed on the Graphic Plan as an extension of Kings Highway north to Nassau Boulevard. This latter route would also connect with the Tri-borough Bridge by a new highway along the New York Connecting Railroad. Proposals made for downtown Manhattan include that of enlarging the street capacity between Manhattan Bridge and the Holland Tunnel and the West Side Elevated Highway. Improved facilities for traffic circulation can be obtained by adopting our

IN BROOKLYN, QUEENS AND STATEN ISLAND

proposals for re-planning at the Brooklyn end of the Brooklyn Bridge, and by building an express highway along Flatbush Avenue Extension and Atlantic Avenue.

It is of vital importance to Brooklyn to preserve the existing character of its best residential areas by more stringent and extended zoning. There is no place in the Region where the conservation of distinctive residential neighborhoods between arterial highways, adequately controlled by zoning, is more necessary to maintain good home conditions.

Brooklyn, more than any other borough, has reason to add to its park areas as a means of making it more attractive as a place of residence. The enlargement of Marine Park in the Jamaica Bay section by adding the eastern part of Barren Island and including public anchorage for pleasure craft, the increase of play parks, and the controlling and planning of the future use of sand pit operations are among the special opportunities that demand attention.

What is of most importance in Brooklyn, Queens and other parts of Long Island in connection with park developments is that the land necessary for the future recreational needs of the community should be acquired. This relates particularly to uplands adjoining waterfronts. Unnecessary expenditures are frequently incurred, displacing natural features that are best left as they are with artificial "improvements."

Jamaica Bay Section

More of the Jamaica Bay section of Long Island lies in Queens than in Brooklyn, but, as this section needs to be considered as a unit, it is appropriate to refer to it between the description of proposals that relate specifically to each borough. The character of the plan needed for the Jamaica Bay section has already been referred to in Plan Volume I.¹ We confine our proposals to suggesting the principles on which it should be planned and do not put forward a specific project for the development of the uplands adjacent to the bay. We have not shown any suggestions on the Graphic Plan for the purpose of indicating any distant future development of the interior section of Jamaica Bay beyond the setting aside of certain of the most accessible areas as public parks and a possible future development of an airport on the islands in the eastern part. We have indicated a distribution of uses along the mainland that conforms to our conception of the problem. The preparation of the detailed plan of these areas in harmony with a reconsidered plan of the proposed port and industrial developments is an urgent need, but the making of a detailed plan can be undertaken effectively only by the city authorities.

It is well, however, to amplify what has already been said as to the need of a comprehensive plan for this section, in which provision should be made for all social

¹ Regional Plan, Volume I, pages 329 and 394.

OPPORTUNITIES IN REBUILDING

needs. The section should be planned independently, but coordinated with any plans prepared for the boroughs of Brooklyn and Queens. While for some purposes Brooklyn and Queens should be planned together, there are important considerations and problems that relate only to the Jamaica Bay district as a sectional unit.

The bay has natural facilities for a great port and plans have been prepared showing its future development for this purpose. As we have already pointed out, however, because of the superabundance of the land and water areas available in the Region for additional port developments, the prospect of developing Jamaica Bay as a competitive port with the existing New York Harbor must be regarded as somewhat remote.

It is important to avoid the illusion that mere suitability for port development, even in the highest degree, is a reason for expecting that a large scale development will take place. The potentialities of areas for port development depend not only on their natural qualities, but also on their relations to existing port facilities and the probabilities of future growth. They do not consist of isolated and independent opportunities. They should be planned on the basis of the knowledge that the Upper Bay and Lower Hudson River are already developed and have still greater scope for enormous expansion as a result of deepening channels, reclaiming land and building new piers. (See Fig. 25, page 225, and Fig. 26, page 229)

The vision that has apparently been before some authorities is that Jamaica Bay could be converted into a great port for ocean liners and deep sea freighters from all parts of the world. It has been claimed that the need for an auxiliary harbor was due to the ever growing congestion of New York Harbor, but the fact that the Staten Island piers remain practically idle indicates that the relief of congestion must be found in some other way than in building piers wherever there is deep water to be obtained. In any case they show the importance of locating any new piers where they will be used by the shipping companies and where convenient access to other parts of the Port is assured.

In the report of the City Committee on Plan and Survey, 1928, it was stated that the 25 miles of shore line in Jamaica Bay could provide 150 miles of wharfing. The ultimate development of the Bay, according to the late Commissioner Cosgrove,¹ will cost \$100,000,000 or more. In addition, enormous sums will have to be spent in railroad and subway building. In 1929 the Port of New York Authority was reported to have made an offer to the City of New York to finance and construct a connection between the Long Island Railroad and Jamaica Bay,² at a cost of \$2,000,000. In October, 1930, the Committee of the Whole of the Board of Estimate and Apportionment approved a report recommending the construction of such a line by the city, to be operated by the Long Island Railroad and comprising both a line to the south side of the entrance to Mill Basin and a line on the east side of Paerdegat

¹ *Brooklyn Daily Eagle*, July 27, 1924.

² *New York Herald Tribune*, November 27, 1929.

IN BROOKLYN, QUEENS AND STATEN ISLAND

Basin. This is only a small part of the railroad extension that is needed in any event to develop the industrial potentialities of the bay.

But no project of railroad expansion has been presented which would be adequate to meet the needs of a port of the size that Jamaica Bay could become if its full potentialities were developed. In recent years the City of New York has carried out numerous improvements, including the extension of Gerritsen Basin Park to the ocean, the reclamation of the area between Barren Island and Mill Basin and the construction of an airport on the reclaimed land, the extension of Flatbush Avenue to Rockaway Inlet and the construction of channels in cooperation with the federal government. Many millions of dollars have been expended on these improvements. An additional \$5,500,000 was spent on the Cross Bay Boulevard, completed in 1925, crossing the central part of the bay via the islands adjacent to the Rockaway Division of the Long Island Railroad.

The ambitious character of the proposals that have been made for further developments in this section have not been without their effect in preventing the utilization of the land. The Jamaica Bay section affords a striking illustration of the fact that hesitancy in improving an area may occur as a result of having visionary plans as well as of having no plans. The undue importance which has been attached to the possibilities of the bay as a great harbor has created expectations on the part of the city and developers that have suspended much improvement along lines that are immediately practicable.

Fortunately all the improvements that have been carried out up to the present time can be fitted into a practical plan for the proper development of the section. The Regional Plan proposals are not based on a low estimate of the immense potentialities of the bay and its surroundings. We propose extensive port and industrial developments and provision of direct rail connection between the section and New Jersey. Our view is that Jamaica Bay, the islands within it and the uplands surrounding it should be planned so as to obtain the best utilization of the area in relation to the New York region as a whole.

The dredging of channels in Jamaica Bay is being carried out jointly by the city and the federal government. The arrangements for this and the progress made to date are as follows¹:

"The cooperative plan for making the general harbor in Jamaica Bay provides for making and maintaining by the Government an entrance channel 30 feet deep at mean low water and 1,500 feet wide with widening at bends; the main channel extending from the entrance channel up to the mouth of Cornell Creek to be 30 feet deep at mean low water and 1,000 feet wide with widening at bends; and for the protection of the entrance channel by one or two riprap jetties as may be necessary to be built by the U. S. Government.

"Under local cooperation the City of New York is to dredge a channel between Barren Island and Cornell Basin, the width and depth to be decided by the U. S. District Engineer in accordance with

¹ Letter from the late Hon. Michael Cosgrove, Commissioner of Docks, New York City, November 20, 1930.

OPPORTUNITIES IN REBUILDING

the necessity for making either an 18 foot channel 500 feet wide or 1,000 foot channel 30 feet deep at mean low water.

"In adopting the enlarged project the River and Harbor Act of September 22, 1922, provided that the City of New York may be reimbursed for dredging and disposing of material dredged in the main interior channel at actual cost, which shall not exceed a rate of 10 cents per cubic yard, including any cost of inspection borne by the United States.

"The City of New York has dredged a channel 1,000 feet wide and 30 feet deep at mean low water between Barren Island and a point just beyond the pier which was built at Canarsie, and a channel 500 feet wide and 18 feet deep at mean low water from this point to the existing channel at Fresh Creek Basin.

"It has also made two small connecting channels; one southward of Canarsie and the other in the vicinity of Howard Beach. Of the portion that the U. S. Government is to do I am informed that about 19 per cent of the work called for in the project has been completed. The City of New York, in dredging the channels above referred to, has completed about 49 per cent of the project work between Barren Island and Cornell Basin."

In connection with the maintenance of the entrance channel through Rockaway Inlet, the federal government is now constructing a jetty, about 8,400 feet in length, southward from the tip of the Rockaway Peninsula.¹ So long as the improvements made and proposed are part of a well conceived and practicable plan they can be regarded as excellent in themselves. Such a plan should be prepared for the whole Jamaica Bay section, including the islands and the areas under shallow water that can be reclaimed.

NEED OF ADDITIONAL ZONING

One serious fact in connection with the section is the lack of complete zoning. We understand that approximately 47,000 acres of land are undetermined on the zoning map. This area is 7,000 acres in excess of the whole of Manhattan and The Bronx. This is not solely due to inaction by the city. It is partly due to the uncertainty of the owners of property as to the prospective uses and values of their land under a plan which may or may not be realized in a reasonable time. Their expectations for the future hamper them in realizing opportunities to use their land at present.

The property owners of the land in the section cannot be expected to agree upon a zoning policy while the present uncertainty exists. A great part of the area is vacant or occupied by temporary structures. Even if the plan for making Jamaica Bay a great harbor may ultimately be the right one, it does not seem to be wise that the land should continue to be sterilized and held up awaiting developments that may not be made for one hundred years. Prospects that are so remote may cause land to lie idle so long that the profits expected to be obtained from their development will be lost, owing to inability to take advantage of normal growth.

¹ Of interest in this connection is Colonel Wilgus' proposal for a causeway between Rockaway Point and Sandy Hook described on pages 233-237.

IN BROOKLYN, QUEENS AND STATEN ISLAND

The need for settlement of a policy with regard to the surroundings of Jamaica Bay is evident not only in the interests of the community as a whole but of the owners who are not able to make adequate use of their property. It is certain, at least, that Jamaica Bay will be developed as a port to the extent necessary to fit in with the industrial possibilities of the adjacent lands, and that in order that these industrial possibilities may be realized, adequate provision must be made within the section for large areas to be used for residence and recreation. New York needs a great extension of its recreation areas, and there is no place better adapted for this purpose than some of the Jamaica Bay islands.

At present the waters of Jamaica Bay are being fouled by the dumping of 125,000,000 gallons of sewage into it daily. This is one of the main factors which prevent owners, and the city as the chief owner, from obtaining proper use of adjacent land for residences and recreation. Brooklyn needs a new sewer system and the building of adequate disposal plants. This is a city-wide problem, and one financial benefit which its solution would bring to Brooklyn would be the increased values that would result from the purification of Jamaica Bay.

The extensive public ownership of land in the section is an added reason for preparing a comprehensive plan. The city owns practically all of the many islands in the bay and large areas of tidal flats on the mainland. In 1926 it held 103,744 building lots along the Cross Bay Boulevard and in other places in the vicinity of Jamaica Bay, which the *Brooklyn Daily Eagle*¹ estimated as being worth \$2,000 each. The city was prevented from selling this land because it is made land, but the 1930 State Legislature gave the city authority to sell or lease lands within Jamaica Bay not needed for commercial use.² Before using this power to any extent the land should be properly planned and zoned.

Queens Centers

Queens still has time to make its transportation and civic centers appropriate for its standing and location in the metropolitan group of communities. In a truly civic sense it is still largely undeveloped. It is the largest of the boroughs in New York City and is growing more rapidly than any other borough. Both its opportunities and dangers are greater than exist in other parts of the city.

The main connecting arm between Queens and Manhattan is now the Queensboro Bridge. Another great arm will soon exist in the form of a tunnel connecting Borden Avenue, Queens, and 38th Street, Manhattan. Still another will link the three boroughs of Queens, Manhattan and The Bronx in the form of the Tri-borough Bridge. The plan submitted for a great terminal district at Sunnyside and the plan which follows for a Queens civic center and airport have been worked out so as to

¹ Issue of February 21, 1926.

² Chapter 515, Laws of 1930.

OPPORTUNITIES IN REBUILDING

indicate the opportunities which will arise as a result of these great bridge and tunnel projects. The cost of these projects will not be justified if the value from them is limited to what they do to improve traffic circulation. Each such project should be considered in the light of what results can be obtained from it in respect to the improvement of business and civic centers, for effective changes in circulation are possible only where the creation of new facilities for traffic is combined with the planning of the focal points they serve, in harmony with the needs and opportunities presented.

SUNNYSIDE TERMINAL AND BUSINESS CENTER

There is urgent need of improvement of the Sunnyside Terminal district at Queens Plaza in Long Island City. This is recognized under present conditions, but its real urgency is due to the prospective conditions which will arise when the new bridge and tunnel developments are carried out, and a further substantial increase in the resident and commuting population of Queens occurs.

The Queens Plaza district, at the end of the Queensboro Bridge, has grown tremendously since the opening of that bridge in 1909. This bridge gave Queens its first direct vehicular and rapid transit connections with Manhattan. Today this is one of the most serious points of congestion for vehicular traffic in the Region. The neighborhood surrounding Queens Plaza and the Sunnyside Yards of the Long Island Railroad is only in the making. It represents curious contrasts of modern buildings, old and very cheap types of development, and large areas of vacant land. New transportation facilities now under way are sure to bring increased activity to this part of the borough and make it one of the main sub-centers of transportation in the city. The need for planning to alleviate present congestion and to provide for a proper and efficient future growth is acute.

A new transportation terminal and office building is proposed above the present Sunnyside Yards of a size that would dominate all this part of the Borough of Queens.

Trunk Line Railroads.—There is now no trunk line railroad passenger terminal on Long Island served by trains other than those of the Long Island Railroad. The latter serves Long Island only and connects with the Pennsylvania Terminal in the Borough of Manhattan through tunnels which are already carrying their maximum capacity. The Graphic Regional Plan proposes new trunk line railroad routes through Brooklyn and Queens which would give a community that already has a population of well over three and a half million direct railroad connection with the rest of the country. A joint passenger terminal on this line to serve the Borough of Queens is shown in the vicinity of Sunnyside Yards, and it is proposed that the station for this be placed in the main building shown in the accompanying drawings. From this there are shown on the Graphic Plan new trunk line routes connecting with Manhattan and Brooklyn and a connection to The Bronx and the northeast over the existing New York Connecting Railroad via the Hell Gate Bridge.



Arthur C. Holden & Associates, Architects
A PERSPECTIVE OF THE TERMINAL AND OFFICE BUILDING PROPOSED ABOVE SUNNYSIDE YARDS

OPPORTUNITIES IN REBUILDING

Suburban Rapid Transit.—In Plan Volume I it was suggested that a comprehensive suburban rapid transit system be created which would include most of the trunk line railroad systems now handling commuter traffic, but which would also have a new and separate distributing system traversing the main business districts of New York City and enabling the commuter to travel thereon to within approximate walking distance of his place of work.

Several years ago the Long Island Railroad proposed the construction of a commuter terminal station over the Sunnyside Yards at Diagonal Street. At a hearing before the Transit Commission in March, 1930, Commissioner Godley expressed the opinion that such a terminal presented the only immediate means of relieving the congestion on the main line of the Long Island Railroad. If such a terminal were made the westerly limit of the Long Island commuter service, and all passengers for Manhattan were forced to reach there via New York City rapid transit lines, this would not furnish a satisfactory solution to the problem. However, if the proposed terminal were provided for the large number of Long Island Railroad passengers who would probably have their places of business in Long Island City, as a transfer point between the Long Island Railroad system and the proposed union trunk lines described above, and as a station on the suburban rapid transit line which would continue into Manhattan as part of the distributing system for a comprehensive suburban rapid transit system, a real solution would be provided. The plan now presented is based, in part, on developing this solution.

The Progress Report of the Suburban Transit Engineering Board, dated March 25, 1930, presented as the results of tentative studies a through suburban transit connection to Manhattan, such as is included in the Graphic Regional Plan. The board suggested the present Long Island Railroad station at Woodside as a transfer station



Courtesy of the Queens Planning Commission

SUNNYSIDE YARDS OF THE LONG ISLAND RAILROAD

Looking northeast from the Queens Borough Hall.

IN BROOKLYN, QUEENS AND STATEN ISLAND

between the suburban transit system and city rapid transit lines. The Regional Plan suggests that this station be placed at Diagonal Street in Long Island City. In other respects the two proposals correspond closely. A Diagonal Street station would have the advantage that it would form a terminus for the increasing number of persons employed in that part of Long Island City and could be combined with a union trunk line passenger terminal.



Rendered by Arthur C. Holden & Associates, Architects

FIG. 68

New York City Rapid Transit.—This area is now served by both the Brooklyn-Manhattan Transit and Interborough Rapid Transit systems and is crossed by the new Municipal Subway now being constructed in Jackson Avenue. The maze of elevated railroad tracks at and directly east of the Queens Plaza station weave among each other in a complicated and disorderly manner. It would be too costly to remove or obtain any effective changes in the existing structures. It seems necessary to leave

OPPORTUNITIES IN REBUILDING



UNDEVELOPED CONDITIONS IN THE QUEENS PLAZA DISTRICT

A view at the corner of Prospect and South James streets.

the proposed main terminal and office building. A new rapid transit station should be built to provide for easy interchange between the trunk railroad lines and the Brooklyn-Manhattan Transit and Interborough lines of the New York City rapid transit system.

Vehicular Traffic.—In rush hours all avenues leading to or from the Queens end of the Queensboro Bridge are filled to capacity and lines of waiting vehicles have often extended several blocks from the terminus of the bridge approach. The upper roadway just completed on the bridge has enabled more vehicles to use that crossing but has not eliminated the congestion of the plaza. The Queens approach to the projected 38th Street East River Vehicular Tunnel will terminate at the southerly end of the Sunnyside Yards, only a few blocks distant from the Diagonal Street viaduct.

It is suggested that the new roadways to be created on both sides of the present Diagonal Street connect with a large plaza which will provide circulation around and give a setting to the terminal building. In order to eliminate congestion which is caused by traffic approaching from the north under the Astoria branch of the elevated railway, a new street is planned between the proposed terminal build-

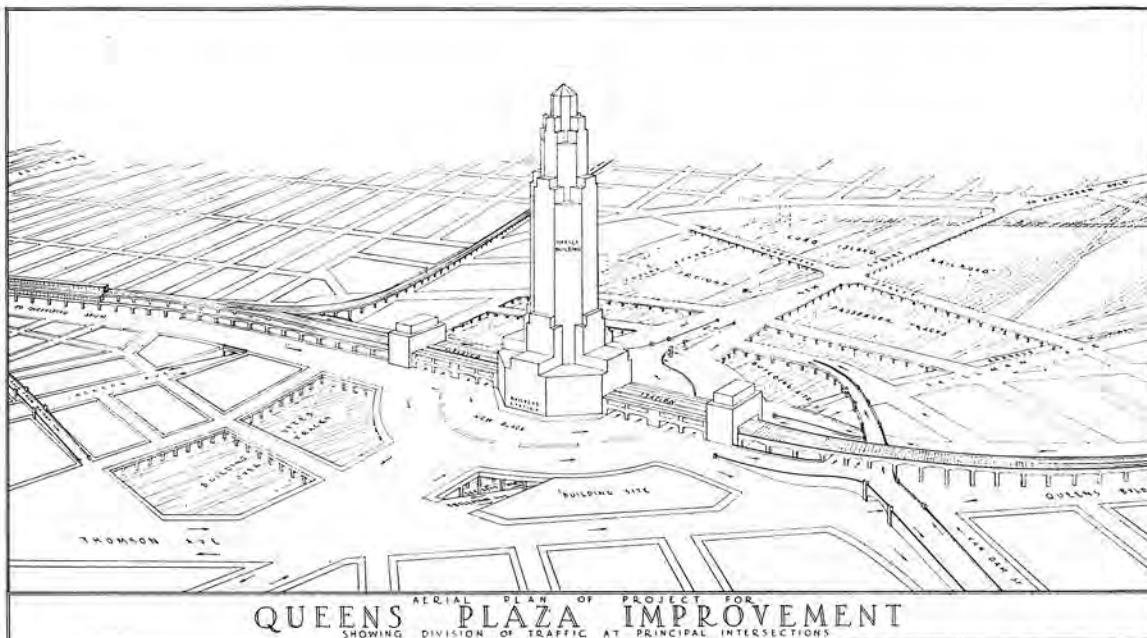
these structures as they are and to provide sufficient space around and alongside them so as to eliminate their worst effects in causing deterioration of adjacent building development.

With this end in view it is suggested that new roadways be provided on both sides of Diagonal Street, where vehicular traffic can travel in the open, and that the existing elevated structure be treated somewhat similarly to that on Queens Boulevard and run through



VIEW FROM DIAGONAL STREET OVER SUNNYSIDE YARDS
Looking toward Queens Plaza.

IN BROOKLYN, QUEENS AND STATEN ISLAND



Sketch study by Arthur C. Holden & Associates, Architects

ing and Northern Boulevard. Both of the new roadways parallel to Diagonal Street would be carried over Jackson Avenue to a widened Queens Plaza. Vehicular connection between Jackson Avenue and the terminal building could still be maintained over the existing Diagonal Street.

The Queens Planning Commission has proposed the construction of an express highway on the southerly edge of Sunnyside Yards. Such a highway has been included in our plan, which also shows a viaduct connection between a widened Van Dam Street and the proposed plaza above Sunnyside Yards.

Building Development.—The cheap type of building development which is now found in the vicinity of Queens Plaza is the result of the existing crowded and disorderly conditions. Under the proposed plan the widening on the south side of Queens Plaza would provide good rectangular shaped building sites further removed from the elevated railroad structure than are the present irregular shaped blocks. It has also been suggested that that part of Hunter Avenue between Henry Street and the plaza be closed. If these and other suggested improvements are carried out, it would encourage the erection of good permanent building by private enterprise.

Small buildings are shown over the elevated railroad at approximately the present ends of the viaduct over Sunnyside Yards. A great tower is also suggested as a dominant feature over the main station. These have been indicated on the drawings to show a possible architectural treatment for the plaza and the main terminal

OPPORTUNITIES IN REBUILDING

building. They might also be used for offices, stores, et cetera, and as approaches to a proposed new elevated station.

Other building sites are indicated above the Sunnyside yards to be served by proposed new streets constructed as viaducts above the tracks. These could be developed as readily as air rights have been developed above the Grand Central Terminal in Manhattan. The sites immediately adjoining the large circular plaza would probably be used first and the others could be reserved for future development.¹

QUEENS CIVIC CENTER AND AIRPORT

Queens is the only one of the five boroughs of New York City that is without a unified civic group. A large part of the borough has been developed and the resident population is already well over 1,000,000, but there are still large areas of open land and thinly developed property. Most of this land is not readily accessible by rapid transit lines to the populous centers.

A civic center in Queens should have the following characteristics:

(1) It should be readily accessible to all parts of the Borough of Queens, but also, and equally important, to the main centers in the other four boroughs of the city, as Queens is and will probably continue to be largely a residential area for those who will find employment in all parts of the city.

(2) The site should be large enough to enable the buildings to have spacious surroundings and a setting which would provide imposing approaches.

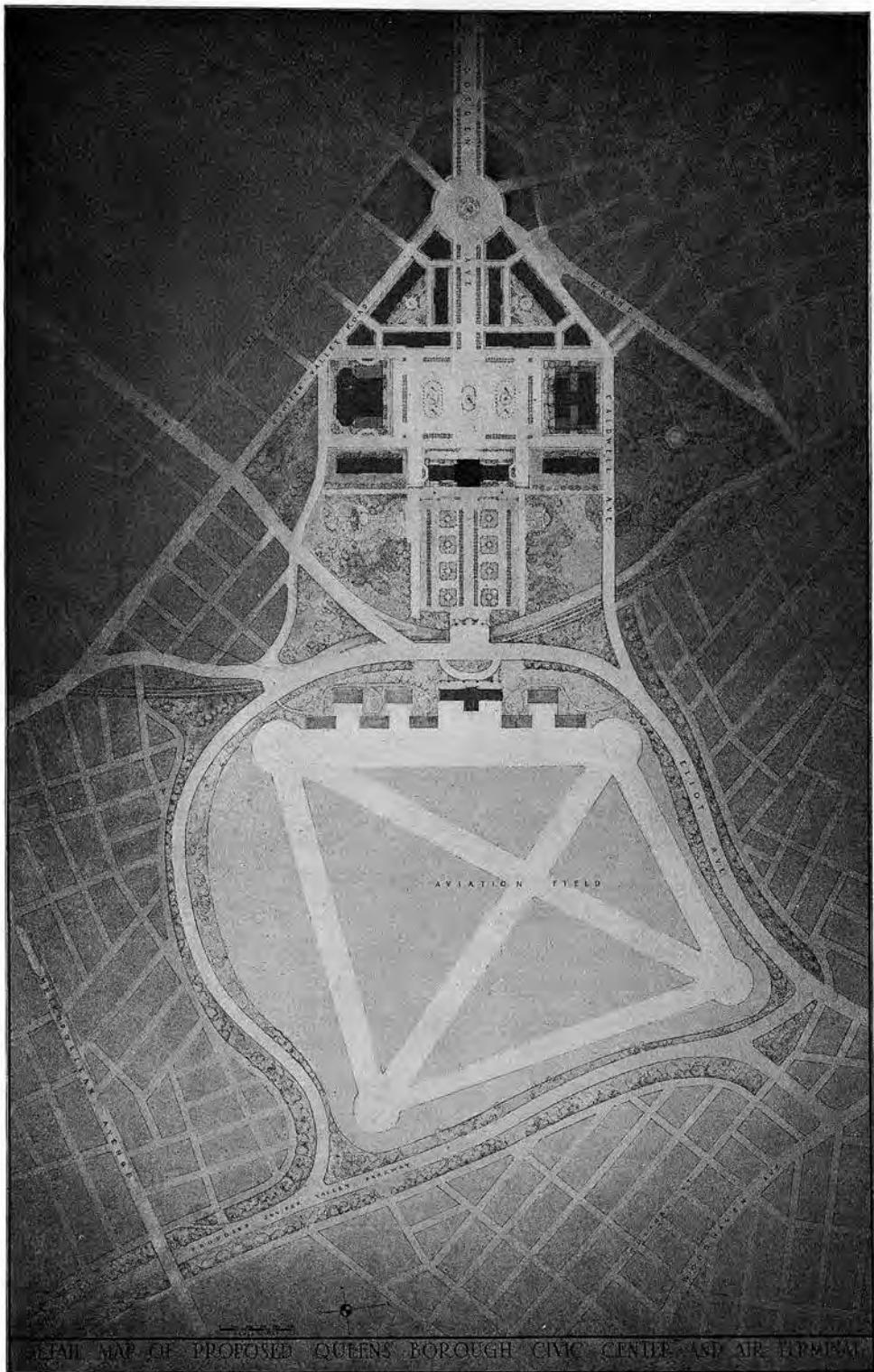
(3) It should be far enough removed from existing rapid transit routes to avoid the high land prices consequent to such a location and yet be so located as to be readily connected to such routes.

(4) It should be laid out in relation not only to existing but also to probable future means of transportation.

The accompanying drawings suggest a site which meets the above requirements and has the novel feature of combining the civic center with a proposed borough air terminal. Part of the land suggested as the site for civic buildings is partly built upon, but the buildings and land together are not as valuable as land alone along some of the more important highway routes. The area is near what will be one of the most important traffic intersections in the Borough of Queens.

The site proposed for the civic center lies between the New York Connecting Railroad, Grand Street and Juniper Valley Road, and is on the axis of Borden Avenue, extended, which now terminates at Grand Street. The area suggested for the proposed air terminal lies east of the New York Connecting Railroad on what is known as Juniper Swamp, which was recommended by the Fact-finding Committee on Suitable Airport Facilities for the New York Metropolitan District as first choice for a landing field in the Borough of Queens. This committee was organized by the

¹ See reference to possible use of air rights over Sunnyside Yards as an airplane landing field, Chapter IX, page 271.



DETAILED MAP OF THE PROPOSED QUEENS BOROUGH CIVIC CENTER AND AIR TERMINAL

Rendered by Arthur C. Holden & Associates, Architects

FIG. 69

[505]

OPPORTUNITIES IN REBUILDING

Department of Commerce and submitted its report on December 20, 1927. The area was also recommended as an airport by the staff of the Regional Plan.¹

Rail Transportation.—The New York Connecting Railroad could supply comprehensive freight service for the airport and also for bringing construction materials to both the airport and civic center. The main passenger line of the Long Island Railroad passes within a mile of the site, to the north. It is practicable to extend this line so as to give direct railroad passenger service to the proposed center.

Although not at present readily accessible by rapid transit, connections could be provided in several ways. The Myrtle Avenue elevated railway in Brooklyn now terminates on Metropolitan Avenue within less than a mile of the site and could readily be extended along the New York Connecting Railroad. The line of Borden Avenue could logically be used for a future rapid transit line between Manhattan and Queens. The Regional Plan has suggested² this avenue as a route for a line connecting, via Greenpoint Avenue, with the 23rd Street district of Manhattan. It has also suggested that Eliot Avenue and Nassau Boulevard should eventually contain a rapid transit route. Each of these routes would traverse the proposed center and would intersect there, causing an important future center of transportation.

Highways.—Borden Avenue is expected to form the main approach from the Borough of Queens to the projected 38th Street East River Vehicular Tunnel. If Borden Avenue were developed as a wide thoroughfare with separation of grades at the most important intersections, the proposed center would be only 10 or 15 minutes distant by motor vehicle from midtown Manhattan. A direct connection with the Triborough Bridge was shown on the Graphic Regional Plan and has also been proposed by the Borough of Queens. This would parallel the New York Connecting Railroad and provide a direct and short connection between the new center and the Borough of The Bronx, the Harlem section of Manhattan and the Hudson River Bridge.

Through Nassau Boulevard, Queens Boulevard, Woodhaven Avenue and Metropolitan Avenue, all parts of the Borough of Queens would also be readily reached by main highways. The vehicular accessibility of this site would make the projected air terminal of more than borough importance. Passengers using air transportation would find therein an air terminal most convenient to the main business and hotel section of New York City.

The Graphic Regional Plan proposed a Brooklyn-Queens crosstown boulevard connecting Nassau Boulevard with Kings Highway via Eliot Avenue. The accompanying illustrations also show a proposed parkway connection under the name of "Juniper Valley Parkway" which would connect the civic center and airport with Forest Park. It would thus be conveniently connected with the entire parkway system of the borough.

¹ Regional Plan, Volume I, page 373. Since the plans described here were prepared it was proposed that the City of New York purchase for a public park 73½ acres of land forming part of the site proposed for an airport.

² Regional Survey, Volume IV, Appendix A, pages 189-198.

IN BROOKLYN, QUEENS AND STATEN ISLAND

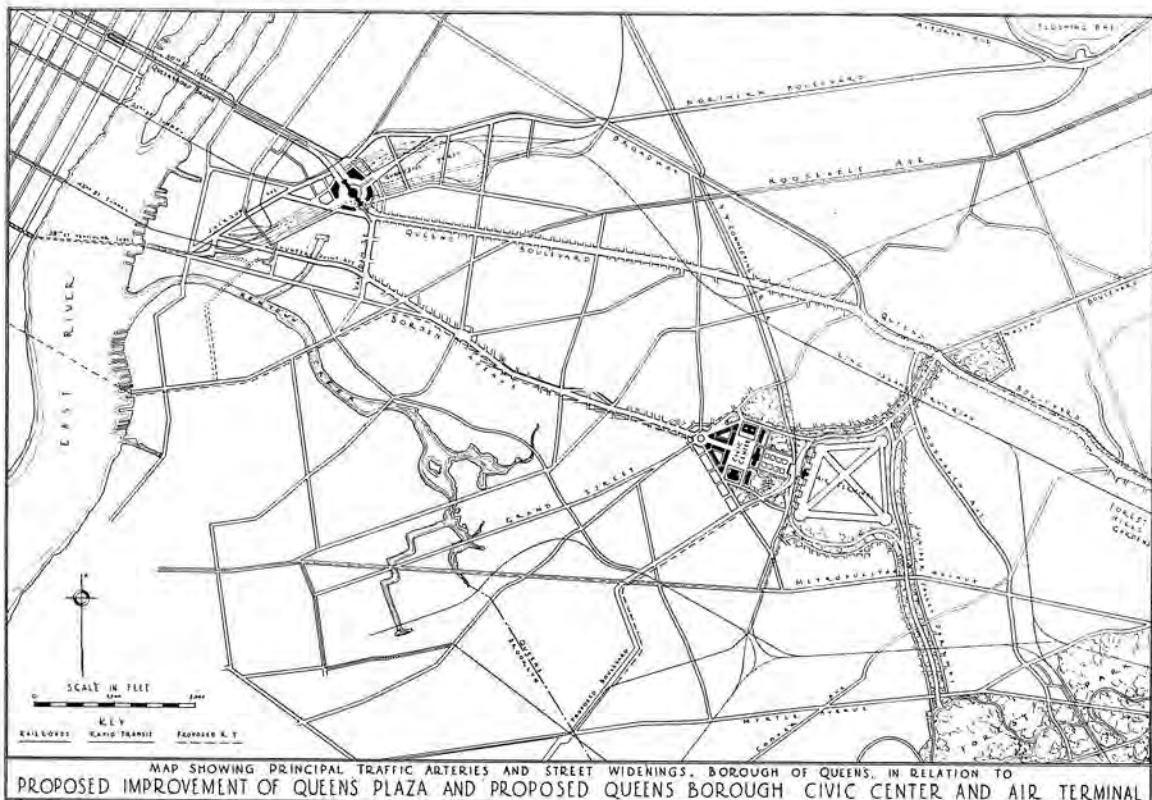
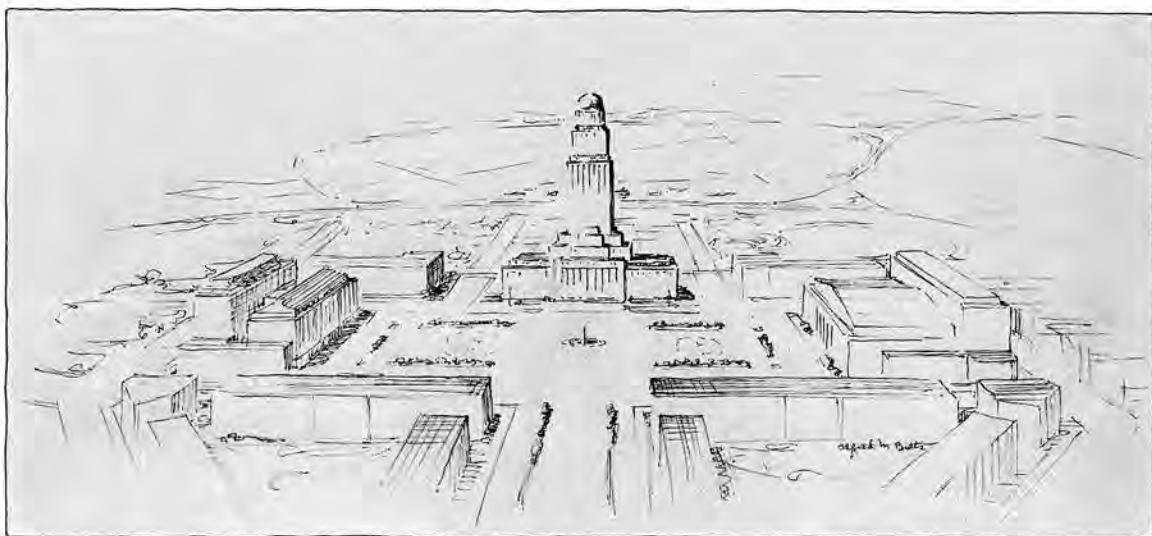


FIG. 70

The Civic Center.—The open space which would be provided by the aviation field and the proposed new park areas in its vicinity would provide an excellent setting for the civic group. The sketch (page 508) shows a tower rising above the borough offices, capped with a high dome containing an airplane beacon. The Borough Hall would be removed sufficiently from the field so that this tower would not interfere with airplane flight. The intervening space, which is now a small hill entirely undeveloped, would be parked with sunken gardens and paths which might include an amphitheatre on the side of the hill for public concerts and outdoor functions. On either side of the Borough Hall are suggested buildings suitable for extensions for civic offices. Between Borden Avenue and the approach to the Borough Hall a spacious plaza has been laid out which might have, facing its northerly side, the main borough library and on the opposite side an opera or concert hall. The triangle between this plaza and Borden Avenue would furnish sites for other public and semi-public buildings, which might include a Queens Borough University or branches of the city colleges. The urgent need is to determine upon a civic center site. The complete development of any site will extend over many years.

OPPORTUNITIES IN REBUILDING



Arthur C. Holden & Associates, Architects

PERSPECTIVE SKETCH OF PROPOSED QUEENS BOROUGH CIVIC CENTER FROM BORDEN AVENUE

Proposed air terminal is indicated in the background behind the main building.

The main traffic routes would be carried around the sides of the civic center, giving it accessibility but still preserving it from the interference of through traffic. The mistakes which have led to congestion in other places should be avoided. Buildings should be of modern materials and be designed to arouse civic pride and serve their purposes with efficiency.

The civic center plan for St. Louis, as illustrated on page 330, shows the dignified treatment appropriate for Queens, which has, within the last decade, passed ahead of the western city in the number of its population.

Air Terminal.—The City of New York decided to construct its first municipal airport at Barren Island largely for the reason that the Juniper Valley area was more costly to acquire and required too expensive construction in connection with filling in and perhaps draining the swamp areas. It is felt, however, that if the Juniper Valley site is developed for a civic center and airport combined, the cost of acquiring and developing it would be well justified. There is no site available in the city that would be so accessible to Manhattan.

The design of the field as it appears in the accompanying drawings shows a concentration of the airport buildings in the section near the New York Connecting Railroad. These buildings are arranged symmetrically about the axis of the civic center, the main or terminal building facing the Borough Hall across a proposed park area with formal treatment. Runways of ample length are suggested, oriented in the eight cardinal and quarter points of the compass. The prevailing wind directions, which are from the northwest in the winter and the southwest in the summer,

IN BROOKLYN, QUEENS AND STATEN ISLAND

are provided with the longest runways. The shape of the area is readily adaptable to this arrangement. It will be noted that the buildings in the civic center and also those connected with the air terminal lie outside the path of planes which would enter or leave the airport.

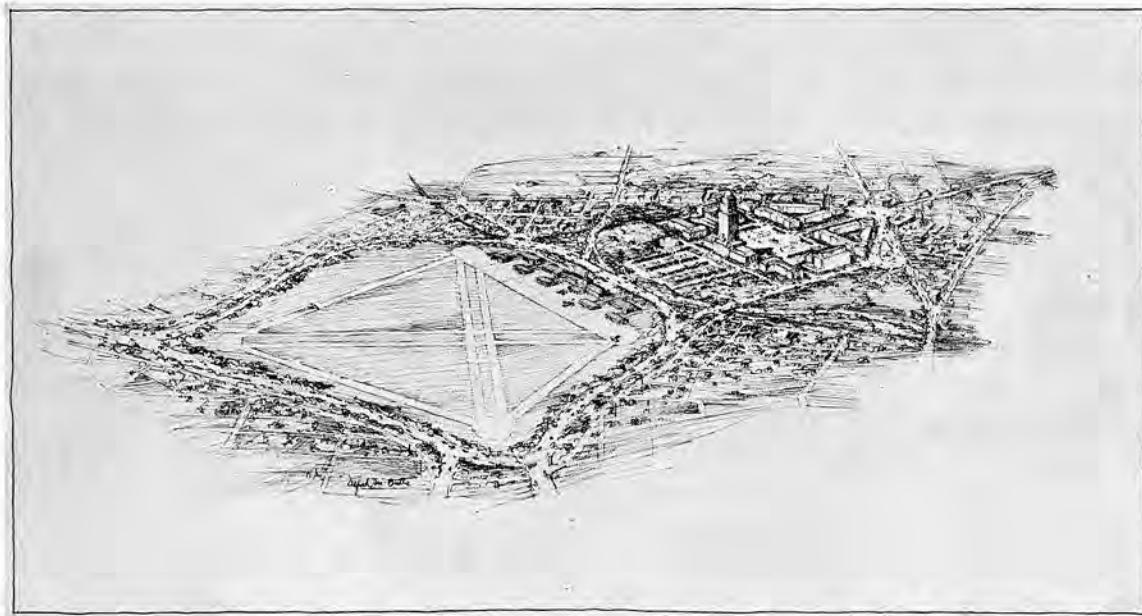
Some Special Highway Problems

HIGHWAY INTERSECTIONS IN QUEENS

The problem of relieving highway intersections in the Borough of Queens is a very acute one. This is true particularly during week-ends, when a large amount of traffic from the other parts of New York City passes through Queens to and from the open spaces of Nassau and Suffolk counties. Of the 39 serious points of week-end traffic congestion in the Region analyzed in the regional survey, nine were located in the Borough of Queens.¹

Along Queens Boulevard.—Early in the course of the regional survey a special study was given to the relief of future traffic congestion at certain intersections on Queens Boulevard where projected improvements were sure to bring serious problems. One of these covered the adjoining intersections with Woodhaven Boulevard and the projected Nassau (Horace Harding) Boulevard east of Elmhurst. The other was the

¹ Regional Survey, Volume III, pages 135-138.



Arthur C. Holden & Associates, Architects

PERSPECTIVE SKETCH OF PROPOSED QUEENS BOROUGH CIVIC CENTER AND AIR TERMINAL

View looking south with Civic Center in right background.

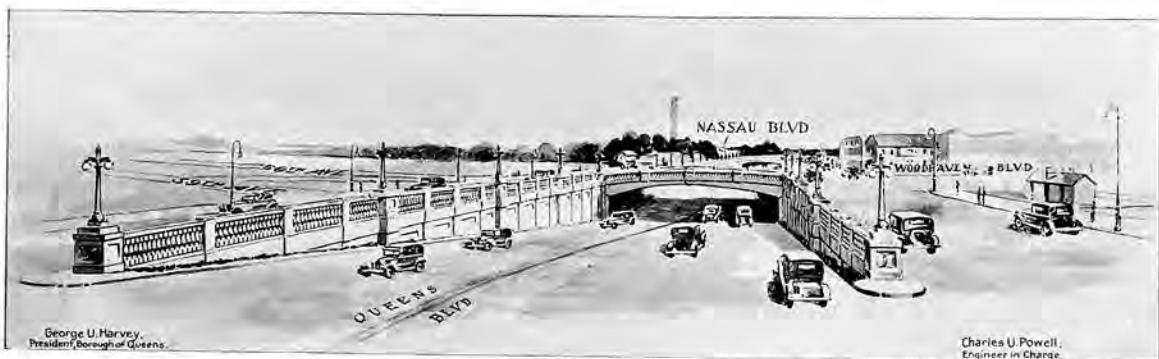
OPPORTUNITIES IN REBUILDING

intersection of Queens Boulevard with Grand Central Parkway, which was then undeveloped but for which final acquisition maps were made in 1931. The Topographical Bureau of the Borough of Queens has proposed grade separations at both of these locations and provision for them has been made in the design of the subway line under construction in Queens Boulevard. A satisfactory solution of the problem at these danger points is, therefore, assured.

There still remains an unsolved problem in the vicinity of the Woodhaven-Nassau Boulevard intersection. There is already a very large amount of traffic which uses Queens and Woodhaven boulevards in going to and from Manhattan and the Rockaway Peninsula during the summer months. Nassau Boulevard, when completed, will furnish an important route from northern Long Island and Flushing to Queens Boulevard and thence to central Manhattan. It will also serve Brooklyn and southern Manhattan by carrying traffic via the Williamsburg Bridge, Metropolitan Avenue and Eliot Avenue, which connects with Nassau Boulevard at Queens Boulevard. According to the present plans these two highways, one from the Queensboro Bridge to the Rockaways, and the other from Brooklyn to Flushing, will cross each other directly beneath the overhead crossing of the main line of the Long Island Railroad, and 1,600 feet south of the above mentioned intersections. This will become the third important center of vehicular traffic in this immediate vicinity.

The Queens Boulevard underpass proposed by the Topographical Bureau is illustrated herewith. It will carry the central roadway in Queens Boulevard beneath the intersections with both Woodhaven and Nassau boulevards.

A suggestion for relieving the dangerous condition below the overhead crossing of the Long Island Railroad, where traffic would intersect at a dark point with the view obstructed, is shown in Fig. 71. This also shows the present official map for this district, including several streets not yet opened or acquired.



Courtesy of Topographical Bureau, Borough of Queens
PROJECTED GRADE SEPARATIONS ON QUEENS BOULEVARD AT INTERSECTIONS WITH WOODHAVEN AND NASSAU (HORACE HARDING) BOULEVARDS

IN BROOKLYN, QUEENS AND STATEN ISLAND

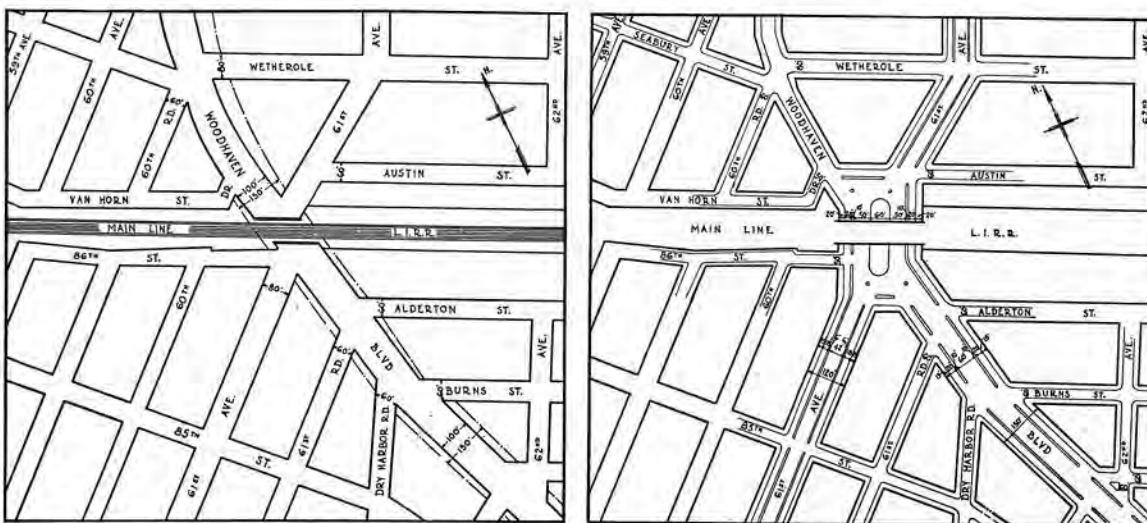


FIG. 71

A STUDY FOR THE RELIEF OF TRAFFIC CONGESTION AT THE INTERSECTION OF WOODHAVEN BOULEVARD AND 61ST (ELIOT) AVENUE

Map on the left shows existing conditions; that on the right shows the proposed rearrangement.

A plaza is suggested beneath the railroad which would have only one-way traffic along its sides. The intersection points would thus be taken away from underneath the railroad crossing and would occur in the open.

The plan also includes a proposed widening of Eliot (61st) Avenue south of Queens Boulevard. This route would form a natural continuation of Nassau Boulevard to the congested parts of the Borough of Brooklyn. The routing of traffic through this intersection would be simplified if Woodhaven Boulevard were limited to southbound traffic between the Long Island Railroad and Queens Boulevard. If this were done this section of it might be reduced from the projected 150 feet to 80 feet. South of the railroad the projected width of 150 feet is indicated.

The original Regional Plan study proposed a large traffic circle at the intersection of Queens and Nassau boulevards, due to the difficulty of constructing a grade separation at this low swampy site. The grade separation proposed by the Topographical Bureau will provide a more satisfactory solution of this problem. Its plans for both this point and the Grand Central Parkway intersection, the latter being quite similar to the study made in 1924 by the Regional Plan, are endorsed as being essential and far-sighted improvements.

Along Nassau Boulevard.—Nassau (Horace Harding) Boulevard extended through territory almost free from development, but since the opening of the first section in 1928 there has been considerable residential development along its route. In 1926 the staff of the Regional Plan submitted to the officials of the Borough of Queens recommendations for the future separation of grades at eight different points along the

OPPORTUNITIES IN REBUILDING



FIG. 72

PLAN OF NASSAU (HORACE HARDING) BOULEVARD SHOWING PROPOSED HIGHWAY GRADE SEPARATIONS

eight miles of this boulevard which lie within New York City. It was pointed out that precedent for this had been established in the construction of the Grand Boulevard and Concourse in The Bronx, where 11 grade separations were provided in the distance of four and one-half miles. In Fig. 72 are shown the locations of the suggested grade separations along Nassau Boulevard, the drawing indicating which highway is proposed to be carried above the other.

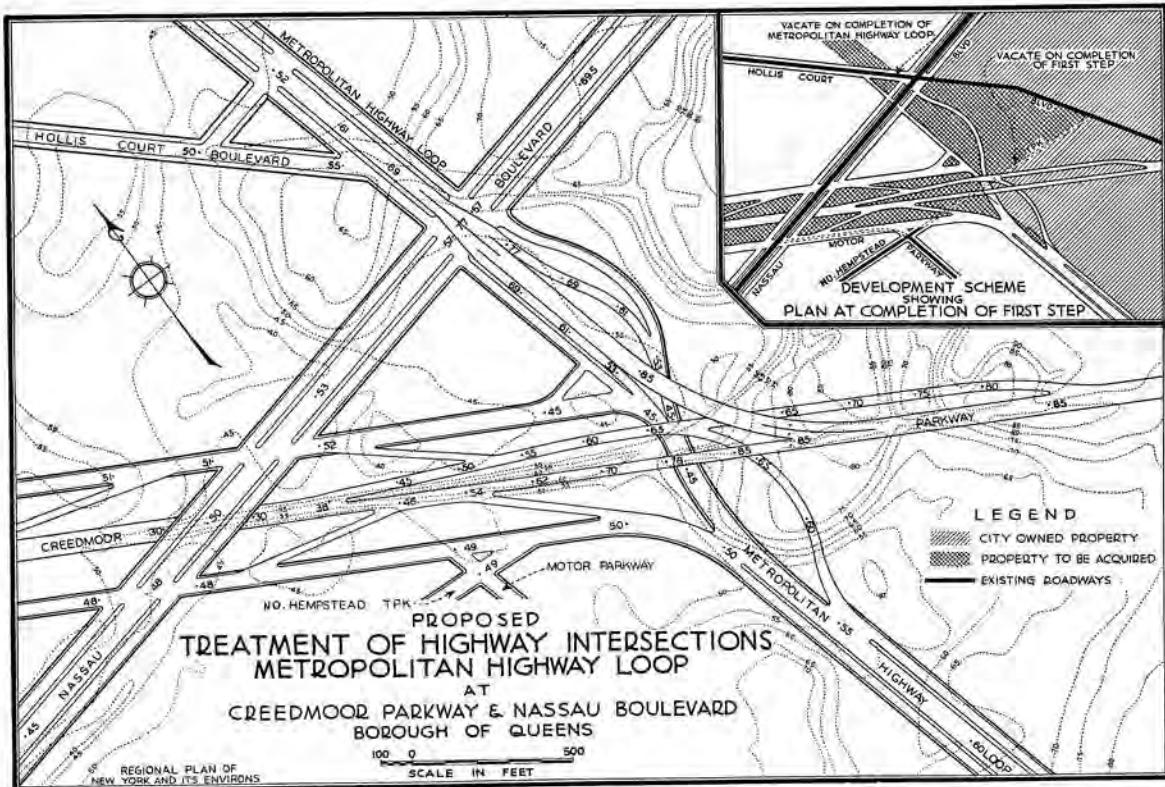
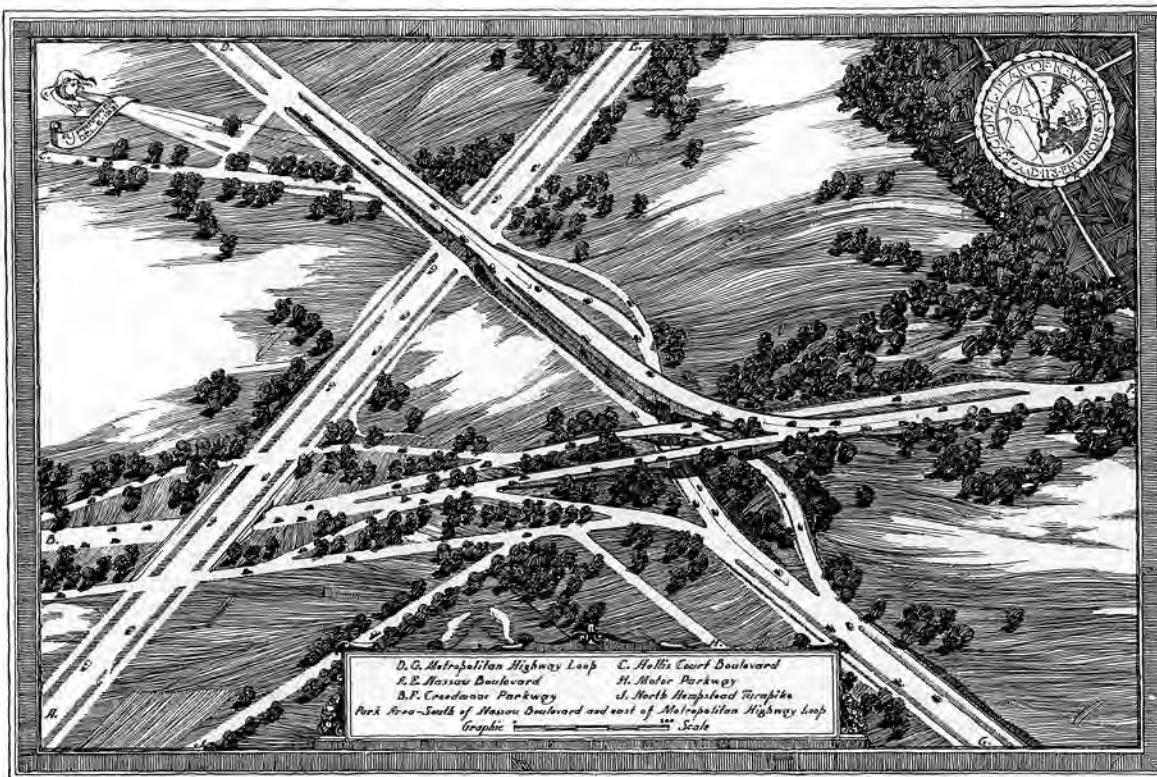


FIG. 73

IN BROOKLYN, QUEENS AND STATEN ISLAND

Since that time the Topographical Bureau of the Borough of Queens has made studies for grade separations at seven points along Nassau Boulevard. At each of these the central roadway would be carried over or under the intersecting street and no additional right-of-way would be required.

From the point of view of the Regional Plan, the intersection of Nassau Boulevard with the proposed Metropolitan Loop, which will follow Cross Island Boule-



PERSPECTIVE SKETCH OF THE PROPOSED TREATMENT OF THE INTERSECTIONS OF THE METROPOLITAN LOOP HIGHWAY, CREEDMOOR PARKWAY AND NASSAU (HORACE HARDING) BOULEVARD

vard, becomes of great importance. A special study has been made of this particular intersection and is illustrated in Fig. 73 and the sketch on this page.

The old Stewart Railroad right-of-way, proposed as a highway in the Regional Plan, has since been proposed by the Borough of Queens for development as a parkway, to be known as Creedmoor Parkway. This will cross both Nassau and Cross Island boulevards within about a thousand feet of their intersection. The plan, therefore, relates to this triple intersection, and the problem is simplified by the fact that most of the land needed has either been acquired already for park purposes or is proposed for acquisition as part of the Creedmoor Parkway. It is

OPPORTUNITIES IN REBUILDING

proposed that both Hollis Court Boulevard and North Hempstead Turnpike be eventually vacated within the park area and that traffic now using these sections be diverted to streets bounding the park or to the Creedmoor Parkway. Pending the construction of the proposed bridge across the East River from Whitestone to The Bronx only a part of the plan need be carried out. This first step is also indicated in Fig. 73.

Other Proposed Grade Separations.—Reference has already been made to the established policy of the Topographical Bureau for acquiring land in advance for the future construction of grade separations, where the right-of-way of the intersecting highways is not wide enough to permit this to be done without additional land.¹ They have made studies for six grade separations along the extension of Hillside Avenue and excess land is being acquired at each of these. The final plans for Grand Central Parkway include 17 grade separations, and five are planned along the Union Turnpike Extension in addition to those proposed at its intersections with Queens Boulevard and Grand Central Parkway. In all, studies have been made by the Queens Topographical Bureau for the separation of highway grades at over 70 different intersections, and over 20 of these had already been mapped in the spring of 1931.

LONG ISLAND APPROACHES TO THE 38TH STREET TUNNEL

Reference has already been made to the importance of the vehicular tunnel projected under the East River between Long Island City and 38th Street, Manhattan, and to the need for a direct connection between it and the midtown Hudson River crossing to be constructed by the Port of New York Authority.² The preliminary plans, prepared under the Borough President of Manhattan and the Department of Plant and Structures, called for a direct connection with Brooklyn as well as Queens by a spur of the tunnel under Newtown Creek.

On the Graphic Regional Plan the tunnel route intersected, in Long Island City, a proposed Brooklyn-Queens express highway. As such an intersection presents a difficult planning problem a special study was made of the situation and submitted in 1929 to the Board of Transportation, which is preparing the final plans for this project. The results of this study are shown in Fig. 74.

Proposed Plan.—It was proposed to bring the tunnel to the surface at a plaza just east of Jackson Avenue and from this plaza to provide a depressed roadway to connect with a separate tunnel under Newtown Creek to Brooklyn. This latter tunnel would also connect directly with a proposed viaduct across the south end of Sunnyside Yards to Van Alst Avenue, which leads directly to the Tri-borough Bridge. North of the Queensboro Bridge this street has been extensively widened as a connection with the new upper roadway on that bridge. With an ultimate separation of

¹ See Chapter X, page 295.

² See Chapter XII, page 410.

IN BROOKLYN, QUEENS AND STATEN ISLAND

grades at the few important intersections, it would provide a permanent express route. The maximum grade in the Brooklyn-Manhattan connection through Long Island City would be 4.1 per cent. The maximum grade on the proposed viaduct in the Brooklyn-Queens express highway would be 4.2 per cent.

Queens connections with the tunnel are complicated by the railroad tracks in this part of Long Island City, particularly by the main passenger line of the Long Island Railroad, which crosses both 51st Avenue and Borden Avenue at grade. There are also several spur freight tracks serving the industrial areas in this vicinity. Most of the Queens traffic will probably come to or from Borden Avenue, Skillman Avenue, Jackson Avenue or Van Alst Avenue. To facilitate connections with Skillman and Borden avenues an eastbound viaduct was proposed from the Plaza at 11th Street over the main line of the Long Island Railroad and entering Hunters Point Avenue near its intersection with Skillman Avenue. Borden Avenue could be reached over this viaduct and Hunters Point Avenue, which runs into Borden Avenue about a mile to the east. Convenient connections are provided to both Jackson and Van Alst avenues by way of existing streets and a proposed widening along part of 11th Street.

Queens connections for the vehicular tunnel under Newtown Creek would swing off from the Brooklyn-Queens tunnel under the Long Island Railroad freight yards south of Borden Avenue and come to the surface in the block bounded by 50th and 51st avenues, 23rd and 25th streets. At this point traffic coming to or from the northeast part of Queens would find convenient connections to Skillman Avenue, Borden Avenue and Hunters Point Avenue. The Brooklyn-Queens express highway would continue to the north by the proposed viaduct over Sunnyside yards and Van Alst Avenue.

The collection of tolls in the 38th Street Tunnel has been approved by the City of New York and has met with general agreement. It is the most logical way of financing such major waterway crossings. The Brooklyn-Queens express highway, on the other hand, should probably be without tolls. The tunnel under Newtown Creek is quite close to bridge crossings upon which there are no toll charges. In order to permit the Newtown Creek vehicular tunnel to be operated without tolls, the plan shows booths for collecting tolls for traffic between Brooklyn and Manhattan in the depressed part of the plaza east of Vernon Boulevard. The arrangement shown would permit traffic in each direction to form in three lines for the collection of tolls at this point. Toll booths for traffic both entering and leaving the Queens highway system at this plaza are also indicated. This would obviate the necessity of collecting tolls in either Manhattan or Brooklyn and would simplify the approaches to the tunnel at those points. Traffic between the Greenpoint section of Brooklyn and central Queens via the proposed Borden Avenue route would probably utilize either the Greenpoint Avenue or Meeker Avenue bridges over Newtown Creek instead of using

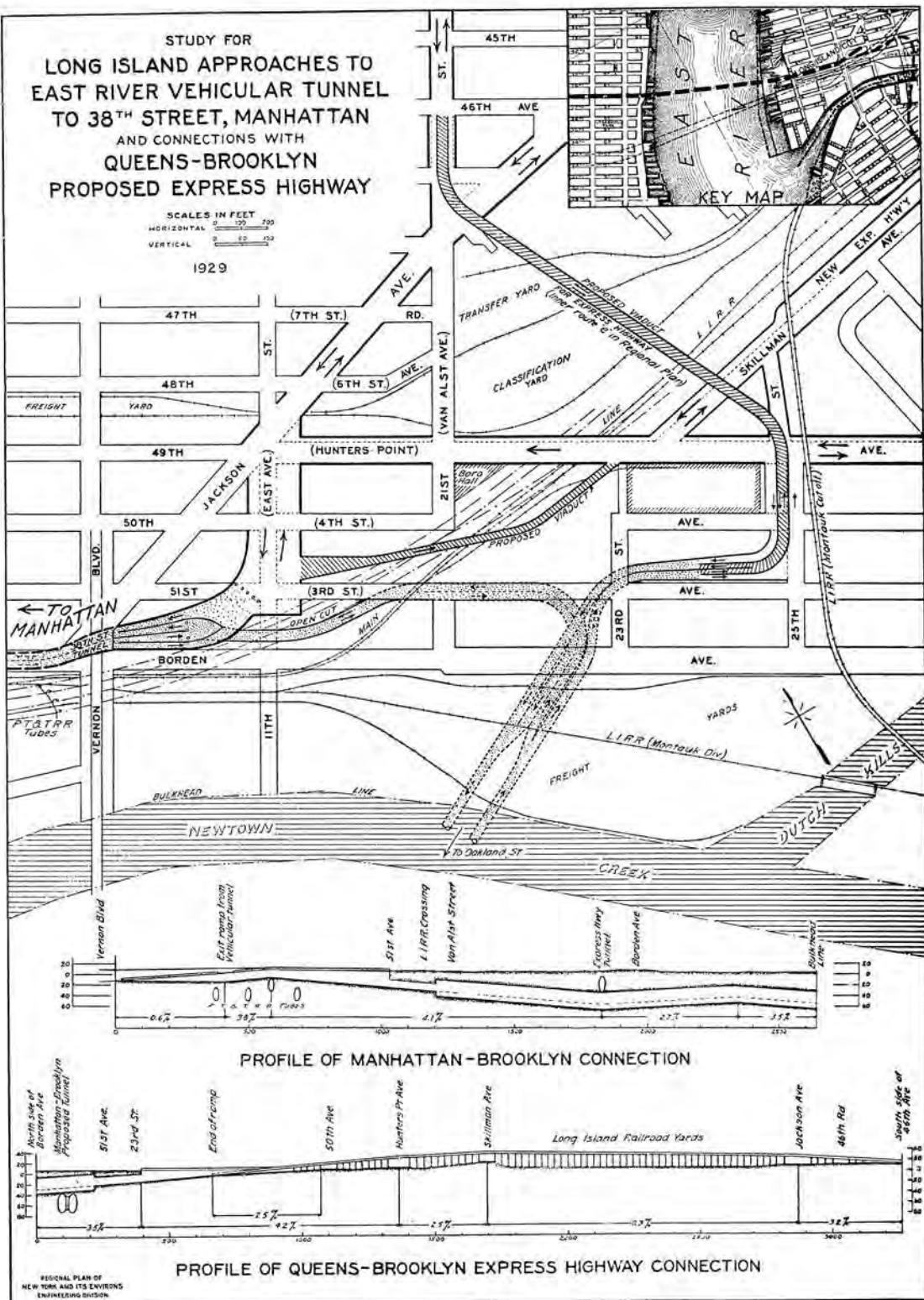


FIG. 74

IN BROOKLYN, QUEENS AND STATEN ISLAND

the proposed vehicular tunnel. Traffic connections between Borden Avenue and the Newtown Creek tunnel are, therefore, relatively unimportant.

The plans prepared by the Board of Transportation showed Long Island approaches quite similar to those suggested by the Regional Plan, but concentrated all street connections in a single and much larger plaza just east of Jackson Avenue. Their report was submitted in June, 1931, to the Board of Estimate and Apportionment, which had not yet passed upon it at the time this statement was prepared.

It is believed that the separation into two plazas, as proposed herein, would have many advantages in both simplicity and lessening of congestion, and that the connections proposed at the north end of the Newtown Creek tunnel do not present serious difficulties. It would be possible, in place of the arrangement shown in Fig. 74, to have the ramps for traffic to and from Queens connect with the centers of the one-way tunnels under Newtown Creek instead of the sides. This would make it possible to have separate lanes for slow and fast moving vehicles without any crossing of traffic lanes. Central ramps in the main plaza east of Jackson Avenue, as provided in the Board of Transportation's plan, would also be an improvement.

Staten Island Developments

COMMERCIAL WATERFRONT AND CIVIC CENTER

Staten Island has not yet come into its own as a part of New York City. Its size and strategic situation are such as to give it great importance in connection with the future of the Region. Our general plan for its development is presented as part of the Graphic Plan. Its varied opportunities for developing a commercial waterfront along the Kill van Kull and on the frontage of Upper New York Bay have not yet been adequately exploited.

It might have been fitting for the Regional Plan to have included a detailed project for making proper use of this waterfront and of the expensive pier development between Rosebank and New Brighton, already referred to in Chapter IX.¹ Unfortunately the need of improvement is greater than the opportunity. The land and type of building development on the uplands behind the piers is such as to prevent the preparation of any suitable plan. If the general proposals of the Regional Plan are carried out the time may come when the way will be opened to justify the cost of developing the land and transportation facilities so as to make proper use of the piers.

The main lesson of the Stapleton pier development is that it is waste of money for the city to carry out improvements of this character unless on the basis of a comprehensive plan.

¹ See pages 230 and 231.

OPPORTUNITIES IN REBUILDING



Photo by Ewing Galloway

Courtesy of C. F. Doherty



James Whitford, Architect

Courtesy of the Staten Island Chamber of Commerce

PROPOSED NEW FERRY TERMINAL AND OFFICE BUILDING AT ST. GEORGE,
STATEN ISLAND. ABOVE—EXISTING CONDITIONS

The approach to this building would be constructed above the existing railroad yards.

the trunk line railroad, which would cross to Brooklyn by tunnel under the Narrows, and a suburban rapid transit route connecting Richmond and Bayonne. The portal of the Narrows railroad tunnel as projected by the City of New York would be in this same vicinity, which is largely undeveloped.

There are possibilities in regard to the development of Staten Island that make it premature to predict where is the most logical place for its civic center. It is apparent, however, that the existing municipal group near the St. George Ferry terminal is located in the best position for existing and perhaps for prospective needs. It is a convenient location in relation to the system of communication with Manhattan and with different parts of the island.

While not submitting any project for improvement of the civic center, we show (Fig. 75) a tentative sketch study of a union passenger terminal at a point where the Graphic Plan shows an intersection of the Metropolitan Highway Loop and the north and south highway crossing the Kill van Kull Bridge. The proposed union passenger terminal is on both

IN BROOKLYN, QUEENS AND STATEN ISLAND

COMBINED PARK AND PLEASURE RESORT AT GREAT KILLS

As a definite project for Staten Island we put forward a proposal for developing a large pleasure resort at Great Kills. This suggestion is intended not only as a specific plan to make the most of an opportunity in Staten Island but as a typical plan that might be followed in other parts of the Region. All future pleasure resorts should be developed in combination with parks. Seaside resorts should have connected with them large land areas reserved for public recreation.



FIG. 75

In the development of pleasure resorts and parks care should be taken to plan them appropriately for their purpose and situation. Each one therefore requires a carefully prepared design adapted to its special conditions.

A good example of a pleasure resort established by a public authority exists at Playland in Westchester County, as shown in the illustrations on page 521. Public ownership and management of such resorts are necessary to secure orderly development and control. An architectural conception for a more ambitious project is shown in the illustration on page 524.

OPPORTUNITIES IN REBUILDING

In June, 1929, the Board of Estimate and Apportionment authorized the expenditure of \$700,000 for the acquisition of the upland area surrounding Great Kills Harbor and announced that the underwater area had been given to the city by the state for the nominal sum of one dollar. The area thus made available for development include about 279 acres on the mainland. The underwater section, including Crooke's Point, will comprise 455 acres, of which only 74 acres are above mean high water.¹ Before the above action by the city, the Regional Plan staff prepared a sketch for a marine park at Great Kills (Fig. 76). This has been used by local associations in promoting the project to have a public park in this locality. Following the action of the city in acquiring the upland, the more detailed design for a combined park and pleasure resort shown in Fig. 78 and the sketch on page 525 have been prepared.

The site surrounding the Great Kills Harbor affords an opportunity for obtaining a public resort of great natural charm and utility. From a regional point of view, it appears logical that the southerly shore of Staten Island and the hinterland be used for recreational and residential purposes. Whatever demands might arise for com-

¹ *New York Herald Tribune*, August 28, 1929.

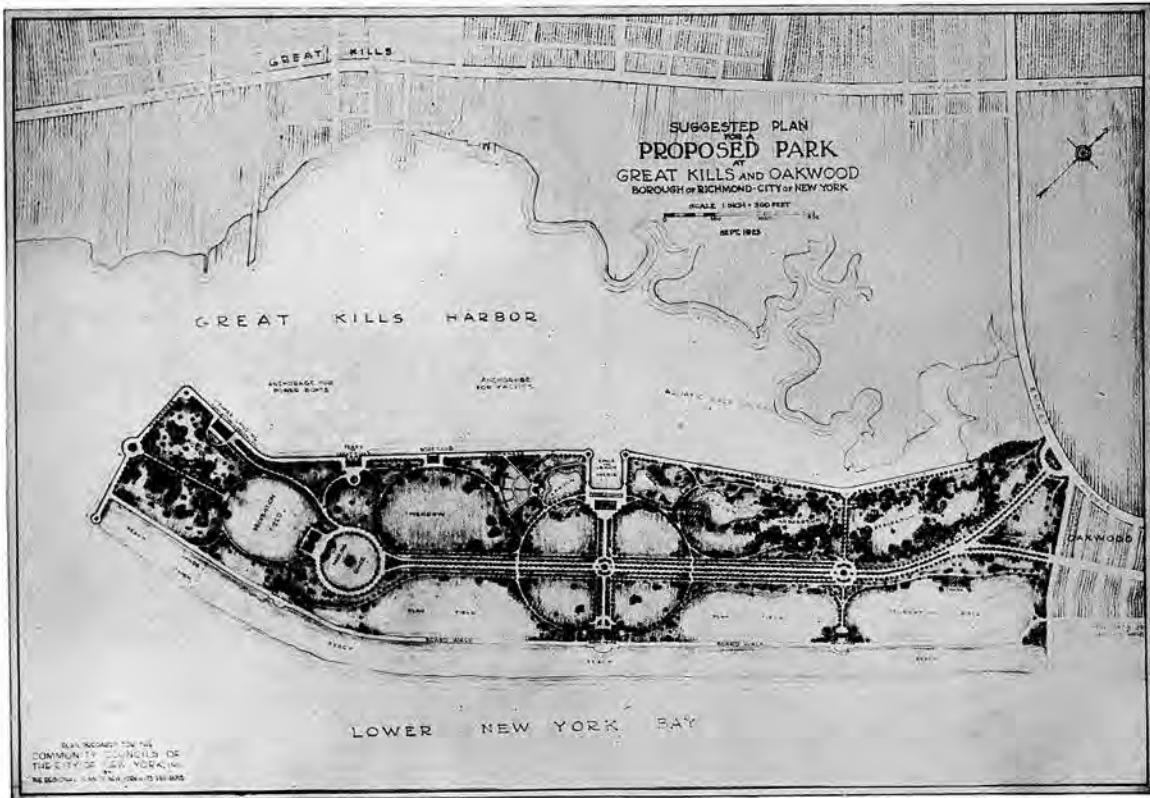


FIG. 76
A PRELIMINARY STUDY FOR THE DEVELOPMENT OF GREAT KILLS PARK, STATEN ISLAND

IN BROOKLYN, QUEENS AND STATEN ISLAND

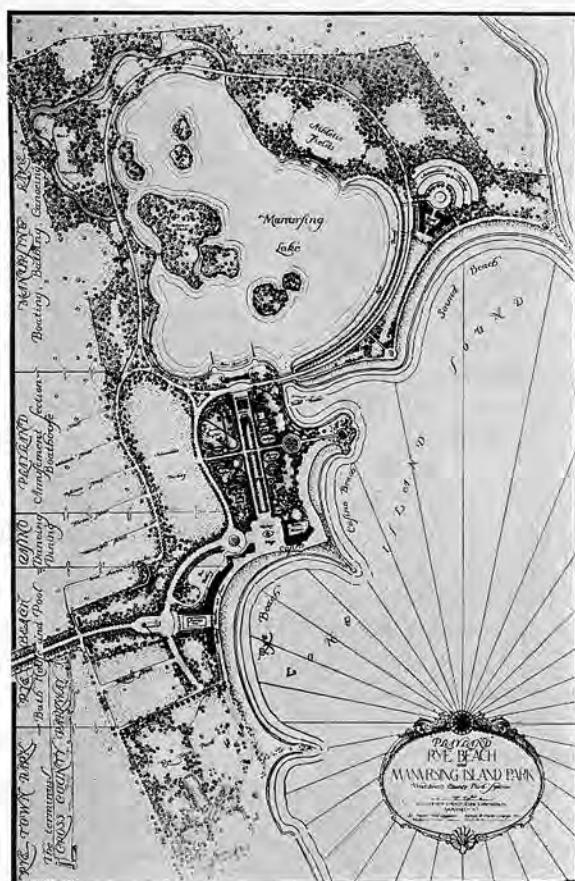


PERSPECTIVE SKETCH OF "PLAYLAND"
AT RYE BEACH, WESTCHESTER COUNTY

mercial use in the future would be for local purposes and could be provided for south of the harbor near the approach channel. A report of the Board of Engineers for Rivers and Harbors to the Chief Engineer, United States Army, January 26, 1929, referred to the need of a harbor on the east of Staten Island, and said that "it cannot be said from available data that the need for such a harbor is extremely urgent (for commercial purposes) but it would undoubtedly be desirable and convenient."

The scheme proposed here would not interfere with any scheme to develop a commercial harbor further to the south. The harbor proposed in the plan would be confined in its use to pleasure craft. Temporarily, it might be used as a haven for commercial craft in time of storm. If, however, the proposal of Colonel William J. Wilgus for a causeway between Rockaway Point and Sandy Hook should become

Courtesy of the Westchester County Park Commission



*Courtesy of the Westchester County Park Commission
FIG. 77*

OPPORTUNITIES IN REBUILDING

a reality, or even if the proposal of the Board of Commissioners of Pilots of the State of New York for an anchorage area southeast of Staten Island were carried out, there would be no particular need for Great Kills Harbor as an anchorage area for large craft. A comparison of these proposals appears on page 234.

These considerations also point to the undesirability of sacrificing possible park land in making the harbor any larger than we propose.

The following is a brief description of the project:

Type and Size of Park.—The purchase of land for the park carries with it the intention of providing for a marine park. The dominant use would be related to the beach frontage. There is ample space for the provision also of other uses more generally found in inland parks. The purpose of the park should be to afford facilities for active recreation in pleasant surroundings. Among these activities the more important are: boating, rowing, bathing, golf, tennis, horseback riding, athletics for bathers, picnicking, motoring, strolling and unorganized play.

As outlined on the proposed plan there would be about 825 acres of land, which, with about 45 acres of lake, would make an area larger than Central Park. The harbor itself covers about 280 acres. As planned, there are about 2.7 miles of beach front partly on the Lower New York Bay and partly on the Great Kills Harbor. The "recreation circle" located on the southerly part of the peninsula includes about 37 acres, nearly as large as the parade grounds adjoining Prospect Park, Brooklyn.

The harbor is proposed to be made accessible to large craft by means of a channel 150 feet wide and 12 feet deep. The federal government proposed to provide a 12 foot anchorage area of about 63 acres in the harbor.

Access by land is readily obtainable from every direction. Approach from the Perth Amboy Bridge is possible by Hylan Boulevard or Amboy Road, from Elizabeth and Bayonne bridges by a proposed parkway extending across the island, from St. George Ferry and the Narrows Tunnel by Hylan Boulevard and a proposed shore drive.

Features of Design.—The design calls for a formal "greeting" at the main entrance to the park, consisting of a broad avenue flanked with rows of trees and foot paths. At this entrance a huge circular pool forms one terminus, while at the other is a two story building which by reason of its height and position dominates the whole park. It would contain the administrative headquarters, dining facilities, and perhaps a museum of marine life. Grouped about it are tennis courts, a music court and a boathouse.

A large meadow forms the central feature of the land area of the park. Looking from the terrace of the main building the meadow would appear in the foreground, the rowboat lake in the middle distance with a bridge in the center, the harbor in the distance. The meadow with its irregular border of trees will provide a desirable expanse of green.

The motor roadway is shown to pass immediately in front of the view from the terrace toward the meadow, but as this roadway would be in depression, the terrace would be elevated a few feet so that low shrubs planted between the terrace and the road would make the cars invisible from the terrace.

Partly because a beach along the shore saves the cost of construction of a sea wall, and partly because it is the most valuable recreative use to which waterfront could be put, such a beach is proposed on both sides of the peninsula. The beach on the outer side would be bounded with a boardwalk on the land side throughout its length of a mile and one-half. The shore follows the established bulkhead line except on the southerly end, where it is proposed to change the bulkhead line to include more land. The harbor beach is suggested in the pleasing form of a crescent, curving considerably inside the bulkhead and pierhead line.

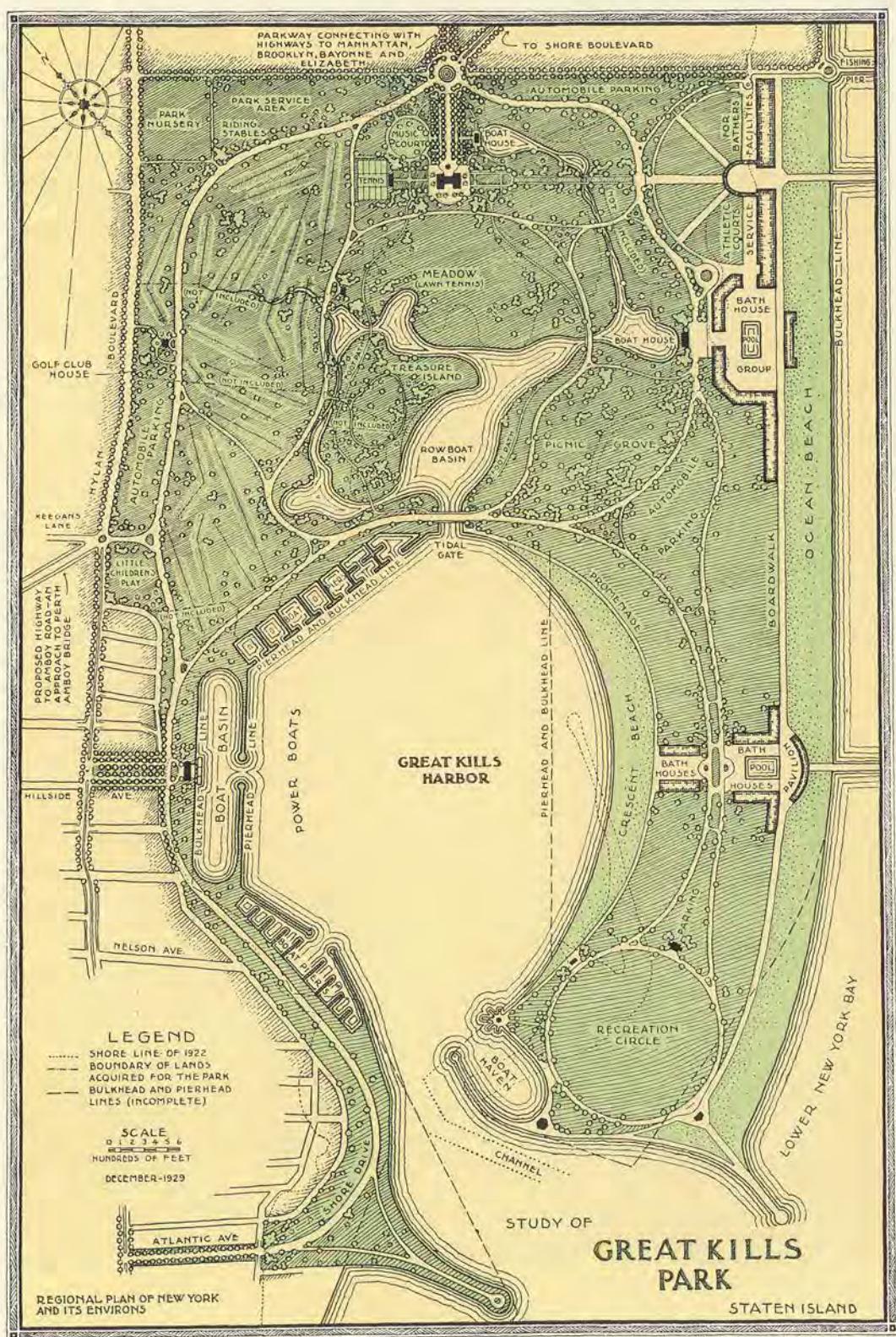


FIG. 78

PROPOSED PLAN FOR WATERFRONT PARK AT GREAT KILLS, STATEN ISLAND

OPPORTUNITIES IN REBUILDING

Single story bath houses are suggested for the reason that the buildings should be kept low and unobtrusive.

There is ample space for a golf course of 18 holes between the meadow and boundary line of Hylan Boulevard. A clubhouse is suggested and also a midway refreshment building. A tidal gate is shown between the harbor and the rowboat basin. If there were enough water to keep the lake fresh, the problem of planting would be simplified. On the other hand, if the lake would become stagnant without the tidal flow the gate could be adjusted so that only about a foot or two rise would occur at high tide.

Power boats would keep to the harbor, away from the crescent beach. Boat basins and piers are shown lining the entire landward side of the harbor.

In connection with the northerly bath house group, a huge semicircle has been set aside for athletic courts for bathers. At the point of the peninsula a great recreation circle is laid out for games. Back of both beaches are open areas for play. On the westerly side of the park a playground for small children is suggested.

The arrangement of trees shown on the plan is intended to convey the idea that planting should be restrained throughout the park.

Except for the formal entrance, the road system is made up of easy curves. Only a few of the main footpaths are shown. A bridle path might well be included in the northerly part of the park and extending along the approach boulevards to the inland parks of Staten Island. Provision is made for automobile parking and bus terminals near the places where they are most needed.

Cost of Development.—Over 300 acres of land not under water have been acquired from the fund of \$700,000 authorized by the Board of Estimate and Apportionment. Only about 90 more acres of land

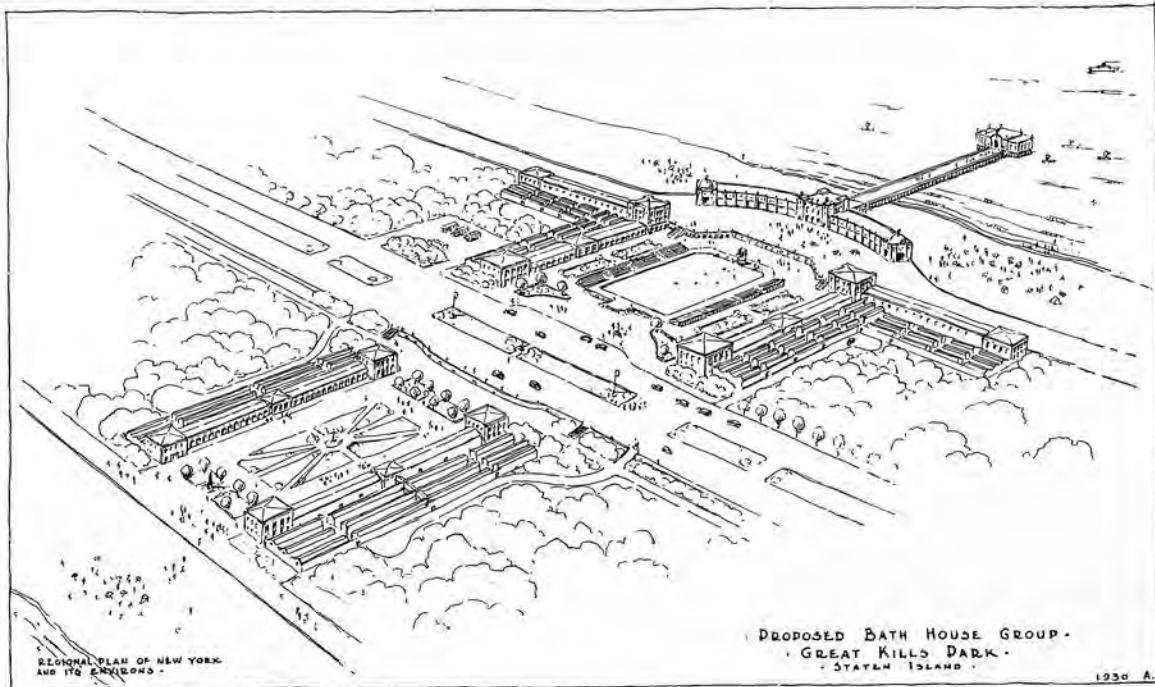


Schultze & Weaver, Architects

Drawn by Chester B. Price

DESIGN FOR AN AMUSEMENT PARK IN FLORIDA

IN BROOKLYN, QUEENS AND STATEN ISLAND



above water are needed to carry out the proposed plan. This should not cost over \$150,000. On May 1, 1931, the state ceded to the city without cost about 425 acres of land under water, which provides most of such land needed for the plan.

The dredging and filling, the construction of sea walls, roads and bridges, and the topsoil and planting required to be done to carry out this project will involve large expenditures. A definite plan and estimates of cost based on actual survey of the conditions and levels of the land should be prepared. The site is one which permits of gradual and economical development. It will be noticed, for example, that only a very small portion of the shore not producing income will need a sea wall. Land and water areas are so related that the cost of dredging and filling will be comparatively low. Tree planting should be restrained to the extent necessary for screening and shade. As in the case of Playland, developed by the Westchester County Park Commission, the proposed resort should produce an income above operation costs.

There are other places in the Region where developments of a similar character should be carried out. The important thing is to select the sites and to purchase the land, leaving the development to be undertaken as funds become available. In some more outlying places a less formal treatment will be desirable. In the New York region there are abundant opportunities for seaside resorts to be created, where its vast population can enjoy facilities for recreation that, on the whole, are superior to any that can be provided in inland places. As we have seen, one of the best of these opportunities lies in Staten Island, within the City of New York and within easy reach of its most crowded areas.



From a rendering by W. M. Anderson

FIG. 79
PLAN FOR THE DEVELOPMENT OF THE CENTRAL PORTION OF THE HACKENSACK MEADOWS

Brown denotes industrial areas; yellow, residential; dark green, parks; light green, semi-public open areas; red, business centers. White lines represent highways of varying widths. Red and black lines denote existing railroads; solid red lines, proposed railroads. The blue appearing on the edges indicates high land bordering the meadows.



Design by Harry Maslow

A CONCEPTION OF THE FUTURE SKYLINE OF STEVENS INSTITUTE, HOBOKEN

XV. IN METROPOLITAN NEW JERSEY

THE geographical center of the New York region is the Port rather than the City of New York. The main center of the Port lies in and around the lower Hudson River and Upper New York Bay, where its land areas comprise, in addition to lower Manhattan and in-town Brooklyn, the areas in New Jersey that extend two or three miles back from the Hudson River and Upper Bay between the southern point of Bayonne and Union City. The most important locations for secondary harbors of the Port are Newark Bay and the still almost undeveloped Jamaica Bay.

The fact that most of the railroads providing extensive connections between New York and the principal markets of the country converge and stop within the New Jersey metropolitan area gives it unique commercial importance. The New Jersey areas are also, in general, less developed than the New York areas and, therefore, offer greater scope for improvement. It is as much in the interest of New York City as it is in the interest of the New Jersey communities that the great opportunities for development in New Jersey should be seized.

Waterfronts in Hudson County

JERSEY CITY-BAYONNE WATERFRONT

The Jersey City-Bayonne waterfront has unique potentialities for development. These were analyzed, together with the other outstanding undeveloped port areas, in the Regional Survey.¹

It was found that of the eight areas most suitable for port extension the waterfront of Bayonne and Jersey City had railroad facilities equal to those in any of the other areas, and ranked first in the advantages of propinquity to the center of the Port and third in regard to accessibility for shipping. It had been shown that about 131,500 additional linear feet of pier, wharf and quay length could be economically developed along this waterfront and that this would be fully utilized by 1965. This represented almost two-thirds of the estimated additional port requirements for the whole Port of New York by that date.

¹ Regional Survey, Volume IV, pages 133-149.

OPPORTUNITIES IN REBUILDING

In the 1930 Report of the City Plan Commission of Bayonne, prepared by Mr. Harold M. Lewis as engineer, the advantages of its eastern waterfront for industrial and port development were described. It was stated that:

"Back of the established bulkhead line is an area within the City of Bayonne of about 770 acres of submerged lands overlaid with water averaging only about four feet in depth below mean low water and with a maximum depth, as shown on the U. S. Coast and Geodetic Survey maps, of only six and one-half feet. The average distance from the east shore of Bayonne to the bulkhead line is about 5,700 feet. The distance across the mouth of the bay created by Constable Hook on the south and the Pennsylvania Railroad's development in Jersey City on the north (about 1,600 feet north of the Bayonne-Jersey City line), is only about 6,500 feet measured along the bulkhead line and a southerly extension of that line.

"Outside of the bulkhead line Bayonne has another tremendous area of shallow water available for commercial development and suitable for any or all types of marine terminals. The pierhead line established by the Riparian Commissioners of New Jersey is about 2,400 feet beyond the bulkhead line, giving an area in Bayonne between these two lines of about 325 acres. The pierhead line established by the U. S. War Department is at an average distance of about 4,500 feet beyond the bulkhead line, which would increase this area for commercial and allied uses to about 610 acres. Directly beyond are the waters of New York Upper Bay and the principal anchorages of the Port of New York; the main 40 foot entrance channel is only about 3,000 feet distant.

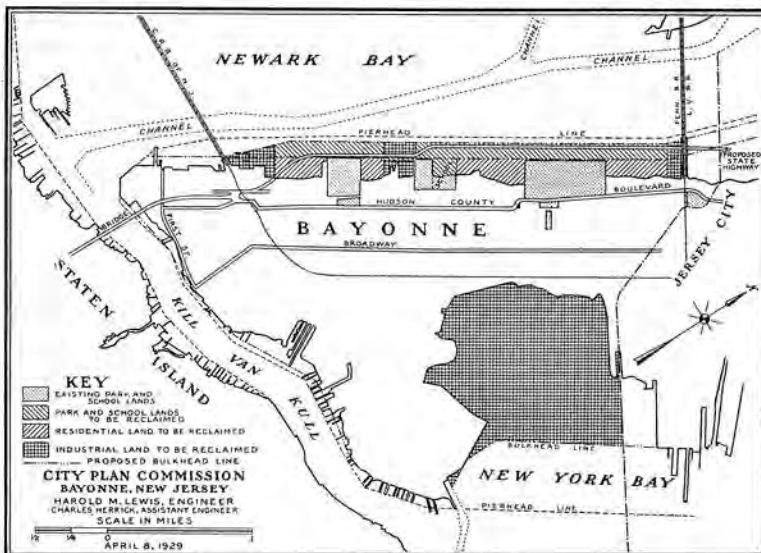


FIG. 80

THE PROPOSED USES OF LAND UNDER WATER AND THEIR RELATION TO
EXISTING PARKS IN BAYONNE

"If the areas involved were smaller, they would undoubtedly have been developed years ago. Other cities must either go to the outskirts of the developed areas or tear down costly improvements in central sections to establish new port facilities on a large scale. Yet in this case there is readily available a large and easily developed site in almost the geographical center of the Port and adjacent to the main railroads serving it, only four miles from the tip of Manhattan and within easy reach by automobile of the principal markets in a metropolitan area with over ten million population. . . .

"The magnitude of the Bayonne areas has made their development possible only as part of a comprehensive scheme and has kept them intact for a thoroughly modern and efficient type of use. For many years this waterfront has been regarded as one of the outstanding opportunities in the Port of New York for an efficient and economical expansion of its commercial and industrial facilities."

IN METROPOLITAN NEW JERSEY



Harold M. Lewis, Engineer

Courtesy of the Bayonne City Plan Commission

AN AIR VIEW SHOWING THE PRINCIPAL FEATURES OF THE BAYONNE PLAN

In the analysis in the Regional Survey, referred to above, it was estimated that along this Bayonne and Jersey City waterfront about 160 acres would be required for new large scale industrial developments by 1940 and 400 acres by 1965, which would still leave about 600 acres suitable for future development.

With the reclamation of the water areas to which Mr. Lewis refers there will be provided an opportunity for creating both a large extension of transportation facilities and a great abattoir city to serve the needs of the immense population of New York City and metropolitan New Jersey. The total area reclaimable at moderate cost amounts to about 1,000 acres. In developing this new area all the lessons of past experience and the best engineering skill can be applied to secure a transportation center of unique efficiency and orderly arrangement. All the scattered and wrongly placed buildings devoted to slaughter of animals and assembly and distribution of food, requiring cold storage facilities, could be concentrated in this new location, with enormous financial benefits to the industry and social values to the citizens of the Region.

OPPORTUNITIES IN REBUILDING

AN OPPORTUNITY IN HOBOKEN

In addition to the sites available on this waterfront for port and industrial development there are others on the uplands and on reclaimed land suitable for the erection of great buildings. One of these is the commanding site occupied by the Stevens Institute of Technology, where there is a prospect of having a fine group of buildings erected in the future. The sketch below and that on page 527 show one possible way of developing this site.

PLAN OF BAYONNE

It was during the final stage of completion of the Regional Plan that the city plan for Bayonne was prepared. This plan is naturally limited in its proposals to those improvements that can be carried out in the near future. It develops in detail



Design by Harry Maslow

SKETCH OF POSSIBLE DEVELOPMENT ON THE SITE OF STEVENS INSTITUTE IN HOBOKEN

One of several designs submitted as a project of the Columbia University School of Architecture.

some of the more general proposals of the Graphic Regional Plan. It shows the special opportunities that exist in Bayonne, and affords an example of the type of plan that should be developed by communities to supplement the Regional Plan.

The plan, as prepared by Mr. Lewis, was submitted to the Bayonne City Plan Commission in two reports.¹ We present a summary of the outstanding proposals contained in the plan.

The plan is based on devoting the Newark Bay waterfront primarily to residence and recreation as distinct from the port and industrial developments which it is proposed to concentrate on the east side. Only by such a segregation is it possible to prevent the invasion of the business and residential sections by industry.

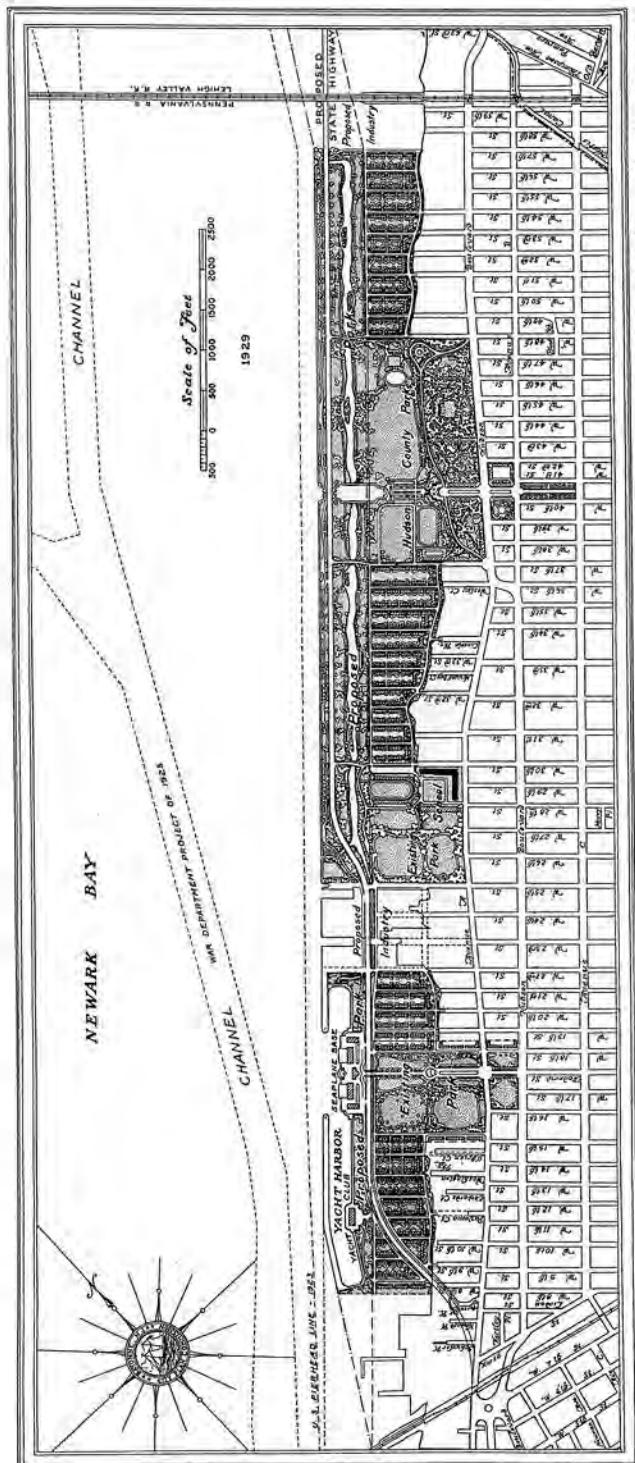
¹ DEVELOPMENT OF NEWARK BAY WATERFRONT OF THE CITY OF BAYONNE, June, 1929; and 1930 REPORT OF THE CITY PLAN COMMISSION, BAYONNE, N. J.

IN METROPOLITAN NEW JERSEY

Proposals for Newark Bay Waterfront.—The general plan for the Newark Bay waterfront is illustrated in Figs. 81 to 84. It shows the use of land now under water for apartment sites and extensions to existing park areas, with a state highway near the outer edge of the reclaimed areas. The proposals, as set forth in the 1929 report of the Bayonne Commission, include the following:

(1) The development of the waterfront land south of West Eighth Street and between West 57th Street and the bridge of the Pennsylvania and Lehigh Valley railroads for industrial development. Between Eighth Street and 57th Street the reclaimed land is proposed for waterfront park, except certain specified areas to be used for industry and residence. The total areas to be reclaimed between the two railroad bridges would be 393.9 acres.

(2) Throughout the entire length of the reclaimed land a 100 foot reservation is to be made for State Highway No. 1. When constructed, this highway will connect the Hudson River (George Washington) Bridge and Kill van Kull Bridge. It will parallel and correspond in principle to the waterfront railroad belt line No. 13 of the Port Authority Plan. With the connections being provided by New York City in Staten Island, it will provide a route of regional importance extending from Tottenville to Fort Lee directly connected with all the interstate crossings already mentioned.



Courtesy of the Bayonne City Plan Commission

FIG. 81

PLAN OF DEVELOPMENT FOR THE NEWARK BAY WATERFRONT OF BAYONNE

OPPORTUNITIES IN REBUILDING

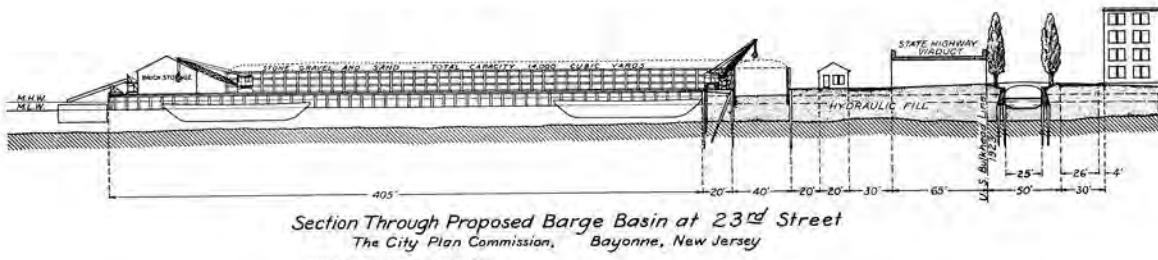


FIG. 82

(3) Increase of park and playground acreage to 336.9 acres, including an attractive waterway for pleasure boating extending for about two and one-half miles along the waterfront. (The recreational waterway would consist of a series of lagoons, which it is proposed to control by gates at its connections with the main waterway of Newark Bay so that the variation in water level would be less than the tidal range in the Bay.)

(4) Development of a formal promenade along the proposed bulkhead line (since adopted by the War Department) with an unobstructed view of Newark Bay and a local park drive between the promenade and the state highway.

(5) Provision of a site for a seaplane landing base adjoining a proposed yacht harbor, and the construction of an attractive watergate on the upland adjoining the base.

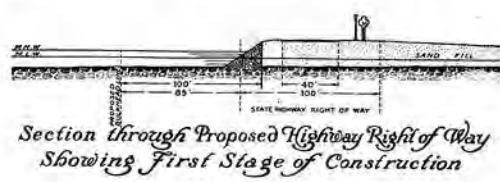
(6) Construction of a municipal pier with provision for public wharfage and a future ferry terminal.

(7) Reclamation of four areas for residential development in large units and institutions.

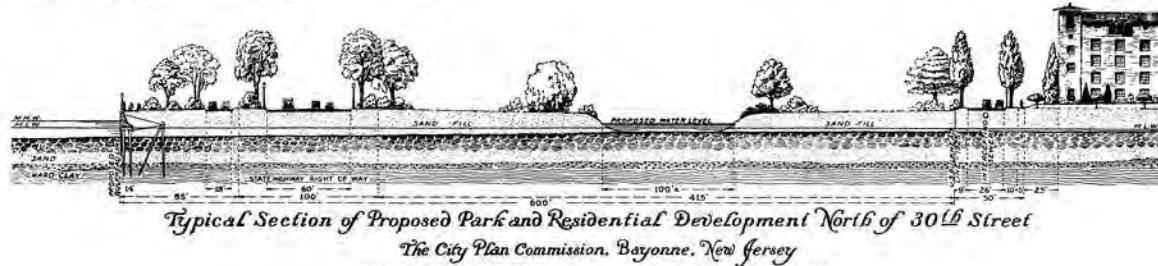
(8) Development of three industrial sites comprising 76.9 acres of land now under water, with necessary docking and warehouse facilities.

A noteworthy feature of the plan is that it involves the acquisition of very little land in private ownership. All the land under water proposed for acquisition by the city or county outside the 1923 bulkhead line is now in state ownership.

City-wide Studies.—Following the report on the Newark Bay waterfront in 1929, Mr. Lewis submitted comprehensive proposals based on a more complete study. These are



*Section through Proposed Highway Right-of-Way
Showing First Stage of Construction*



JUNE 6, 1929

SCALE - 1 INCH = 20 FT.

FIG. 83

IN METROPOLITAN NEW JERSEY

described in the 1930 report and include the following additional proposals:

(1) The reclamation for port and industrial purposes of the land under water along New York Bay, including the 770 acres inside the U. S. bulkhead line and 610 acres between the bulkhead and pierhead lines. It was suggested that this be reclaimed in two steps and that the initial commercial development include three wide piers, or moles, each 1,400 feet in length.

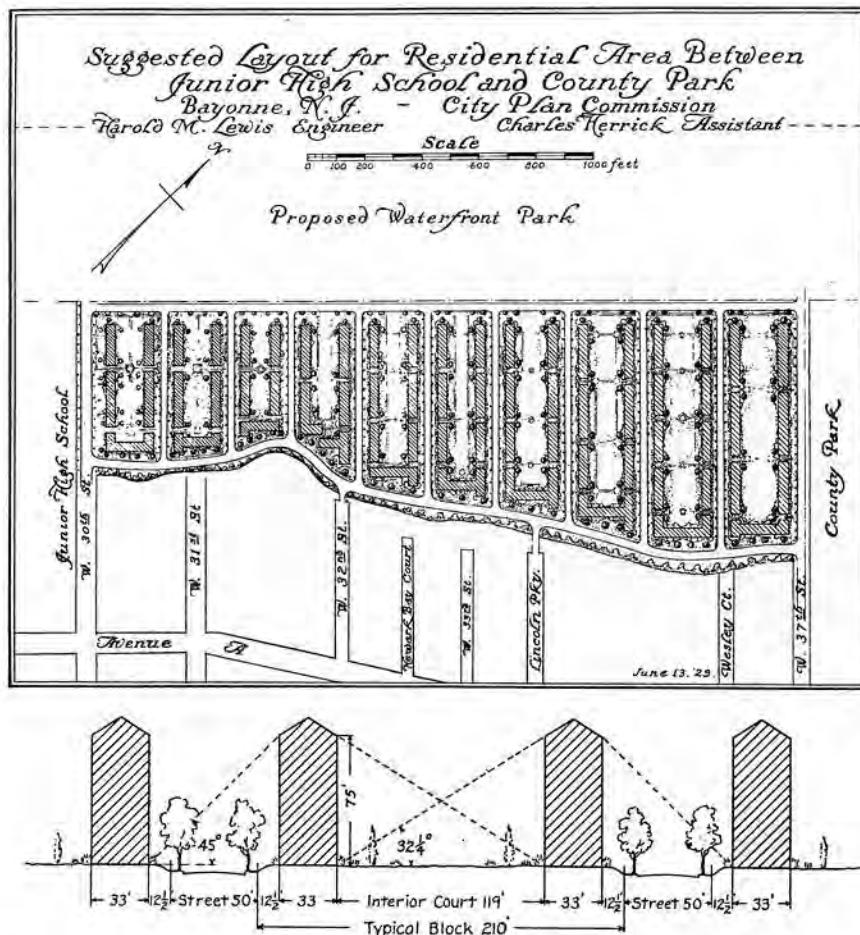


FIG. 84
AN APARTMENT HOUSE DEVELOPMENT PROPOSED AS PART OF THE PLAN FOR THE
NEWARK BAY WATERFRONT OF BAYONNE

Note that the arrangement and height of the buildings secure the 45 degree angle of light proposed as a minimum requirement for residential areas in Chapter VII.

(2) A trunk line railroad and suburban rapid transit plan to include direct connections by tunnel with Manhattan via Jersey City and with Staten Island.

(3) A rapid transit line in Avenue C, extending to the north through Hudson County, with a branch connection to southern Manhattan, and extended to Staten Island on the south either over the Kill van Kull Bridge or by tunnel from Constable Hook.

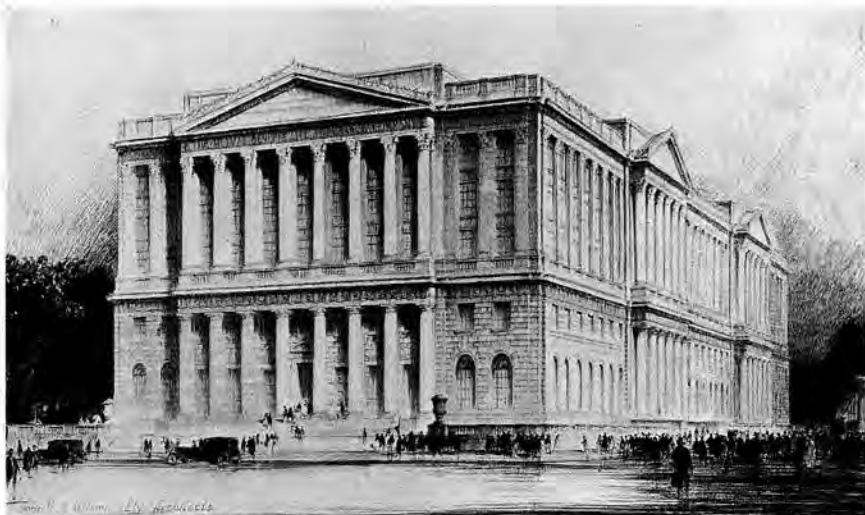
OPPORTUNITIES IN REBUILDING

(4) A main highway plan to include the state highway proposed along Newark Bay, an east side industrial highway, a boulevard along the Kill van Kull and new connections with the Jersey City street system.

(5) A civic center developed around the site already acquired for a new City Hall.

Newark

The City of Newark has shown unusual foresight in the planning and development of its port facilities. The airplane view on the next page pictures the ultimate scope of these facilities, and gives an indication of the logical outcome of extensive developments already carried out. The extension of such improvements into Eliza-



John H. and Wilson C. Ely, Architects

MUTUAL BENEFIT LIFE INSURANCE BUILDING, NEWARK

beth, with the reservation of a waterfront park, as proposed on the Graphic Regional Plan, is also shown.

The combined proposals for the Bayonne and Newark frontages of Newark Bay show what may be accomplished in obtaining a wonderful future for the bay. There is no place in the Region where it is more practicable to carry out effective plans on a large scale.

When we turn from considering what Newark is doing in port and industrial development to consider what advantage it is taking of its opportunities to develop a great business and civic center, we find less satisfactory results. Newark, like New York City, has its fine buildings, one of which we show on this page. These buildings are being erected without harmonious relation to one another and in time much of their individual beauty will be lost owing to overcrowded and incongruous sur-

IN METROPOLITAN NEW JERSEY



Photo by Fairchild Aerial Surveys, Inc.

AIR VIEW OF PROJECTED DEVELOPMENT OF THE MEADOW AREAS ON NEWARK BAY

roundings. With the knowledge that now exists as to the losses caused by congestion of streets and overbuilding on land, there is less excuse than in the past for permitting overcrowded conditions to become established.

Among other opportunities that have recently presented themselves to Newark is that resulting from the building of a new station by the Pennsylvania Railroad. This should have been used as the occasion to create a center worthy of the future importance of Newark as the dominant community in the New Jersey metropolitan area.

CIVIC CENTER

We present one conception of what might have been done to give Newark a worthy civic center (Fig. 85). The proposal, as elaborated by the late George B. Ford and Mr. Frederic Bigelow, Architect and Superintendent of Building of the City of Newark, is probably not now realizable in detail. But we do not hesitate to present it as the kind of conception that should be aimed at. The opportunity

OPPORTUNITIES IN REBUILDING

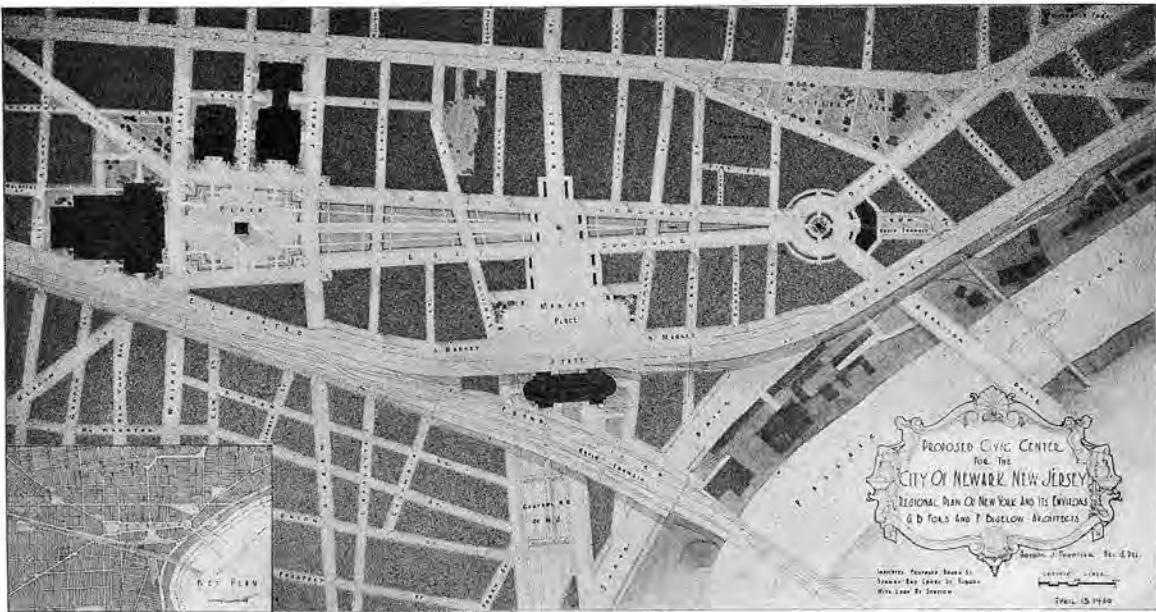


FIG. 85

to create an outstanding civic center in the neighborhood between Mulberry Street and the Pennsylvania Railroad tracks may be gradually disappearing but in large measure can still be realized.

Along both sides of Mulberry Street, and from there east to the railroad, there are few recent or costly buildings, and while land values are much higher than any present use of the land would warrant, this whole area lends itself surprisingly well to a great modern development. In this neighborhood there will be the new Pennsylvania Railroad Station, the new transit terminal, and the new auditorium building which will take the place of the present city market. The elevated highway, called Route 21, and the city's boulevard along the canal bed, are other new features. There is need for additions to the City Hall to the east of the present building and also of a new post office on the adjoining site to the south, all of which means that this part of the city is in a state of transition.

Mulberry Street is now being widened to 100 feet. This is an important step forward. At least for the northern end of the street, that is, north of Market Street, it should serve to give the street the prominence which it deserves. Something more will have to be done to divert street traffic from the already crowded Broad and Market streets.

The above and other needs have led to the suggestion that there should have been created a large central traffic plaza, using Mulberry Street as a base, widening extensively to the east to form a great clearing center for traffic about half way between Broad Street and the station plaza. At the north end of this traffic plaza

IN METROPOLITAN NEW JERSEY

there should have been created a traffic circle on the axis of an extension of Park Place (marked Broad Street Extension in Fig. 85), to the east of which is shown a new bridge across the river into Harrison.

The other end of this great traffic plaza could well have been designed to go all the way down to Walnut Street, where one diagonal would go off directly west into Broad Street opposite Clinton Avenue, and to the south a new highway could have been made to connect directly with the meadows.

Such a plaza, with its four main arteries leading into it, if it had been made of ample width, would have relieved Broad Street of a great deal of the burden which the future is bound to impose upon it. It would have offered, also, the best possible kind of sites for new office buildings, banks and clubs, as well as department stores, with ample parking space. Properly laid out, it could have been made to pay for itself many times over in increased land values. As a result the city would have had a setting for its various public buildings that would be in keeping with the future importance and dignity of the city. Incidentally it would have been possible to create a fine memorial plaza with a central tower directly behind the addition to the City Hall and the proposed post office, giving both of these buildings a worthy setting.

At the head of this plaza, that is, at the south end on the axis of the great traffic plaza leading down from the Broad Street extension, there is a site for a large public building, such as a city auditorium, an opera house or a theatre.



PERSPECTIVE VIEW OF THE NEWARK CIVIC CENTER PROPOSAL

OPPORTUNITIES IN REBUILDING

The station, as shown on the plan and bird's-eye perspective of the civic center was located before the Pennsylvania Railroad plans were completed. This station was proposed to be built over Market Street so that it could serve as a union station for the Jersey Central at the street level, the Pennsylvania at the upper, and a transit terminal at the north end of the lower level. This would have made it possible to have a fine tower on the axis of Market Street and also to have located the state highway on a viaduct directly across the front of the union station as a sort of balcony, where it would harmonize with the rest of the development of the station and provide ideal parking space and loading and unloading space for the station directly underneath the viaduct. This device would avoid the unsightliness of an isolated highway viaduct across Market Street.

It is admitted that now it may be impracticable to combine the Jersey Central station with a Pennsylvania station, but the time may come when the Jersey Central tracks will have to stop east of Mulberry Street.

The suggestion is put forward as an illustration of what might have been accomplished with financial profit and great social gain to Newark. The chief purpose in presenting it is to inspire the citizens of Newark to do something to build a great center by using such opportunities as remain to enoble their city and express vigorous community life. With a policy of drift there can be no other slogan for a city than "what might have been." When the inevitable development of the Newark and Hackensack Meadows occurs, Newark's importance cannot but be enormously increased; and more foresight needs to be exercised if proper advantage is to be taken of the high place it seems destined to occupy among the metropolitan group of cities.

NEW PENNSYLVANIA RAILROAD STATION

Reference has already been made to the plans of the Pennsylvania Railroad for rebuilding their Market Street station. Preliminary plans for this were made public in the spring of 1931 and were not available when the Regional Plan proposals were developed. It is well to add here a brief description of this project, as any further studies for this section of Newark must be coordinated with it.

The new terminal will extend from Market Street east to Raymond Boulevard, the latter being on the line of old Canal Street. The building and its approaches are portrayed in the accompanying photograph of a model prepared by the railroad company. The following description of the project is abstracted from a statement issued by Mayor Jerome T. Congleton on May 13, 1931:

The new Market Street station is to be an architecturally splendid structure, complete and conveniently arranged to serve not only Newark, but also its tributary territory, as an additional great Pennsylvania Railroad Terminal in the Metropolitan District. The new station, which replaces the present Market Street station, and the station at Manhattan Transfer, will be served by the main line

IN METROPOLITAN NEW JERSEY

trains of the Pennsylvania system and by an extension of the downtown New York service from Hudson Terminal, thereby making Newark the point of transfer from downtown New York to the through trains to the West and South. In addition to the facilities common to modern passenger terminals there will be included in this station the terminus of the new City Railway subway, suitable and convenient facilities for buses, and a large covered driveway space for taxicab and private automobile access, all so arranged as to permit of a ready flow of traffic.

The railroad company and its station architects, Messrs. McKim, Mead and White, have so planned the station as to permit of a coordination of the different transportation services, rail, subway, bus and automobile, as well as pedestrian traffic, and provide the easiest possible interflow of passengers using them.

City street plan and passenger station design have gone along hand in hand, as is evident from the ample streets surrounding the station which should permit of the easy flow of traffic with a minimum interference to and from the station.

The station will front on the new Raymond Plaza West and will extend from Market Street to the new Raymond Boulevard, with a frontage along the Plaza of 775 feet and a depth of 319 feet. The main station entrance from Raymond Plaza West will be upon the axis of Commerce Street and will lead directly into the waiting room and from there to the main concourse, from which access is provided by stairs and escalators to the through passenger platforms above. Another and separate entrance from Raymond Plaza West leads to another concourse from which direct access is provided by easy ramps to the Pennsylvania rapid transit service for downtown New York. Similar ramps lead from this concourse to mezzanines which serve platforms to be used by buses for discharging and loading passengers. From this concourse also access may be had to the tracks of the city subway terminal which is to be located under the station.

The new City Railway subway referred to is being built in the bed of the old Morris Canal to the northwest corner of Newark and will be operated by the Public Service Coordinated Transport in connection with its present street railway system.



McKim, Mead and White, Architects

Courtesy of the Pennsylvania Railroad Company

PHOTOGRAPH OF MODEL OF PROJECTED NEW PENNSYLVANIA RAILROAD PASSENGER STATION AT MARKET STREET,
NEWARK

This station will accommodate both Pennsylvania main line and Hudson and Manhattan trains. At the right is Market Street; at the left is the proposed Raymond Boulevard.

OPPORTUNITIES IN REBUILDING

Plan of Hackensack Meadows

Within metropolitan New Jersey there is no more dramatic opportunity than that presented by the great area known as the Hackensack Meadows. Located close to the center of the Region, served by splendid transportation facilities, and surrounded by intensive development, this vast tract has been kept in a practically undeveloped state by natural conditions. The carrying out of a large scale drainage and improvement plan would prepare the way for the building of a great industrial city, in which the application of the latest knowledge of city building would be unhampered by any development already in existence.

In the Regional Survey¹ the possibilities of the meadows have already been discussed, and it is unnecessary to refer again to their physical characteristics and magnitude. We will recur only to the argument that this section, in common with the Jamaica Bay section of Long Island, should be developed in such a way as to include provision for industry, residence, recreation and business.

To confine its utilization to industry and transportation would be to hamper the development of the greater part of the land because of the long period which would have to elapse before sufficient industry could be attracted to use such a vast area. The consequent delays would result in financial loss in disposing of improved lands. If ultimately the whole area of the meadows were covered with industrial plants, they would provide occupation for 720,000 workers supporting a population of about 5,350,000 persons. This high concentration of industry, and the incidental separation between homes and places of work which it would involve, would lead to defective economic and social conditions. Enormous expenditures would have to be incurred in providing means of rapid transit and in overcoming congestion.

GENERAL PROPOSALS FOR USE OF LAND

The best social and economic results will be obtained from a development in which provision is made for all purposes of a community, and where industrial, residential and recreational areas are distributed in well balanced proportions.

A general plan for the treatment of the Hackensack Meadows was included in the Graphic Regional Plan.² We now present a more detailed sectional plan for the central part of the meadows (Fig. 79, page 526). This includes minor revisions in the Graphic Plan, due to projects carried out or started within the last two years, and carries the earlier studies into greater detail, as much so as is appropriate in a regional plan. It is still a skeleton plan suggesting general principles and entering only into sufficient detail to illustrate these principles. The nearer the development can be

¹ Regional Survey, Volume IV, pages 150-157.

² Regional Plan, Volume I, Atlas Sections 47, 48, 69 and 70.

IN METROPOLITAN NEW JERSEY

carried out in accord with such a plan, the nearer in our opinion will it be to achieving results satisfactory to both the public authorities and owners of property; but we realize that the ideal we have in view is attainable only in partial degree.

For the purpose of preparing the plan, a study was made of the best theoretical distribution of land uses in a total area of 30,650 acres, comprising the meadows and adjacent territory.¹ In order to apportion the area among the various uses, definite basic factors were employed and the percentages of the total area required for the principal land uses were determined. As a result it was decided that a reasonable allotment of area to each use, including streets in each case, would be:

Residential areas and streets	21,700 acres
Business areas and streets	550 "
Park and public areas, land and water	4,410 "
New industrial areas and streets	3,990 "
Total	30,650 "

While it is considered desirable that the section should be developed as far as practicable as a self-contained community, it is recognized that the development must be predominantly industrial in character, and that a great part of the residence that is ancillary to industry will be provided for in the adjoining higher lands of Rutherford, Garfield, Clifton and elsewhere.

The New York region has enormous power of attraction for industries requiring access to waterways. The upper part of Newark Bay and the navigable portions of the Hackensack and Passaic rivers are required to provide for those combined water-

¹ Regional Survey, Volume IV, page 152.



A GLIMPSE OF THE INDUSTRIAL SECTION OF THE PROPOSED HACKENSACK MEADOWS DEVELOPMENT
Railroads, waterways and highways all converge on the areas set aside for manufacturing.

OPPORTUNITIES IN REBUILDING

way and industrial purposes that are better segregated from a main harbor. Although secondary in the classification of port facilities, they are major facilities in connection with the economic development of the whole Region. The reclaimed Hackensack Meadows will possess this attraction in an exceptional degree even for the New York region.

One factor of primary importance in making plans for the improvement of this section is that the railroad approaches to the city and main harbor of New York should be given predominant consideration. Emphasis on these approaches has been made in the Graphic Plan. The same may be said of the main highway connections across the low lying areas. Considering the amplitude of waterfront in the Region available and suitable for heavy industries it is unnecessary to plan the meadow section in such a way as to hamper unduly the means of communication across the rivers.

The meadows now form a barrier between New York and northern New Jersey and additional highways across them are needed. If the railroads and the highways are so constructed as to produce the highest efficiency in land transportation, they are not likely to lessen the utility of the waterfront on the Hackensack and Passaic rivers so long as reasonable care is taken in providing for movable bridges.

The plan provides for the greater concentration of the industrial area in the section south of the New York Division of the Erie Railroad. To the north of this railroad most of the area is proposed for residential development and public open spaces. In these residential areas the general layout is based upon the development of the large blocks between principal streets as residential neighborhoods with internal parks and parkways in accordance with modern methods of planning such as have been adopted at Radburn. This method, with such improvements as experience may bring about, provides for the greatest convenience and safety in the use of the private motor car and meets the modern social demand for accessibility and attractive open spaces in residential areas.

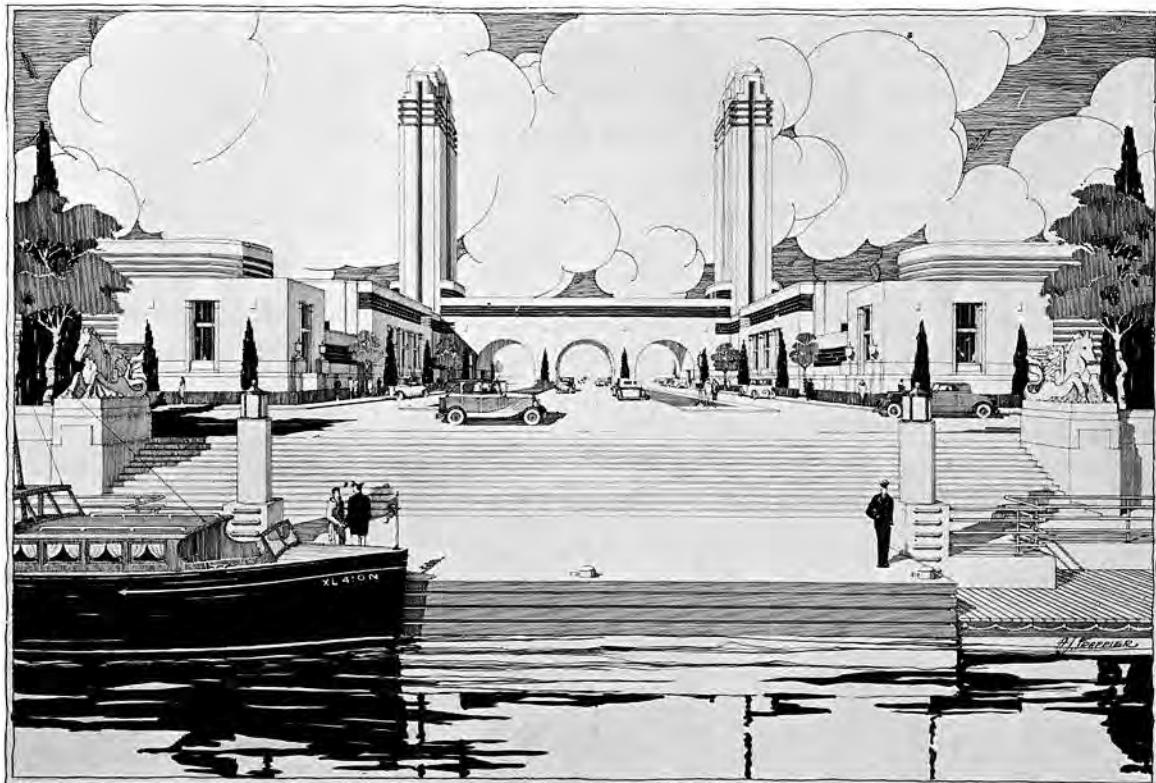
Although no definite location is indicated for additional large classification and distribution yards for the six main railroads that cross the section, it is anticipated that such yards will be desirable and there is ample scope for them in the area allotted for industry.

Straightening of Hackensack River

As stated in the survey,¹ consideration was given to various alternatives for dealing with the straightening of the Hackensack River. It was decided that the most economical, practicable and effective improvement could be obtained by the construction of a new channel from the Passaic River east of Newark to the Hackensack River bend west of Secaucus Yards. North of this point the river is proposed to be widened and a large turning basin constructed as shown on the plan.

¹ Regional Survey, Volume IV, pages 154-156.

IN METROPOLITAN NEW JERSEY



DESIGN FOR ENTRANCE TO THE FUTURE CIVIC AND BUSINESS CENTER OF THE MEADOWS CITY FROM THE BASIN
AT THE HEAD OF THE PROPOSED HACKENSACK RIVER STRAIGHTENING

The proposed new channel involves the rough excavation of 16,300,000 cubic yards; the building across it of bridges for three railroad lines, two of which might be carried on a single structure; the construction of about 15,700 feet of new railroad lines; the abandonment of about 17,000 feet of railroad lines; the reconstruction of a portion of one railroad yard; and the building of two highway bridges. Sufficient meadow land should be acquired on both sides of the proposed channel to provide for the disposition of the dredged material.

The straightening of this lower section of the river would be a logical first step in a comprehensive reclamation undertaking. It would make available at once new sites for industrial expansion. The preliminary cost estimates in the Regional Survey showed that the land required for the project would probably cost from \$1,200 to \$9,000 per acre and the areas reclaimed with material dredged from the channel would have an average value of about \$12,500 per acre. The net cost of the straightening after the sale of the reclaimed areas was estimated at about \$1,866,000, which would be a comparatively small sum for the state to pay for the advantages which would accrue to it as a result of such an improvement.

OPPORTUNITIES IN REBUILDING

DETAILED SECTIONAL PLAN

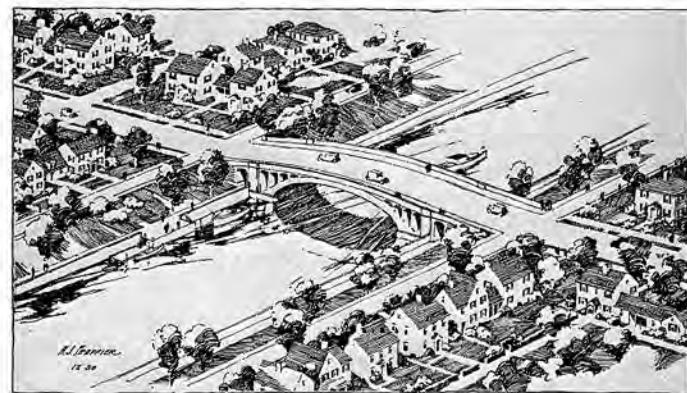
Taking that part of the area (shown in Fig. 79, page 526) north of the Passaic River and within the 10 foot contour which borders the meadow area on the east and west sides, respectively, there is a total of about 17,950 acres. This has been allocated on the plan to different uses as follows:

	Acres	Per cent of total
Industrial sites, including possible areas for new classification and interchange yards	6,970	38.8
Residential areas	4,720	26.3
Parks and parkways	3,090	17.2
Airport	670	3.7
Business areas	170	1.0
Waterways	1,990	11.1
Institutions, cemeteries, golf courses	340	1.9
Total	17,950	100.0

Large areas are allotted for public parks. These include a great park with lake and canals comprising 1,280 acres on the west side of the meadows in Kearny, North

Arlington and Lyndhurst, a large extension of the park system of Jersey City, the public preservation of Snake Hill and the creation of an extensive series of small parks in the new residential areas in the northern part of the section.

The site suggested for a great airport has already been acquired and partly developed for this purpose.¹ The waterway plan would provide for an admirable combination of facilities for land planes and sea-



TYPE OF DEVELOPMENT POSSIBLE ALONG SMALL CANALS IN THE
UPPER PART OF THE HACKENSACK MEADOWS

planes. There is no finer opportunity for creating a great airport than at Secaucus if a comprehensive plan is carried out on the lines proposed.

The highway system corresponds to that shown on the Graphic Plan of the Region, and includes major and minor regional routes and important connecting routes. The new major routes proposed total 26.3 miles, of which 16.7 miles are express highways. Of the new minor routes proposed, 5.8 miles would be general highways and 13.7 miles would be parkways or boulevards.

The plan is based on the assumption that it will be desirable to obtain as much material as possible by excavation of waterways. It is realized, however, that it may be practicable to expedite the raising of the land by the importation of waste mate-

¹ See illustration on page 270.

IN METROPOLITAN NEW JERSEY

rial from surrounding cities. This has been done, to some extent, by the immediately adjoining communities. It is worthy of note that New York City has for years been collecting millions of cubic yards of refuse each year, reaching a total of about 17,600,000 cubic yards in 1928, and dumping a considerable portion of it at sea. It is probably too late, however, to secure much of this material for use in the Hackensack Meadows, as the plans announced by the New York City Sanitation Department call for sufficient incinerators by 1934 to take care of all garbage and rubbish, and the future disposition of ashes on suitable land dumps. There are, however, other New York City wastes, such as excavation material from building and subway projects which might advantageously be diverted to the Hackensack Meadows.

The State of New Jersey has recently given the project of reclaiming the marshes in the metropolitan area serious consideration and much has already been done to reclaim land in the Newark area. Some 2,000 acres have been reclaimed at a cost of \$15,000,000. It is stated that the 2,000 acres have now a real estate value of \$36,000,000 and are occupied by industrial improvements of a value of \$75,000,000.

The Meadows Reclamation Commission of New Jersey, which has been engaged in a study of the possibilities of the Hackensack and other tidal marshes in northern New Jersey has reported¹ that in 1910 most of the marsh land was valued at from \$50 to \$100 per acre and that an indication of its possible value is the fact that as much as \$25,000 has been obtained for reclaimed land in the Port Newark area. The commission suggests as reasonable comparative figures per acre: \$483 for unimproved meadow land; \$2,370 for partially improved land; and \$10,130 for fully improved land.

The estimate of total values is \$56,000,000 for the whole of the Passaic-Hackensack, Elizabeth-Newark and Arthur Kill meadows. It has been suggested that this value could be multiplied over five times as a result of a bold reclamation scheme, and that a scheme for the whole of these meadow areas would cost \$5,000 per acre and involve an ultimate capital expenditure of about \$124,000,000.

¹ Report of the Commission, March 15, 1929, pages 39-40.



ANOTHER VIEW FEATURING THE PARKWAY DEVELOPMENT PROPOSED TO BORDER THE CANALS

OPPORTUNITIES IN REBUILDING

PLAN OF MEADOWS RECLAMATION COMMISSION

Following the completion of the Regional Plan studies, the Meadows Reclamation Commission presented its report¹ to the state legislature in November, 1930, embodying the comprehensive plan prepared by its consulting engineers, the late General Edgar Jadwin, Mr. Morris R. Sherrerd and Mr. S. Wood McClave. The recommendations in this report are in close conformity, both in regard to principles and details, with the proposals presented herein. Among the common recommendations are the following:

- (1) There should be a comprehensive zoning plan and plan of development prepared for the entire meadow area.
- (2) A single agency should be created to develop and apply these plans. The Regional Survey included a discussion of the different legal methods of improving the meadows, but did not specify

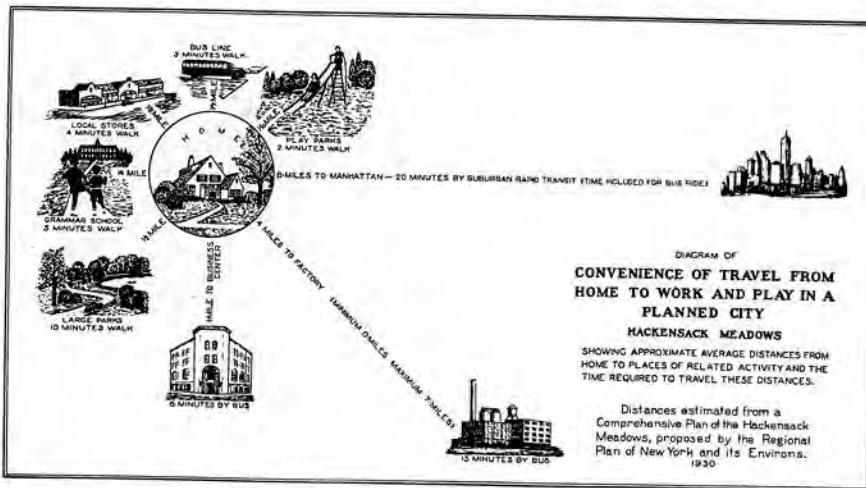


FIG. 86

any particular method.² The Meadows Reclamation Commission urges that it be handled by a public agency.

(3) A belt line railroad should be provided within the meadow area.

(4) A system of main highways and parks is proposed and is almost identical with that on the latest Regional Plan study for the meadows. The two marginal north and south highways proposed by the Commission are shown as express routes on the Regional Plan.

(5) The proposed Hackensack Meadow waterways are intended primarily for light draft vessels, barge and lighterage service, the provisions for deep sea navigation being concentrated on Newark Bay and adjoining territory. The Commission's Report and the Regional Survey³ both point out the necessity of keeping the highway and railroad traffic across the meadows as free as possible from interference by waterway traffic. The shipping facilities of the meadow area should be primarily those which are incidental to the proposed industrial developments.

¹ REPORT OF MEADOWS RECLAMATION COMMISSION, appointed under Joint Resolution No. 8 of the Legislature of the State of New Jersey, Session of 1930.

²Regional Survey, Volume IV, pages 205-214.

³Regional Survey, Volume IV, page 136.

IN METROPOLITAN NEW JERSEY

(6) A large proportion of the area should be allocated to residence and recreation and the main industrial developments should be located in the southern section. The commission's report proposed about 2,500 acres for parks, boulevards and airports in the Hackensack areas as against 3,760 acres proposed for similar uses by the Regional Plan.

(7) The principal fill required for reclamation should be obtained by the dredging of channels through the existing swamp areas.

(8) There should be a network of boulevard and parkway routes throughout the area.

The main differences in the two plans are that the commission's plan proposes a shorter straightening of the Hackensack River at a point further east, suggests somewhat larger areas for industry, and gives greater emphasis to the possibility of developments for steamship terminals.

Both the plans we have described are nothing more than preliminary studies of opportunities. More detailed study and planning are needed and this should be undertaken by a specially constituted commission or board having the powers and financial means necessary to give effect to its proposals.

The introduction of some form of regional government has been under consideration in New Jersey for some years. In 1929 a New Jersey Regional Planning Commission was appointed to draft a plan for regional government. Its draft of a Regional District Statute has been before the state legislature, but in 1931 had not been advanced to the referendum stage. The Meadows Reclamation Commission, which with the North Jersey Transit Commission is now consolidated with the Regional Planning Commission, has suggested that a regional or district board created under the proposed statute would be a suitable body to make and carry out a plan for developing the Meadows.



Photo by Fairchild Aerial Surveys, Inc.



George B. Ford, Architect

A CONCEPTION FOR THE DEVELOPMENT OF PATERSON'S CIVIC CENTER

Above—Air view of existing conditions on the civic center site.



A FEATURE OF WESTCHESTER COUNTY'S PARKWAY SYSTEM

XVI. IN THE ENVIRONS

Specific Opportunities in Planning

APART from the general need that exists for every community in the environs, whether city, borough, village, town or township, to prepare a comprehensive plan for its whole area, there are three special needs which provide different types of opportunity in planning to which it is well to draw attention.

First among these is the need of developing in each community center an appropriate and well arranged group of civic buildings. The character of the individual buildings of which such a group is composed should be determined in relation to the size and character of the community. For example, it is wholly inappropriate to erect in a village a "pocket edition" of a great monumental structure suitable for a large city or center of government. A satisfactory arrangement of the buildings depends chiefly on having the group organized in harmony with a city plan as part of the functional development of the community, provided with the space about the buildings necessary for their display, and well proportioned in relation to their height.

A second need is for county, city and village communities to prepare designs for their large and small parks in advance of spending money on their development. Changed conditions and new social demands have given rise to the necessity of employing new methods of designing open spaces. While the expenditure of money on laying out and improving parks can always be deferred for an indefinite period, nearly always there is urgency for communities first to acquire land for parks, and second, when land is once secured, to obtain a plan as a guide for making improvements. The work of development can then be carried out as slowly and partially as may be found desirable for financial reasons.

OPPORTUNITIES IN REBUILDING

The third need is for the organization and development of new centers, or what have come to be known as satellite communities. The underlying purpose of artificially promoting new communities is to obtain a better balance in the distribution of industry and population; and to organize this distribution on sound economic lines and in such a way as to obtain higher efficiency of transport and industry. This is a regional purpose in which the impulse must come from the wealthy central areas although the places where the new communities can be established on effective lines are limited to the outer environs.

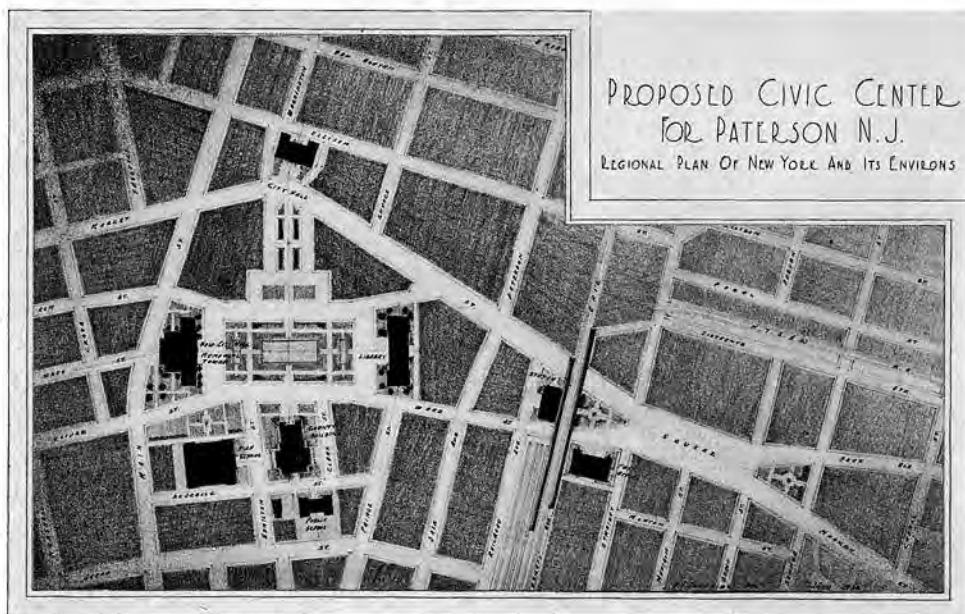


FIG. 87

Turning first to the question of civic centers, we present illustrations of the scope for improvement in Paterson, New Jersey, one of the most important cities lying over the border of the inner metropolitan area, and later some suggestion of opportunities in smaller communities.

PATERSON CIVIC CENTER

The accompanying plan and perspectives show what might be done in time to create an impressive civic center for Paterson on the hill that lies between the Court House and Market Street. This was selected as a problem typical of those to be found in the larger communities in the outer environs. The design, prepared by the late George B. Ford, could be followed, in part at least, without destruction of new or costly buildings.

IN THE ENVIRONS

The present City Hall of Paterson is too small for the needs of the city and is hemmed in closely by other structures. It is surrounded by congested streets. In the not distant future the city government must acquire several times its present accommodations. In addition it needs a new public library, a large auditorium and a central high school. Then, too, the county will soon require much larger quarters than it has in the present county building.

To meet these various needs the money that must be spent for land and buildings will be no less if piecemeal methods of acquiring land and erecting separate buildings are followed than if a bold and comprehensive project is planned and carried out.

What is true of the larger is also true of the smaller cities, that when public buildings are grouped about a common open space or plaza, they all count for more, and are much more impressive than they ever can be if each is located off by itself. The cumulative effect of a harmonious group of public buildings, whether in New York, Newark or Paterson, will result in firing the imagination and in arousing civic pride.

The suggestion for a civic center for Paterson, as for Newark, may be regarded as nothing more than an idea to set people thinking and to stimulate public action. It



FEATURES OF THE PATERSON CIVIC CENTER PLAN

Above—The County Building.

Below—A new public library.

OPPORTUNITIES IN REBUILDING



MEMORIAL TOWER PROPOSED TO DOMINATE THE
PATERSON CIVIC CENTER



Fuller & Dick, Architects
Photo by Richard Averill Smith
ARCHITECT'S SKETCH OF THE ISLIP TOWN HALL UNDER
CONSTRUCTION IN 1931

may be that something radically different and better than is proposed here may be aimed at or achieved. All such proposals of the Regional Plan are tentative suggestions for the consideration of official bodies.

The scheme as proposed would locate the civic center on top of the hill between Smith Street and the county building on Lee Place, extending from Main Street over to a little east of Clark Street and including the post office site. The present City Hall and county buildings would be featured at the opposite ends of the principal axis, with a broad avenue or plaza connecting the two and a new addition and façade on the north side of the county building facing the plaza. From Ward Street to Smith Street would be a cross plaza with an eventual municipal building at the west end, one façade facing on the plaza and the other façade facing on Main Street. At the other end of this plaza, facing on what is now Clark Street and located on the east side of Clark Street, a public library and a tall office building are suggested as ultimate features. On the south side of the plaza there would be the new façade of the county building and the possible extension of the high school building across Lee Place. On the north side of the plaza there would be a group of office buildings, hotels, clubs or any type of building that would fit harmoniously into the general scheme.

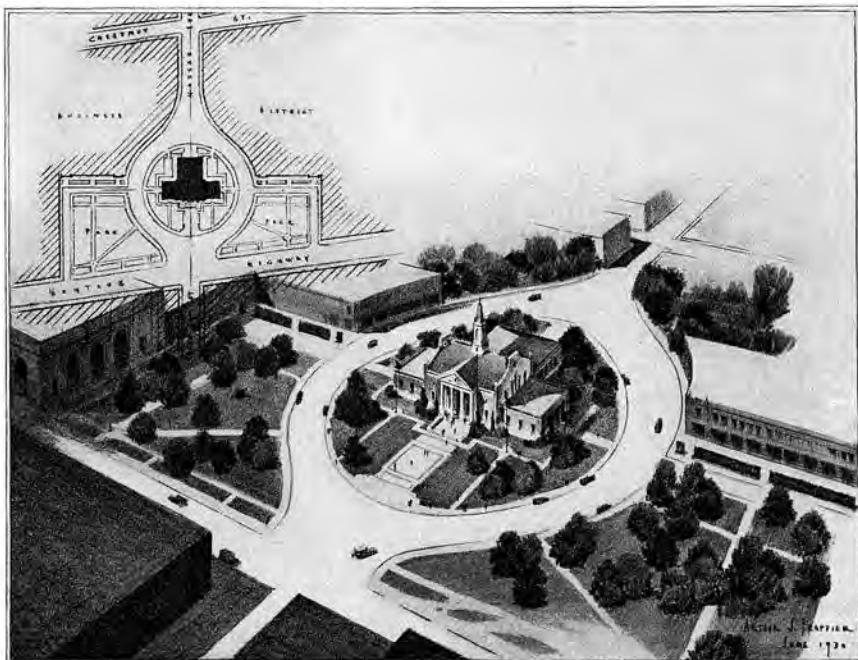
The accompanying pictures show some of the possibilities of this civic

IN THE ENVIRONS

group in one type of architecture. Whatever architectural treatment might finally be given to the group would depend on circumstance, and the personality and taste of the architect chosen to design each building. It is important, however, that all these buildings should harmonize and that each should add to the combined effect of the complete civic group.

SMALLER CENTERS AND ARCHITECTURAL FEATURES

Illustrations are given of a few other centers suggested to the respective communities by city planners. That of the town center of Islip was put forward in 1930 by the Regional Plan and is now under construction along these general lines.



PRELIMINARY SKETCH OF A CIVIC CENTER FOR ISLIP, LONG ISLAND

The proposal for an elaborate community center at Ossining, prepared by the Technical Advisory Corporation, has been discussed by the village trustees as part of a program of development for twenty-five years. It suggests an attractive plaza at the railroad station and a number of new parks and schools, in addition to administrative buildings.

The principles we have suggested as applicable to the larger cities apply also to village and town centers. In some respects the opportunities in the small, less developed communities are greater than in the larger, more crowded cities. Less accommodation is required, there is more open land available at less cost, and it is

OPPORTUNITIES IN REBUILDING

usually practicable to purchase the sites necessary at reasonable cost well in advance of actual need for building.

An illustration of one of the lesser opportunities in the Region is shown on the sketch plans on page 556 for the architectural treatment of the great aerating basin near the Kensico Dam at Valhalla in Westchester. In suggesting this design, the late George B. Ford referred to the fact that the same amount of water that is being used today in the 1,800 jets could, if spread out and properly grouped with large jets, small jets, straight jets and curving jets, easily be made over at no great

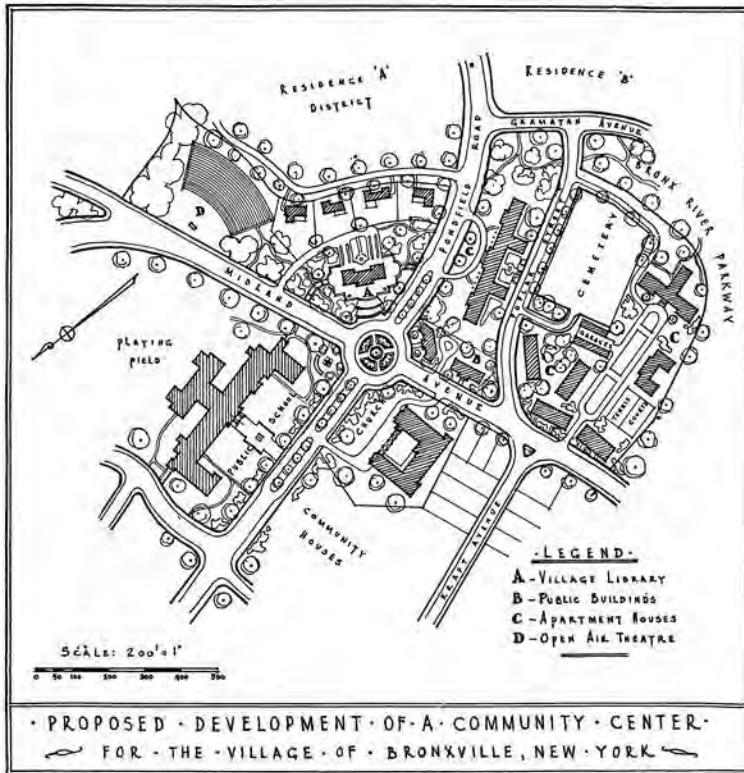


FIG. 88

cost into a great composition of water sprays that would be without parallel on this side of the Atlantic.

It is proposed that the present basin should be changed slightly in form and that great masses of water should be concentrated at the two ends and at the middle of the north side, with minor jets at proper heights in between. This would form a most impressive head to the picture. Then, extending to the southwest, there should be a long basin which would become narrower near the southern end, with several great masses of jets at key points and with long flows of vertical and oblique jets in



Irvington (New York)



New Rochelle



Ridgewood (New Jersey)



Tarrytown

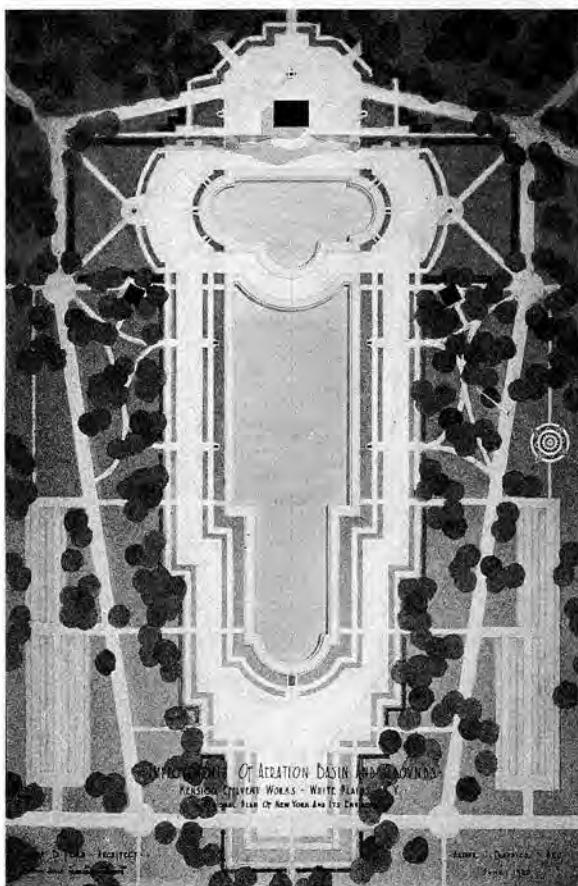


Ossining

CIVIC CENTERS PROPOSED FOR SMALLER COMMUNITIES IN THE NEW YORK REGION

(Courtesy of the Technical Advisory Corporation)

OPPORTUNITIES IN REBUILDING



RE-DESIGN OF THE AERATION BASIN AT KENSICO OFFERS AN UNUSUAL OPPORTUNITY

between. The center would be a calm basin in which the brilliance of the jets themselves would be mirrored. Interesting and attractive as the present jets are, a great grouping of fountains and basins like that here proposed should prove many times more interesting.

PRESERVING THE PALISADES

The question of what can and should be done to prevent the disfiguration of the westerly shore of the Hudson River between Weehawken and Bear Mountain Park must rank first among any specific proposals for planning new park developments both as a splendid opportunity and an urgent need. For this reason we make it our typical illustration of what is needed in lesser degree in many other places.

The natural grandeur of the Palisades in combination with the great

IN THE ENVIRONS

Hudson River makes them a national and not merely a local feature of aesthetic value. Their disfigurement, and still more the destruction of their scale and character by the erection of great masses of tall buildings on their summit, would be a disaster not only to New York but to America. Their magnificence as a natural feature probably has no equal in the environs of great cities.



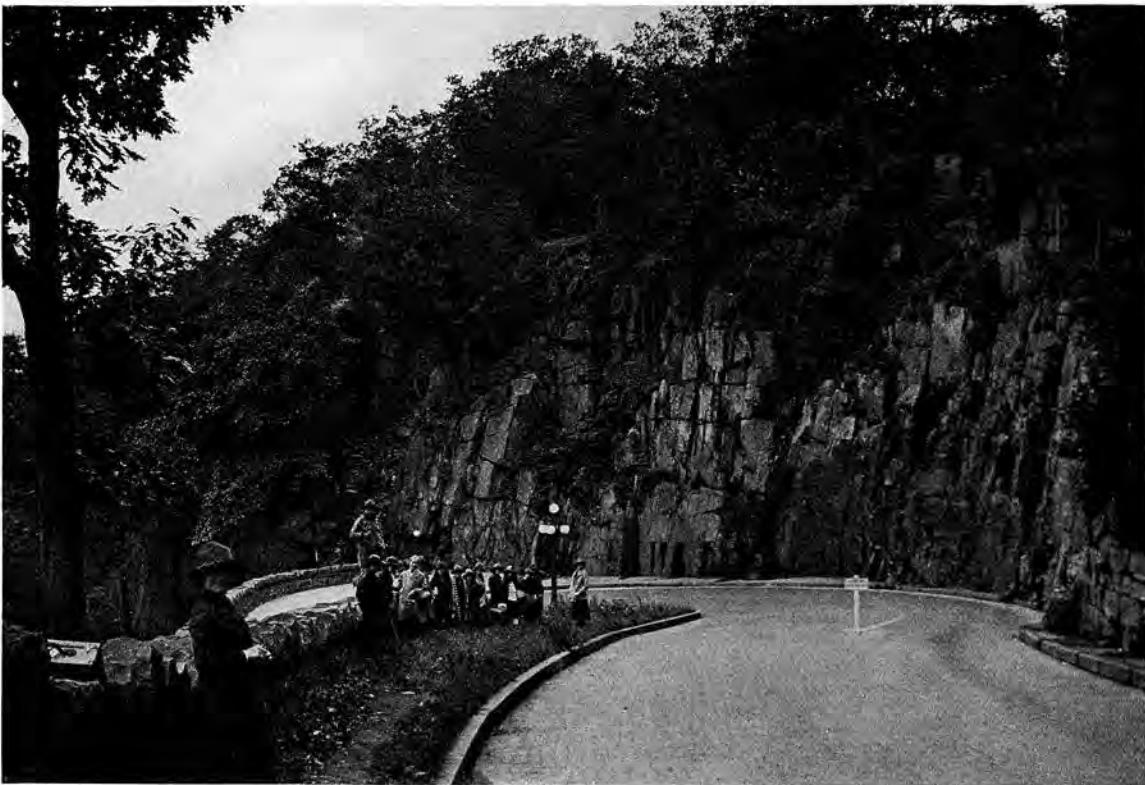
Photo by Morris Rosenfeld

VIEW UP THE HUDSON FROM THE TOP OF THE PALISADES

The yacht basin is a feature of Palisades Interstate Park just north of Dyckman Street Ferry.

The spaces on the crest of the Palisades are not needed for building, so far as the physical requirements of the prospective population of the Region are concerned. On the other hand, they are needed as open spaces for public enjoyment. Those who live on the adjacent lands should have immediate access to the wonderful views to be obtained from their summit, while the passer-by on the Hudson River or the resident of New York and Westchester should continue to have the delight of looking upon their scenic grandeur from a distance. For both purposes their natural condition, with the soft skyline of their trees, should be kept intact. The cost of securing and developing them to the extent that is financially practicable will be a good investment because their preservation will give stability to surrounding property.

OPPORTUNITIES IN REBUILDING



Publishers Photo Service

HAIRPIN TURN ON THE ENGLEWOOD ENTRANCE TO PALISADES PARK

The preservation of the face of the Palisades has already been accomplished by the formation of the Palisades Interstate Park. The construction of the Hudson River Bridge at Fort Lee makes the property along the river much sought after for residential use, particularly the portion nearest the bridge. Even before the bridge was under construction private homes, road houses and amusement places were built upon the cliff tops by people who appreciated the unusual views of the river and beyond. With the opening of the bridge there is reason to expect and to fear the construction, on the top of the cliffs, of towering apartments, more amusement places and more thickly placed houses, together with a destruction of the growth of trees now visible from the river and the opposite shore. It is of vital importance to take steps to preserve the land for open space through an enlargement of the existing park areas and indirectly by more stringent zoning regulations.

Nothing would be more effective in destroying the beauty of these magnificent rocks than a row of high buildings forming an artificial straight line on their summit. Perhaps occasional buildings, erected under the best architectural advice, and under a plan which reserved the greater part of the top of the cliffs as open space, would do

IN THE ENVIRONS

no injury—and indeed might add to the beauty of the Palisades as do the castles on the hills above the Rhine in Germany.

The cost of acquiring a strip of land on the top of the Palisades will be entirely justified by the value of the amenities thus secured. But an important collateral advantage would be the opportunity of obtaining a desirable traffic artery. Traffic northerly from the New Jersey side of the bridge will have to be provided for in some manner. This is being done, but not sufficiently well. A sensible view of the problem will insist upon the segregation of pleasure and trucking traffic. The pleasure traffic belongs near the cliff, where uninterrupted flow may be insured, together with views of pleasant reaches of woodland and glimpses of the river. Near the bridge, where relatively intense development may be expected and where land values make advisable the acquisition of only a narrow strip of land, the pleasure roadway might



Publishers Photo Service
CASTLE OVERLOOKING THE RHINE, GERMANY

consist of a boundary boulevard. Farther to the north, where a wider strip is feasible, it would be desirable for the roadway to be entirely within the public land, forming a parkway after the manner of the parkways of Westchester.

Any plan made for the extended Palisades parks should include provision for recreation activities, such as hiking, strolling, horseback riding, picnicking, children's play and restful contemplation of the commanding views of the river and beyond. Extensive uses of this nature already exist in the areas now in public ownership.

Sketch Plan.—A tentative plan is presented in the sketch on page 561 as an illustration of what can be done. The strip of land along the top of the Palisades which we propose should be acquired varies in width from about 200 feet to 1,500 feet, and extends from about half a mile below the Hudson River (George Wash-

OPPORTUNITIES IN REBUILDING

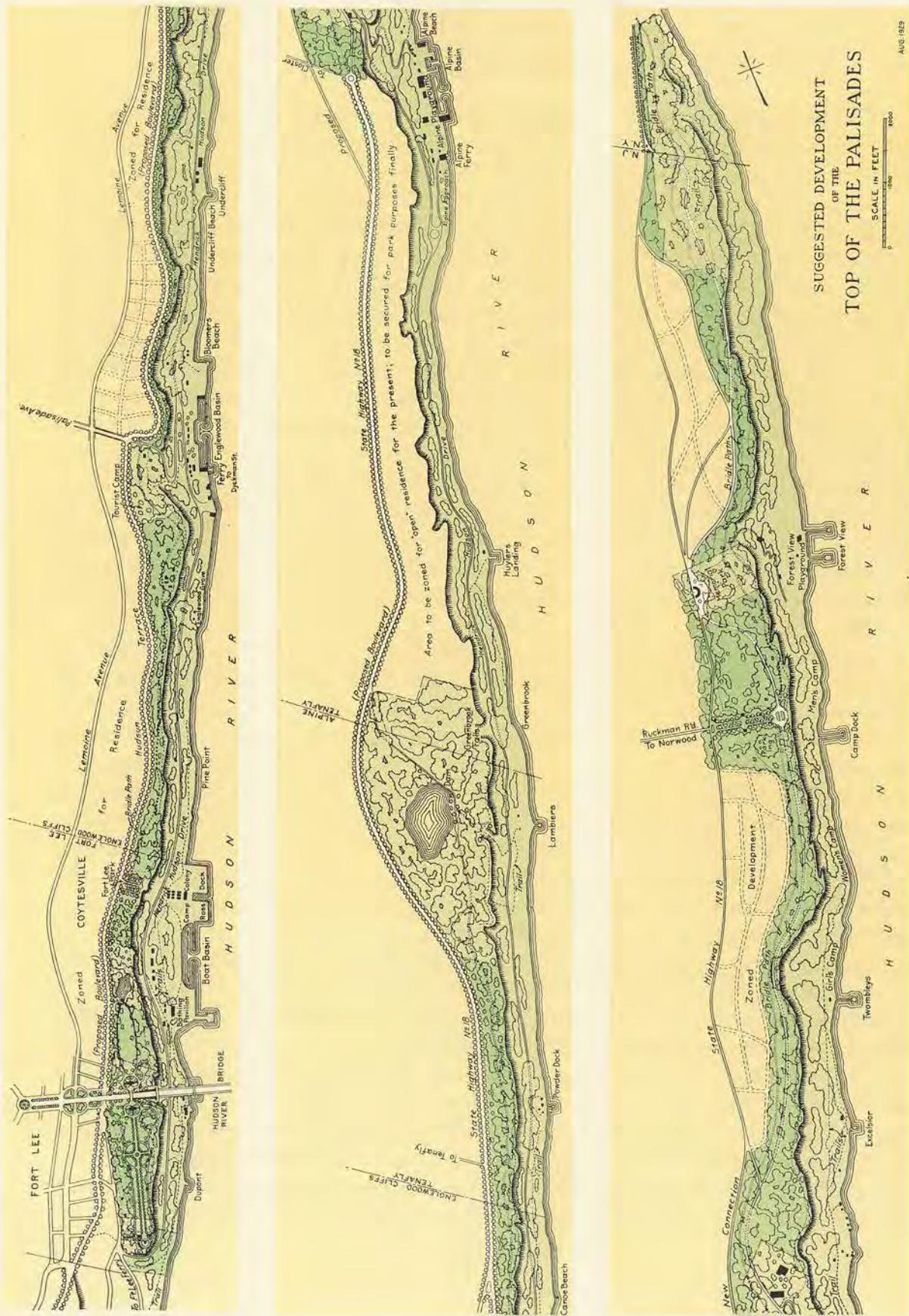
ton) Bridge to a point north of the New Jersey-New York boundary line. Some of the land behind the cliffs is already publicly owned as a part of the Palisades Interstate Park; a small section is a local park belonging to the Borough of Fort Lee.

From the southerly end of the suggested park known as Bluff Point to the Englewood approach, we suggest the reservation of a relatively wide area. Because of the easy access afforded from Manhattan by the bridge, and the expected close development in New Jersey near by, it is felt that a large park is needed at this point. As a park in this location will be certain to be intensively used for recreation, we suggest that a degree of formality be used in the design. Such a development would also be appropriate because it would form a desirable terminus for the southerly end of the whole park strip. The pleasure motorway skirts the westerly boundary of the proposed park throughout this portion, using Hudson Terrace as part of its width for most of the way.

Between the Englewood approach and the existing park at the Alpine-Tenafly boundary, a relatively narrow strip is proposed, with the boulevard continuing as the westerly border. Considerable areas between the New Jersey state highway and the boulevard will be available for a good type of development. The boulevard follows the state highway northerly from a point 1,500 feet south of the Englewood Cliffs-Tenafly boundary. Light commercial vehicles could be permitted to use this boulevard until traffic and development demanded a commercial street to the west. Along this portion the park would have a bridle path, trails, picnic places and shelters with occasional clearings for views from the boulevard.

Between the Alpine-Tenafly boundary and the Alpine approach the boulevard continues along the existing state highway. If it is found to be impracticable to purchase all the land between the boulevard and the cliff, the area left in private occupation should be zoned with stringent restrictions regarding height, coverage and use of buildings.

Between the portions of the Palisades Interstate Park above the cliffs at the Alpine approach and the state boundary a parkway entirely within the suggested park is proposed. We show a possible street layout between the state highway and the park for the purpose of indicating the superiority of a development of this kind over one that would result from piecemeal, uncoordinated efforts. A relatively wide park strip is shown between these points. Its distance from existing and expected close development would tend to restrict its use to motorists, horseback riders and hikers, at least until a bus service is established. A center for this section of the park has been chosen at Ruckman Road, the end of which affords one of the most beautiful views from the park. Spaces have been suggested for concessions, automobile parking and other park accessories. Ultimate development of the park may include more extensive adjustment to use than it is necessary to work out at present; for example, intensive use of certain sections may make a more formal treatment easier to maintain.



(This map is presented in three sections, reading continuously from top to bottom and left to right. Existing park areas are shown in light green and those proposed for acquisition are shown in dark green.)

OPPORTUNITIES IN REBUILDING

The sketch plan presented herewith does not cover the whole length of the ridge that needs to be planned. It shows the area where the urgency of preserving the cliff tops is greatest. An extension should be made so as to connect the park system on the riverfront with the Palisades Interstate Park at South Nyack and continue beyond Nyack to the Hook Mountain section. The plan of extension would have to be adjusted to existing conditions; for instance, the closely developed area between Sparkill and Upper Nyack would affect the location and width of any reservation, while the existence of a traffic highway between Sparkill and Hook Mountain would lessen the need for any new road as part of the extension plan. The important thing in connection with the whole length of the ridge is that as much land should be acquired as is practicable, to permit public control of its development.

Need for Immediate Action.—There is urgent need for immediate and concerted action. Large holdings are being broken up into smaller plots, foreshadowing an intensity of development that would be unfortunate of itself and fatal to the realization of the proper use of the cliff tops. Several tracts have already been "improved" to the extent of cutting down all the beautiful trees. Some advantage resulting from this vandalism is that it is lowering the land values and thereby making purchase for park use more feasible. The trees may be replaced, although at considerable expense.

Real estate activity in that part of New Jersey has responded with fevered vibrations to the stimulus of the new bridge. That the values created by this great public enterprise should fall into the hands of private owners and operators appears to be accepted as right and proper, even when it means the destruction of the Palisades.

It has been stated that loss in taxable values would be suffered by the communities in which the land on the cliff tops lies, if they are preserved for public use, and that this loss would not be justified. The fallacy of this argument is obvious. The preservation of a fringe of land on the top of the Palisades would result in giving such high values to large areas of adjacent land that the assessable values in the neighborhood would be greater with the park reservation than without it. The difference between not having the park and having the park would be the difference between having a few hundred wealthy residents on the edge of the cliff and having thousands of somewhat less wealthy residents able to secure access to a park on the cliffs, and for that reason attracted to live near by.

Had the land been acquired only a few years ago, it could have been obtained at a small price. Owing to the increased value which speculation has given to it, there is no question that a high price will now have to be paid. But even at the present price the purchase of the limited area shown on the plan will be worth while. As time goes on it will become more and more impracticable to acquire even a narrow strip.

IN THE ENVIRONS

The states of New Jersey and New York should combine, through the Palisades Park Commission, and with the municipalities having jurisdiction over the Palisades, in acquiring the necessary land between all estates that are now actually in use for residential purposes and to arrange with the owners of the existing residential estates to have portions of their land that front on the Palisades permanently zoned for open development. In some cases the public authorities may have to purchase an easement over private land in order to keep it open, or to acquire an option from owners of residential estates so that in the event of their death or abandonment of the property for open residence, the public could acquire it at an agreed price. The purchase of the land need not mean that large sums will have to be spent on development. To a large extent no improvement is needed. Much of the area has natural features that need only be preserved.

THE MORRIS CANAL

One of the opportunities pointed out in the early stages of the Regional Survey related to the possible public use of the property of the old Morris Canal, crossing northern New Jersey between Jersey City on the Hudson River and Phillipsburg on the Delaware River. Between the Passaic River and Lake Hopatcong the canal passed through 19 different political units in the State of New Jersey.

In 1912, when it was anticipated that the canal would be abandoned, a Morris Canal Investigation Committee was appointed by the State of New Jersey and submitted a very complete report. In November, 1922, the State and the Lehigh Valley Railroad entered into an agreement under which the former acquired at the close of the year 1923 all the Morris Canal property except portions at the termini of the canal and received from the railroad a sum of \$875,000.

In the report of the Morris Canal Investigation Committee it was pointed out that there would be reversionary claims to 61 per cent of the canal property if it were not converted to some public use; an additional seven per cent would probably



Courtesy of the Port of New York Authority

**SKETCH OF APPROACHES AT THE NEW JERSEY END
OF THE HUDSON RIVER BRIDGE, SUGGESTING
POSSIBLE DEVELOPMENT**

OPPORTUNITIES IN REBUILDING

revert to the original owners under similar conditions. It was therefore obvious that most of the potential public value of the property would be lost if it were not promptly set aside for such uses. Only 32 per cent of the canal lands were held in fee and could, therefore, be sold or leased for private uses.

The late Nelson P. Lewis, then director of the Physical Survey of the New York Regional Plan, recommended in 1922 that the canal property be utilized in part for highway and in part for recreation purposes, and that a plan should be prepared for the canal property as a whole. Special stress was laid on the opportunity for a fine parkway between Paterson and Lake Hopatcong.¹

In a series of conferences, public officials were interested in the Regional Plan proposals and in May, 1924, an inspection trip was made of the route of the canal between Newark and Lake Hopatcong and was participated in by state, county and local officials and members of the Regional Plan staff.



THE MORRIS CANAL IN MONTVILLE, MORRIS COUNTY

way left the canal and extended to the west side of Lake Hopatcong at Mount Arlington.

The disposition of the canal property which was taken over by the State of New Jersey has been in the hands of the Morris Canal and Banking Company which in turn has been under the State Department of Conservation and Development. Under date of November 18, 1930, the disposition of property made up to that time was summarized as follows by Dr. Henry B. Kümmel, General Manager of the Morris Canal and Banking Company:

"The section of the canal between the Hackensack and Passaic rivers, where it lies parallel to the Lincoln Highway, has been turned over to the State Highway Department for future highway development. In the event that it is not used for this purpose it will probably revert to the owners of the adjacent property as they seem to have reversionary rights."

¹ See also "The Morris Canal and New Jersey's Opportunity," by Harold M. Lewis, *The American City*, November, 1922.

IN THE ENVIRONS

"From the Passaic River to beyond Dover the canal bed has been acquired by the various municipalities in which it lies. Some sections of this portion have already been devoted to highway use, notably in Dover.

"In Paterson the Lackawanna Railroad in cooperation with the city has carried out extensive developments in the way of a new station and approaches thereto which have involved some portions of the canal.

"The Pompton Feeder from Mountain View northward was taken over by the North Jersey District Water Supply Commission and in part has been used as a route for their pipe line from the Wanaque Reservoir. The canalized portion of the Pompton River north of the head of the Pompton Feeder was sold to the Passaic County Park Commission and will be made a part of that county's park system.

"West of Wharton the property has, for the most part, been sold to adjacent owners, the municipalities having, in the main, passed formal resolutions stating that they did not wish to acquire it. Of this portion the state holds only a few isolated sections for which it has not found a purchaser, but it is expected that in the course of a few months even these small tracts will have passed out of the possession of the state in accordance with the law directing the dismantlement of the property."

The City of Newark is utilizing the section of the canal within its limits for the construction of a City Railway subway to be operated by the Public Service Coordinated Transport.¹ This follows along the westerly edge of Branch Brook Park and will undoubtedly lead to intensive residential development along its route. There is an opportunity for the development there of a wide boulevard above the subway and bordering the park.

Between Newark and Lake Hopatcong most of the canal property, with the exception of the sections referred to by Dr. Kümmel above, are still in their natural state, but with the water drained out. Our proposal for a parkway along this section is still possible of realization. The fact that the canal parallels state highways throughout much of its length is no reason for objecting to its improvement as a parkway. Numerous parkways in Westchester parallel main highways with an advantage to both the highways and parkways. The main need still remains to provide recreational opportunities along the canal including facilities for hiking and horseback riding. There are fine trees along the property which should be preserved and some of the watercourses could be used to develop beautiful landscape features.

From Little Falls to Mountain View the canal is not needed for highway purposes. This portion was formerly a very popular canoeing route as canoeists went to Mountain View on the canal and returned via the Pompton and Passaic rivers.

¹ See page 539.



THE MORRIS CANAL IN THE NORTHERN PART OF BLOOMFIELD,
ESSEX COUNTY

OPPORTUNITIES IN REBUILDING

This whole section has become very popular as a summer resort district and the maintenance of a waterway between these two points would add greatly to recreational facilities.

The varied character of the opportunities presented by the canal makes it impracticable to do more than to suggest the need of further study to enable the state, counties and municipalities to take advantage of the remaining opportunities. Two views of conditions along the canal are shown on pages 564 and 565. Such possibilities should be of particular interest to Passaic County as the canal passes along its 738 acre county park recently acquired at Garret Mountain, south of Paterson.



Photo by Underwood and Underwood

A SWIMMING CHAMPIONSHIP MEET ON THE RARITAN AT NEW BRUNSWICK

Preservation and reclamation of the waterways of the Region are urgent needs.

AN ASPECT OF THE PROBLEM OF PRESERVING OPEN AREAS AND HISTORIC FEATURES

The question of reserving adequate park areas including upland parks overlooking beaches and incidentally the development of recreational features, such as playgrounds, recreation piers, and swimming pools, has been fully discussed elsewhere.¹ The relation of the system of parks and other open spaces to the building of the city is made apparent in all parts of the survey and proposals of the Plan. Since the making of the Regional Survey and Plan was begun an enormous acreage of land has been purchased and dedicated for public use, and some realization of the need of skilful planning of this land has been shown by the public authorities.

What the public authorities have done and may do might well be supplemented by semi-private agencies in preserving open areas that are not available for public purchase and in acquiring sites or buildings of historic interest. We think it desirable

¹ Regional Survey, Volume V.

IN THE ENVIRONS

to make brief reference to this matter in view of the facts, first, that there are areas of land in the Region which private owners probably would be willing to have used in a limited degree for public use under regulation of a private trust, and second, that historic buildings and sites are often more efficiently controlled by a body of trustees than by an elected authority.

A good example of this type of agency is what is known as "The Trustees of Public Reservations" in Massachusetts. This is a corporate body, created for the purpose of "acquiring, holding, arranging, maintaining and opening to the public, under suitable regulations, beautiful and historical places and tracts of land" within the commonwealth. It corresponds to the National Trust for Preservation of Places of Historic Interest and Natural Beauty in England. The Massachusetts Trust has acquired and administers reservations having an area of 775 acres.



Photo by R. S. Feather

BATHING BEACH, LAKE RONKONKOMA, LONG ISLAND

Private as well as public reservation of beaches, parks and historic places should be encouraged.

It is not suggested that such agencies should be created to perform functions that are now performed by government bodies, but that there are places which can be preserved only for a more restricted use of the public than is possible with public property. It is noteworthy that movements to conserve scenic, historic and recreational areas in many states had their beginnings through the efforts of private societies, such as the American Scenic and Historic Preservation Society and the Ohio State Historical and Archaeological Society. Such societies may, by reason of being made the custodians of private funds and by skilful management of open areas and historic buildings that cannot be thrown open to indiscriminate public use, perform a permanent service of great benefit to the community.

OPPORTUNITIES IN REBUILDING

Planning New Communities

Within the Region there are numerous places which have potentialities for the establishment of new communities or community centers. These opportunities consist of the combination of large open tracts of land having, or potentially suited for, good transportation facilities. There are two main kinds of such areas, one where the open land lies outside the periphery of the existing populous centers and it is practical to establish complete new communities, and the other where it is an undeveloped or insufficiently developed area within the highly urbanized parts of the Region. An example of the first is the site selected for building the new city of Radburn in New Jersey. (Fig. 15, page 134) An example of the second is the Hackensack Meadows section. (Fig. 79, page 526)

Undoubtedly the best method of promoting that reasonable degree of decentralization which is necessary to relieve existing or to prevent future congestion is to develop new community centers in areas suitable for the establishment of industries and the provision of housing accommodation and other social requirements of the workers in such industries. This is part of what we have already described as a process of recentralization. It is a process of relieving the main nerve centers by creating alternative and subsidiary nerve centers, and should be promoted in a form which will result in the preservation and not the destruction of the existing centers.

The "garden cities" of Letchworth and Welwyn,¹ in England, are the most complete satellite communities that have been created by organized private effort. It is doubtful if such communities can ever be established by public action in democratic countries. It is best in any event for the organization and capital to come from private sources. The land for community development of this type must be purchased and planned as a whole. The site acquired must be detached from existing centers. The objective of the plan of such communities must be to secure a well balanced combination of industry, residence, business and some open land for cultivation, as well as recreation. In proportion as it is self-contained it will be most successful from both a social and economic point of view.

Radburn is, to some extent, a satellite of New York and part of its population will have to commute to the older centers to obtain a means of livelihood. But to a greater extent it will be self-sustaining in that a considerable number of its inhabitants will do their work and obtain business, recreation and cultural facilities within the area of the new town.

In addition to the presence of good means of transportation and of a large area of open land of suitable levels as first considerations in selecting sites to be acquired for new satellite cities, there should also be present opportunities for obtaining

¹ For brief description of Letchworth and Welwyn and of Radburn, New Jersey, see Regional Survey, Volume VII, pages 259-269.

IN THE ENVIRONS

ample water supply and cheap power. Where these conditions exist there should be no difficulty in attracting new industries or in removing to the site some existing plants in whole or in part. Given such removal and assuming that there is capital available to build the houses necessary for the resulting population, the economic basis of the community may be regarded as secure. It has been proved that the combination of profits derived from the increment in land values due to the conversion of acreage land into building lots, from the establishment of new business centers, and from the sale of light and power, are sufficient to provide a certain and reasonable return on any capital invested for the development of such communities.

Proposals for creating planned industrial communities on new sites recall the fact that Paterson, New Jersey, was planned as a new industrial town by Major L'Enfant in 1792, at the request of the Society of Useful Manufactures which was organized by Alexander Hamilton. In August of that year he reported¹ to the society with regard to the methods of conveying the water from above the great falls of the Passaic to provide power for the establishment of works. Major L'Enfant suggested a plan of streets avoiding a regular north and south and east and west direction so as not to end every street against the steep mountain, and showed the reservation of a site for a public building on rising ground. This plan seems to have been rejected as too extravagant, and probably has had little influence on the growth of Paterson.

It is an interesting fact that the selection of a site for the first model city by the City Housing Corporation should have been in the same neighborhood that Alexander Hamilton chose for his industrial city about a hundred and forty years ago.

In a report on a preliminary survey of the Region, made in 1923, Mr. Frederick Law Olmsted stated that Long Island was ill adapted for satellite cities of considerable size because "there could be little hinterland for such a city and because the city would practically be accessible from the rest of the country at large only through New York." Long Island is best adapted for the development of residential and agricultural communities. New Jersey offers the best opportunities for building of new industrial cities. The late George B. Ford and Mr. Ernest P. Goodrich, in a preliminary study for the Regional Plan, made the following statement with regard to the desirability of developing new communities in New Jersey: "Every effort should be made through the exploitation of the desirability of the region along the Lehigh Valley Railroad and later in the intermountain area for residence and industrial development. Land values are low, topography is excellent and the distance from New York is no greater than to developed areas in other sections."

Mr. John Nolen suggested that Orange and Rockland counties have a number of suitable areas for the establishment of small industrial, residential and agricultural towns. Similar areas exist in upper Westchester County and in Fairfield County, Connecticut.

¹ Minutes of Proceedings of the Directors of the Society of Useful Manufactures, pages 59-66.

OPPORTUNITIES IN REBUILDING

Obviously the physical suitability of an area as a site for a model community is only one factor. The question of the willingness or the reverse of the property owners to sell or cooperate is another factor that would largely determine the practicability of a scheme.

There seems to be no reason to anticipate that the establishment of such communities would interfere with the farming of the Region to an extent that would impair the future food supply in areas close to the market. The effect of establishing new urban centers would not be to increase materially the amount of land built upon but rather to secure a better balanced distribution of the buildings. In doing so it would spread land values more evenly and give added efficiency to transportation.

SPECIFIED AREAS NOT PROPOSED

Although we have surveyed the possibilities of developing new communities and the suitability for this purpose of a number of sites in the Region, we refrain from making suggestions of definite localities. This is one of the parts of our survey which we have decided is best to be used for purposes of giving specific advice if and when the need or desire for it arises in particular cases. To show such sites on a plan would give rise to unwise speculation in land and to claims which could not be justified on our bare recommendation of the suitability of an area. The selection and planning of a site for each new community involve the employment of skilled advisers. Where the acquisition of a site is preceded by land speculation the effect is, almost certainly, to foredoom any experiment to failure. We confine ourselves to suggesting a few principles in regard to the design of new towns.

DESIGN OF NEW TOWNS

There are certain well known principles that should be followed in planning new towns. Among the more important are:

- (a) The adjustment of the plan to the natural features and levels of the site and to the needs of drainage and sewage systems. This means that every plan must be a distinctive operation and not follow any general pattern.
- (b) The arrangement of the highway and street system so as to provide for the speed of through movement, the utmost degree of accessibility for local movement and the safety of pedestrians.
- (c) The planning of street alignment for the purpose of obtaining proper orientation of buildings and of street widths to suit different needs and obtain economy of development.
- (d) The organization of units of area for different types of buildings—residential, business, industrial and public buildings—so as to obtain a satisfactory distribution of uses.

IN THE ENVIRONS

(e) The selection and planning of open spaces for parks, athletic fields, playgrounds and parkways.

(f) Making provision for adequate control of the heights and densities of buildings necessary for health and appropriate to their use, and of the design of buildings and the preservation of amenities.

(g) Conceiving the town as a unit with its distinctive parts harmonized in a consistent and well balanced whole.

Subject to compliance with such general principles as these, there is wide scope for variety in design in planning new towns. The Radburn plan (Fig. 15, page 134) is exceptional as an illustration of original treatment of a system of streets, pedestrian walks and parks. This special treatment has been introduced for the major purposes of separating pedestrian from vehicular traffic and of combining the pedestrian ways with the park system. It proves the need of new forms of design to fit in with the needs of motor vehicles and to obtain safety for pedestrians. It shows the defects of the rectangular street plan, in which all streets are used for through traffic, under modern conditions.

In addition to the opportunities that are likely to exist in the future for planning new self-contained towns, there will be many for planning smaller villages as community centers of large estate districts. An example of this type is illustrated in the plan and perspective of the village of Lawrence Farms in the town of Newcastle in Westchester. This village covers a small area of about 100 acres and is designed to provide the business, cultural and general community center for a prospective development covering 1,500 acres. This development, when completed, will provide houses for perhaps 10,000 people including both those in the village and in large estates surrounding it. A golf course, theatre and other recreational facilities have been provided. The village adjoins the railroad, where a new station is to be built and is skirted on one side by an extension of the Westchester County parkway system. The village and station will be the converging

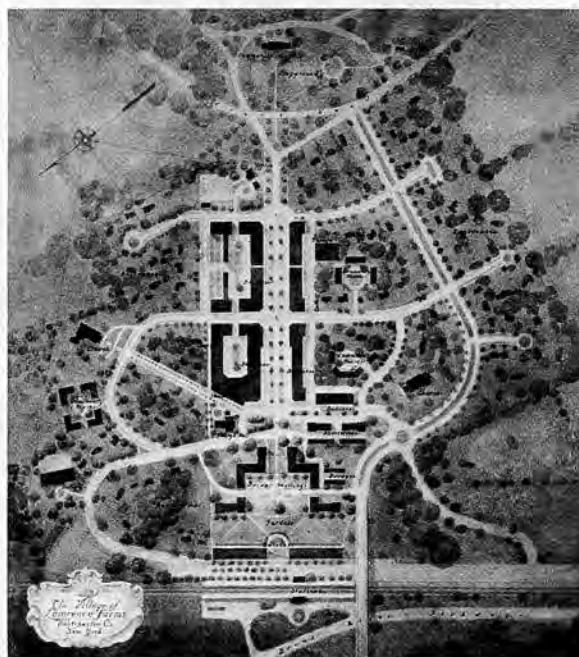


FIG. 90

PLAN OF THE VILLAGE OF LAWRENCE FARMS

Being developed in northern Westchester.

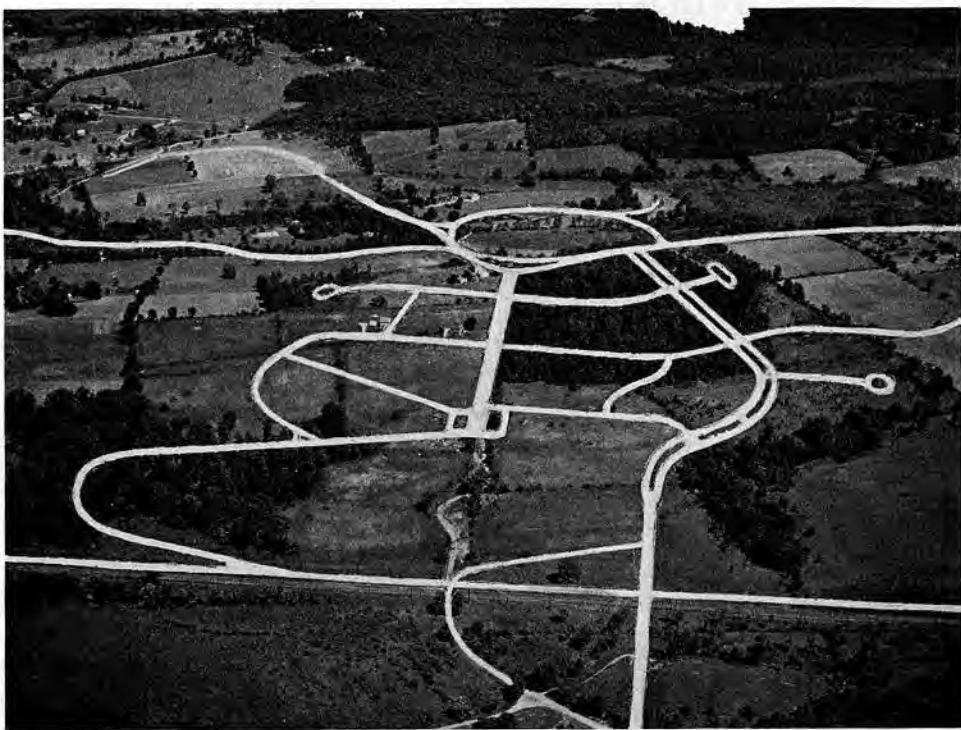
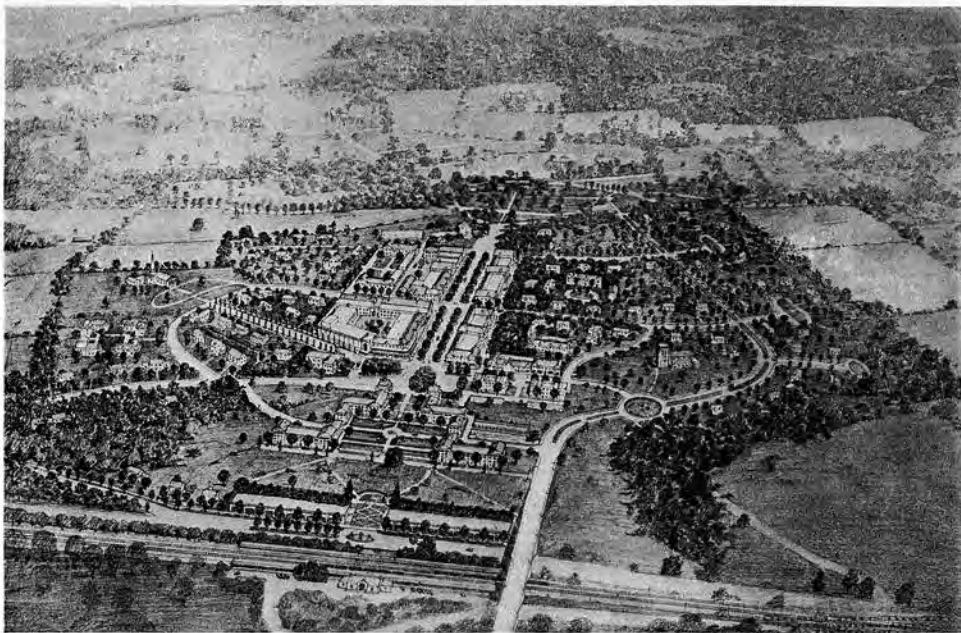


Photo by Fairchild Aerial Surveys, Inc.



Penrose V. Stout, Architect

PERSPECTIVE OF LAWRENCE FARMS SHOWING ULTIMATE DEVELOPMENT

Above—The site of the village, with principal highways.

IN THE ENVIRONS

point for the new community, which includes a business street 120 feet wide, and is intersected by a new main highway which will cross the railroad and parkway by a new bridge.

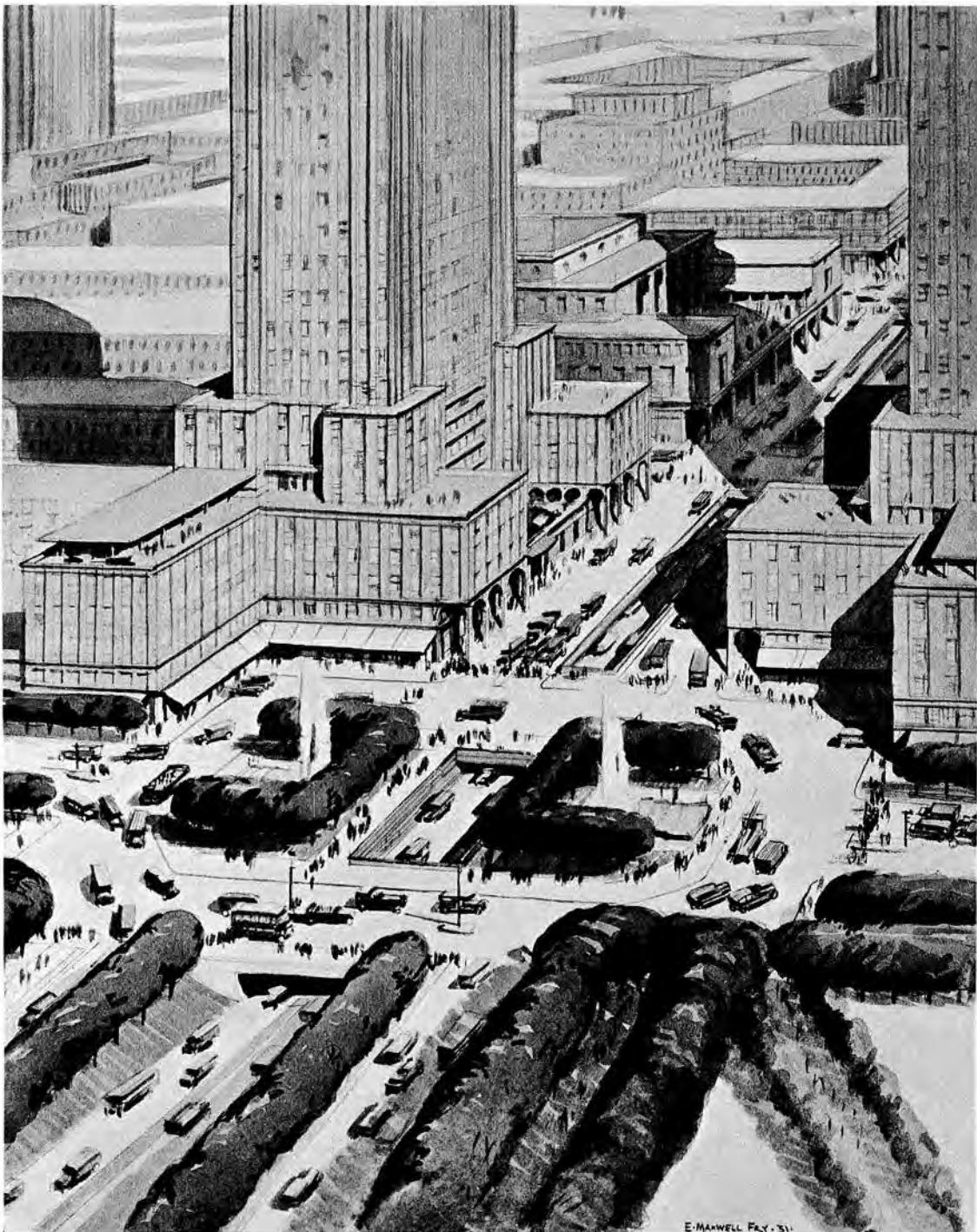
Every effort has been made to enable the children to reach the school and parks without crossing main thoroughfares, without interference with local accessibility or undue lessening of privacy in the gardens attached to each dwelling. The shopping street is not a through road and it will be possible to provide separate grade crossings for foot traffic over the one main through road.

In designing the village it has been recognized that changes of grade on a hilly site present opportunities and are not obstacles to be removed by expensive excavations of soil. By placing the buildings on the present levels, as was done in Lawrence Park, Bronxville, instead of establishing an artificial level by costly excavation and filling of land, a more agreeable setting is obtained for the buildings and considerable saving is effected. Much money is wastefully spent in levelling sites for subdivisions with the result that opportunities are lost to create pleasant architectural effects by the erection of walls and terraces and by setting buildings on different levels.

A great part of the monotonous uniformity that is deplored in some developments is due to the failure to use the opportunities presented by undulating land and interesting landscape features to get pleasant variety in the setting of buildings.



DESIGN FOR COTTAGES AT POCANTICO VILLAGE, NEAR
TARRYTOWN



E. MAXWELL FRY - 31

SKETCH SHOWING CONCEPTION OF A CENTRAL AREA IN WHICH THERE IS PROPER RESTRAINT OF HEIGHT AND DENSITY OF BUILDING, TOGETHER WITH WELL BALANCED DISTRIBUTION OF GROUND SPACE, OVERGROUND SPACE ABOVE LOWER BUILDINGS AND OCCASIONAL HIGH TOWERS
A sunken road for fast vehicular traffic is also shown under the main street and open square.



Courtesy of the Portland Cement Association

BRIDGE OVER THE SUSQUEHANNA RIVER

An achievement in obtaining balance and beauty of building, and a reminder of the great opportunities of design where the obstructions of nature have to be overcome in order to provide for the necessities of man.

XVII. THE END AND THE BEGINNING

The Regional Plan as an Opportunity

THE greatest opportunity open to the communities of the New York region is to give effect to the Regional Plan. We say this without having any illusions as to the perfection or finality of our ideas and designs. We say it because, whether or not we have planned aright, we know that we have envisaged the problems of the Region with sufficient clarity to make it evident to ourselves, and to the many who have shared in making our studies, that the Region is, in the most essential respects, a unit; that for effective planning it needs to be comprehended as a unit; and that the first step toward this comprehension has been taken in making the Regional Plan. If the end is here, so far as this study is concerned, there is no end to the planning that is needed to maintain and increase the health and welfare of the millions who will inhabit the New York region in the future.

The Regional Plan, although only a beginning, is not, however, of merely transient value. As the years go by, the Plan and these volumes will increase rather than diminish in interest. While the Survey and Plan are of necessity dated, they are a substantially accurate record of a period. That record will have a permanent value, for none has been more comprehensive for its purpose. The project, as laid out, consisted chiefly in an attempt to peer into the mysteries of New York's future between the years 1925 and 1965. In that respect the Plan should still have some thirty-five years of active life. Although much of the Plan may be unrealized or unrealizable at the end of that period its influence may extend far beyond.

Nor is the Plan of merely local value. Elsewhere we have said it has a national value.¹ Where New York is trending, other cities are trending. Probably, indeed,

¹ "New York Blazes a National Trail," in *Survey Graphic*, November, 1929.

OPPORTUNITIES IN REBUILDING

there is no city in the world that has a greater influence than New York. Consciously or unconsciously, its degree of sanity or insanity in solving its problems is reflected in hundreds of communities. All over this continent it is imitated, even where it is said to be feared. Men say New York is a warning rather than an example, and then proceed to make it an example.

Outside America, New York is America, and its skyscrapers a symbol of the spirit of America. It is not only the largest city in the world, it is the greatest and most powerful city that is not a capital of a nation. Hence the responsibility of its citizens to place their city in the vanguard of cities in respect to those things that mean civilization.

We say again that this Plan is simply a foundation and that what it will achieve, more than it has already achieved, is what the people will it to achieve. Ex-Governor Alfred E. Smith said not long ago that when the way was pointed out to the people of New York they would take steps to improve its living conditions.¹ We believe that to be true, and the object of the Regional Plan has been to point out the way.

Perhaps it is somewhat daring at this early juncture to ask whether there has been any response that is worth while. But a satisfactory answer can be given, even if only in general terms.

ACHIEVEMENTS OF THE PLAN

It would be possible to give a partial list of the considerable number of projects that have derived their being or their actual form, in greater or less degree, from the Regional Plan. It would be possible also to extend that list substantially were we to include in it projects promoted by public authorities and private individuals which we know to have been initiated as a result of the Plan or indirectly influenced for the better by the Plan; or those older projects that have been "hanging fire" and obtained new life, as well as others partly under way that have been extended or improved because of being confirmed by the Plan.

In general effect also the law and administration of planning in the Region have been revolutionized on the initiative and under the guidance of the Plan, and the actual work of planning has grown in volume and found a broader base of popular demand and approval during our nine years of activity.

Any attempt at listing all these things would fail to picture the importance and extent of the achievements, or to apportion properly the shares of credit and responsibility that are respectively due to all the different agencies and persons that have been involved in planning operations.

Moreover, the most significant results are at present intangible, and unlistable in any event; they are trends in thought, spirit and action that permit us to predict

¹ *New York Times*, Magazine Section, July 13, 1930.

THE END AND THE BEGINNING

that the greatest results of the Plan are yet to come. Among these intangible results has been the confidence that the Regional Plan itself has established in the press and in the minds of the public. That alone is a precious thing and an adequate reward to the Committee on the Plan for the efforts that have been made.

In the circumstances it is perhaps enough to say that the definite accomplishments in applying the Plan have justified all the work that has been devoted to this enterprise and have been more numerous than in many other cases of planning. Indeed, while a regional plan is to be regarded mainly as a framework for guidance in more specific city planning, there have been few city plans, we believe, that have led to so large a degree of practical accomplishment during the period of preparation. Perhaps that result has been due as much to the increasing growth and consistency of the public demand for solution of the evils of congestion and ill-balanced growth as it has been to the character of the remedies we have offered to effect this solution.

That what has been achieved has an influence outside the field of city planning is indicated by the following words of Dean Wallace B. Donham, Professor of Business Economics of Harvard University, in advocating the planning of the nation's business:¹ "Evidence of the strength of wise leadership for a well conceived plan, wholly unsupported by authority, can be found in the marked effect of the New York Regional Plan." A London editor, referring to the need of planning in London, speaks of the New York plan as "the envy of the world."²

Some Final Impressions

Looking back, it is difficult to say that anything remains to be said either by way of retrospection or for emphasis. Yet we are tempted to recall once more a few points of importance, if only to bring to the surface one or two misunderstandings.

UTOPIAS AND EARTHQUAKES

We have not planned for a Utopia, nor to anticipate the danger of an earthquake. It is futile to think of either, except that reasonable care should be exercised to prevent the one and to make buildings capable of resisting the worst effects of the other, if the seemingly improbable were to happen.³ A Utopia can be achieved only on a basis of despotism. If we had to give it any consideration in the Plan, it would be to resist it. Those who proclaim the scientifically organized, the perfectly adjusted, and the logically geometrical city as a sound conception of civilization overlook the fundamental conditions of life and growth in a democratic society. These conditions

¹ BUSINESS ADRIFT, McGraw-Hill Publishing Co., 1931, page 36.

² Editorial in *The Listener*, London, July 15, 1931.

³ Dr. Hollis Godfrey, President of the Engineering Economics Foundation, stated in a paper before the New York Section of the American Society of Civil Engineers, on October 21, 1925, that there was no way of knowing when and where an earthquake was coming, and that structures in New York should therefore be designed to resist earthquake hazards.

OPPORTUNITIES IN REBUILDING

can be subordinated only by the destruction of freedom, which is the greater evil. Art cannot be superimposed upon a people from the outside; it is a growth from within, although needing guidance and inspiration from those who have the intelligence to give them.

Quality of art in designing cities depends as much on its suitability for execution in a state of free society as on its technical perfection. We might attain nobility of design on paper and yet fail in the art of planning cities. Browning says somewhere, "Noble designs must close with like effects," and another writer, Arthur Quiller-Couch, says, "The true test of art is its highest possibility."

There is nothing to be gained by conceiving the impossible. But even when we think only of what is possible in a state of true liberty there is resistance to improvement by those who misconstrue the meaning of liberty.

INTERFERENCE WITH LIBERTY

There are people who persist in arguing to the effect that city planning, even when adjusted to conditions in a democracy, involves interference with liberty and imposition of reform and that it cannot achieve its purpose without unwise restraint. The answer is that real liberty connotes restraint of abuses and not restraint of proper uses and rights, and a true conception of city planning is one that shows that there is a rational and equitable degree of restraint.

Moreover, there can be no permanence of freedom of men and institutions unless it is supported by experiment and research, and city planning is experiment and research. Walter Lippman might have been speaking of the science of city building when, addressing the Academy of Political Science in New York City on March 25th, 1931, he said that the objectives of liberty-loving society in times of peace have to be proved by experiment rather than imposed by authority. He said: "The only sure foundation of action is truth that experience will verify." Without experiment, wasteful expenditures are inevitable, and yet city planning is regarded by many as an expensive luxury.

COSTS DUE TO PLANNING

It is difficult to understand why it is thought that planning means added costs in developing cities. We have only to reaffirm that the cost of carrying out any proposal in the Regional Plan is a cost substituted for one that will be made in any event and not an added cost. The need of guidance by planning is that of getting a basis for wise spending. It is indeed time to get such a basis, for the alarming increases in the cost of city government, seen in the enormous growth of taxation, are largely due to haphazard expenditures consequent on haphazard development and want of planning. A plan is just as necessary to show what should not be done as what should be done.

THE END AND THE BEGINNING

It is not pretended, however, that planning does not indicate new directions for investment of money; investments, for example, in parks that create new values and are therefore sound. Even in these cases, however, the money needed is money that might be saved from indulgence in unprofitable public enterprises.

It has already been pointed out in Plan Volume I that it is only when community needs are viewed in their totality that an adequate realization can be obtained of the immense cost that is involved in meeting them. The staff of the Regional Plan recognizes how great this cost must be in the aggregate and how necessary it is that it should be incurred along lines that will produce the highest revenues obtainable. To those interested in specific features our proposals will appear to be conservative. But the expenditures of the community must be apportioned among all its needs, and by comprehending them as a whole we see the necessity for avoiding extravagance in any one direction.

The staff put forward its proposals with the reservation that they should be carried out gradually, over a long period of years. Having a well conceived and comprehensive plan enables public authorities to allocate expenditures so as to produce the best results. To follow such a plan does not mean that more money must be spent this year or next; it means only that what is spent shall bring the plan nearer realization.

However sound any idea for city development may be, it must be the subject of detailed study, and this study must include the preparation of careful estimates of cost. Only when a proposal proves to be economically practicable should it be carried out. But, having said this, we claim that projects based on bold vision and requiring large expenditures of capital may be sounder from an economic point of view than those that are easier and cheaper to carry out. True economy is obtained, not by resisting expenditures, but by using science and applying foresight to the control of expenditures.

FORESIGHT AND STABILITY

Another illusion that has been misleading is that people need concern themselves only with the future on the basis of what is known of the past, without consideration of changes and trends that are falsifying much past tradition. In discussing this question in an essay "On Foresight" which appears as an introduction to Dean Donham's book, already quoted,¹ Alfred North Whitehead, Professor of Philosophy at Harvard University, says of planning for the future that "the element of novelty which life affords is too prominent to be omitted from our calculations." Referring to changes in cities, he says:

"Throughout the whole span of civilization up to the present moment, the growth of condensed aggregates of humans which we call cities has been an inseparable accompaniment of the

¹ See page 577.

OPPORTUNITIES IN REBUILDING

growth of civilization. . . . But there are disadvantages in cities. As yet no civilization has been self-supporting. There is widespread testimony this that obvious fact is due to inherent biological defects in the crowded life of cities. Now, slowly and at first faintly, an opposite tendency is showing itself. . . . Almost every reason for the growth of cities, concurrently with the growth of civilization, has been profoundly modified."

Hence he sees the need for the employment of more foresight, which he says depends on understanding. Describing routine as the god of every social system, he tells us that while "stability is the product of routine," the latter has its limits, and "it is for the discernment of these limits and for the provision of consequent action that foresight is required." He goes on to say:

"There can be no successful democratic society till general education conveys a philosophic outlook. . . . Philosophy is not a mere collection of noble sentiments. . . . It is a survey of possibilities and their comparison with actualities. In philosophy, the fact, the theory, the alternatives and the ideal are weighed together. Its gifts are insight and foresight, and a sense of work in life, in short, that sense of importance which nerves all civilized effort."

In the Regional Plan we have been unknowingly and with due modesty trying to follow this conception of philosophy. In Dean Donham's interpretation of the needs of business in America he sees that a philosophic outlook is also needed in business organization in order to secure greater stability. He claims that "unless greater stability is achieved it is doubtful whether capitalistic civilization can endure." Stability in the building of cities and security to the property of citizens are essentials of the best elements in the civilization that both creates them and depends upon them. The city plan aims at securing these qualities in building and in the protection of the home and its environment.

THE SKYSCRAPER AND SPACIOUSNESS

We have seen that there can be no quarrel with the height of buildings if they have adequate space about them, nor with land values if they are the result of healthful and efficient use of land. For both beauty and health, scale of building in relation to open space is even more important than design. What does it matter if buildings do rise into the air and seek the sunlight if they do not overshadow and darken neighboring buildings? Their magnificence and efficiency can be increased and a new security given to them, provided they are far enough apart.

Tall buildings inspire poets and thrill artists in different ways. For example, one Chauncey Churan says:

"Magnificent city—piled high, dug deep—
Where is your corner for youth to weep?

"Where are your flowers and where are your trees?
What can a child know of God without these?"

THE END AND THE BEGINNING

Another, Newell Marshall, echoes back in praise of the skyscraper towers:

"Like mountain peaks that God had subtly planned
To ease our hearts and smooth away our cares."

The second picture fails to see that the beauty of the mountain is on its surface and that the mines we dig into it are artificial dens of darkness we have to make and work in to get manufactured light and heat. The skyscraper mountains enclose working places that are little better lighted and ventilated than mines. An editorial writer refers as follows to this comparison:¹



THE NEW WALDORF-ASTORIA HOTEL

Showing open surroundings when completed in 1931. The problem of last, as of first, importance in building the city is the permanent preservation of sufficient space about buildings to permit them to see and be seen.

"Modern cities have grown into partial equivalents, so far as daylight is concerned, of the mine. Many a dweller in the shaded canyons of Manhattan probably gets scarcely more daylight on his skin or in his eyes than does a Welsh miner who spends his daytime hours a mile or so underground."

But too often the worker in the canyon in Manhattan lives in another tenement canyon, whereas the Welsh miner lives in a cottage on the open hillside. With his alternate shifts the latter spends half his days in fresh air and in daylight.

Why can we not have the skyscraper and still get sufficient daylight for it and other buildings? Not because there is not enough space, nor want of skill to plan, nor lack of means to build bridges and highways; but solely because of necessities that are artificially created and rebound on their creators with confusion and congestion.

¹ *New York Herald Tribune*, March 7, 1931.

OPPORTUNITIES IN REBUILDING

James Truslow Adams has described the skyscraper as the dominant feature of the American city and as a symbol of ostentatious love of mere size coupled with lack of restraint.¹ It seems to him to express the objective of financial prosperity rather than the objective of liberty.

Ostentation, restlessness and worship of prosperity are perhaps more openly expressed in America because they are accompaniments of its youthful energy, but they are parts of the world trends since 1918 and represent defects of world rather than American civilization. The skyscraper in itself may be regarded as expressing some of the finer qualities of the American people; the fault lies in the crowding of skyscrapers, as of lower buildings, on the land to their own detriment. It is this fault that causes denial of light and air in buildings and, in respect to facilities for movement, suggests future possibilities in line with the words of the Bible.² "For a man shall desire to go into a city, and shall not be able."

The margin between the value of the convenience and economy of the crowded skyscraper and the inconvenience and high cost of the means of getting to and from it is narrowing as the crowding increases. The realtor sees ahead the period of diminishing returns as the accompaniment to reduced accessibility to light and air. He has begun to predict the coming of more spacious cities in his official bulletins. He sees the high land prices vanishing, where their maintenance depends on mounting taxation for great artificial improvements, and destruction of light, comfort and convenience in horizontal travel.

City planning has begun to exert a wide influence in establishing a proper relation between the functions and sizes of buildings and the spaces about them. Gerald Preston Hersey expresses the position thus:³

"In studying the evolution of American architecture, the link between art and science seems to have been firmly welded through the pioneer research and achievement of city planning in defining the relation to the usage of urban land and urban space with respect to the social and hygienic value of the structure."

The same is true of the effects of city planning research in other countries. Of Sweden, for example, Professor Ivar Tengborn has said: "In our country we maintain that functional architecture begins in city planning."

Until social and hygienic values, including values of free movement, that can be properly appraised only as a result of intelligently guided city planning, are given predominance over land values in themselves there can be no real success in controlling the densities of building, especially in the skyscraper districts of New York.

An acute foreign observer, Alfred Agache, an architect of Paris, writing of a visit to America in 1929 after an absence of 25 years, refers to New York as producing "admiring stupefaction" at the first contact, and its novel skyscrapers as being "constructed to any height without regard to the immediate neighborhood," but reveal-

¹ *The Forum*, December, 1930.

² Apocrypha, II Esdras 15: 17.

³ Letter to *New York Times*, October 5, 1930.

THE END AND THE BEGINNING

ing "an architectural elegance truly remarkable."¹ He records his impression as noting a general public interest in the amelioration of cities "notwithstanding the administrative apathy in the matter."

Truly this latter is a vital problem in the New York region. How can we arouse public interest in city planning and social amelioration to the extent necessary to bring about reform through the agency of government? Reform will come in time as surely as government derives its being from the people, but perhaps not adequately until future generations have assimilated the knowledge now being accumulated and have the courage of conviction that leads to action.

MONUMENTAL BUILDINGS AND INCINERATORS

It might seem that the buildings we have shown in our designs are illustrative in too great a degree of what might be called the monumental features of the city. Yet taking the plan as a whole it has not been overweighted in the features that relate to aesthetic rather than social values, or beauty rather than utility. There must be a place in every city for utilitarian structures, but it is as absurd to suggest that these should be ugly as that they should be designed as beautiful monuments. Every building should be a work of art in the major sense that it expresses work well done, a right sense of proportion and scale, and the purpose behind its erection. This is true of the factory as well as of the home, of the power house, the slaughter house, or the coal elevator as well as of the city hall, the public library, or the museum.

There is a sense in which the incinerator, one of the most utilitarian of buildings, is monumental in its purpose. It is so as a symbol of the cleanliness and right mindedness of a people toward its public amenities. New York can never be nobly built until it learns to dispose of its wastes more satisfactorily. The fouling of its waters and of the air it breathes as a result of its primitive methods of disposing of sewage and garbage are both social and economic blunders. Whatever it does to beautify its buildings must never be at the expense of its sanitation. Incinerators should be built before museums. As they will be placed on the waterfronts, it is important that they be neither ugly nor offensive. They should be efficient enough to enable them to have swimming pools as near neighbors, and neat enough to look well, with small parks planted with trees and flowers about them.

AUTOMOBILES, AIRPLANES AND PUSHCARTS

In spite of the great changes that have come over cities in connection with the development of vehicular transportation and steel construction, and of the imminence of new changes as a result of the development of the airplane, much of what may be called "medievalism" persists in the modern city. It is a curious fact that one of the worst causes of congestion in New York is the medieval pushcart that, in its old

¹ *Journal L'Intransigeant*, Paris, August 15, 1929.

OPPORTUNITIES IN REBUILDING

habitats, is more defiant of the automobile than the most influential pedestrian. That the pushcart is allowed to clog the streets is symbolic of the fact that in some phases of urban life, in the most modern of cities, people still hold fast to methods that are out of keeping with modern conditions. This is only one example of many. The pushcart in the streets is not preserved because it keeps alive some interesting tradition and still less because it is a necessity. It is there because of the preference for the easy road of drifting, rather than the more difficult road of exercising foresight in planning markets as well as streets.

Undoubtedly the airplane, too, will have to fight its way against drifting. It is being rapidly improved as a machine, but too little attention is being given to the provision that is needed for landing places near the centers of cities. Airports have been, and are being, built in different places at considerable distance from New York City, but not enough thought is being given to the question of providing landing spaces within easy reach of the main centers of business and residence.

In the Regional Plan we have not indulged in any extravagant expectations as to the possibilities of aerial travel. We believe that such travel will greatly increase as an auxiliary to rail and highway travel. We have suggested places for additional landing fields throughout the Region, as part of a comprehensive system of such fields, but have pointed out that the places most needed to be acquired are those that lie nearest to, and that can be brought within easy travel distance of, the center, as for example that proposed for Juniper Valley in Queens.

There seems to be an assumption that the possibilities of the autogiro¹ will make landing on individual buildings practicable and that all that needs to be done is to wait for the invention of an improved type of plane to enable parks, streets and roofs of buildings to serve as landing places. The possible menace to the parks has been indicated by the *New York Times*, which says²: "Further on (that is, after thirty-five years) it is conceivable that Central Park will have become a great airport for Manhattan commuters to who-knows-where."

We can see nothing but tragic results were such expectations to be realized—results that would in time demoralize the city and cause its disintegration. The airplane must have its own special provision for landing, and this must be away from crowded districts with high buildings and comparatively narrow streets, and away from parks necessary for rest and recreation, no matter what may be accomplished by invention of new methods of ascent and descent. Every step forward in aviation adds to the necessity for providing more space near big centers where the full advantage of this new form of transportation can be obtained, without reducing the inadequate spaces allotted for recreation.

¹ At the time of writing (April 22, 1931) Mr. James C. Ray landed an autogiro on the South Lawn of the White House in Washington, before President Hoover.

² Editorial, *New York Times*, May 2, 1931.

THE END AND THE BEGINNING

CHANGES OF POPULATION DISTRIBUTION

Since the Regional Plan studies were initiated we have been able to test the predictions regarding the growth and distribution of population. These predictions visualized an increase substantially the same as has actually occurred between 1920 and 1930. For the whole Region the number in 1920 was 8,979,055, and in 1930 this figure had increased to 11,457,949. If we assume 4.2 persons per family, this means about 590,000 added dwellings in the ten year period. How have these dwellings been erected? What extra care has been given to secure that their quality and environment are such as to give pride and satisfaction to the citizens? These are questions that require more self-searching than whether the best is being done to improve the houses we call slums that have been handed down from the past.

Within the City of New York the increase has been from 5,620,048 to 6,930,446 in the same period, or 1,310,398, estimated as being housed in about 310,000 dwellings. Thus the increase inside the city has been only slightly larger than outside.

The total area of the Region is approximately 3,538,000 acres. On a little over two-thirds of this area the whole present population of the United States could be housed with an average density of 50 persons per acre, or a little less than the present density for the Borough of Brooklyn. One-eighth of the area will be sufficient for the population predicted for the Region in 1965, at the same density. Yet the cry goes on that such low densities are impracticable, while the holders of thousands of acres of vacant land support an intensity of building that denies them the opportunity to get their land used for development, wastefully paying taxes on the assumption that their land will be built upon in the near future.

The character of population distribution is even more striking than its extent. Manhattan, which increased by 26 per cent between 1900 and 1910, has since been steadily diminishing in population. From 1920 to 1930 it fell 416,791 and Brooklyn moved into first place among the five boroughs with a gain of 27 per cent. The Bronx increased 73 per cent in the last decade, as against 70 per cent between 1910 and 1920. Queens added 130 per cent as against 65 per cent; and Richmond 35.9 per cent as against 35.6 per cent, for the same periods. The rapid growth of Queens is as astonishing as the lack of growth of Staten Island.

Where are the people going outside New York City? Nassau took a large part, with an increase of 140 per cent between 1920 and 1930, the only county that approximated the rate of growth of Queens; but astonishing growths took place in Westchester, with 51 per cent increase; Bergen County, 73 per cent; and Union County, 52 per cent; while rural Suffolk County grew by 46 per cent. The most striking revelation of the last census was the increase in commuting distance, as revealed by Suffolk's growth and the fact that the counties of Putnam, Rockland, and those parts of Orange and Dutchess within the Region left the minus column, showing increases varying from about 8 to 31 per cent.

OPPORTUNITIES IN REBUILDING

The five-cent fare, coupled with increasing commuting fares outside the city, still operates to hold the population within the city. It is remarkable that in spite of this the parts of the Region outside the city added to their population but 141,902 less than the city.

This decentralization movement is good both for the city and the environs, but there is need of more control of the building developments that respond to it. Happily this control is spreading under the greatly improved legal powers we have assisted in obtaining and as a result of the activities of growing numbers of county, city, village, borough and town planning commissions and boards. Happily, too, the extension of parks and parkways has proved itself a prime factor in promoting the movement to outside counties and away from crowded centers.

These figures indicate that we may witness a much more rapid growth in the outlying areas, and consequently a less rapid growth in the city, than the tendencies of 1925 led us to expect. At the same time, world-wide decreases in birth rates and the lessening of local immigration in recent years may mean that the total population predicted for 1965, namely 21,000,000, will not be realized. One certain conclusion we derive from the statistics we have quoted is that our proposals to assist the dispersal of industry, as an accompaniment of the suburban trend of population, are not only sound in principle but may be regarded as the best means to offset the enormous and increasing waste of money and human energy expended in needless travel and in meeting the social evils due to unbalanced growth.

What the Future Holds

There are certain realms of prophecy we may enter with some assurance, such as predicting future growth of population. There are others that are both dangerous and futile, such as that of picturing what changes in form of distribution and in substance and quality of physical environment shall come over the city and its environs. To attempt to visualize what will happen in forty years would be to indulge in an entertaining piece of romanticism, which is foreign to the purpose behind the Regional Plan. We have suggested a plan as a guide to better things and indicated possibilities and opportunities, but we have not indulged in dreams that envisage projects as certain of realization that will haunt us with ghosts of unfulfilment.

Our visions are visions of hope and not of prophecy as to what the future holds. Change will still be governed by the uneven temper and intelligence of the average man and woman. What they desire strongly, and not what the regional planners ask, shall come to pass. That they, the average citizens, will progress toward higher levels, and get the city of the future out of difficulties that now threaten today's city with an *impasse*, seems certain.

THE END AND THE BEGINNING

Therefore, without attempting definite prophecy, we hope and believe that they will advance along the "middle of the road" in the direction of a well balanced distribution of buildings and avoid deflection toward the extremes of either excessive concentration or excessive diffusion.

While the New York region of the future will never be exactly what we have pictured, we feel confident that it will grow more in harmony with our conception than with that of those who dream either of the concentrated skyscraper city, with extensive systems of double deck streets, or of a greatly diffused city-region with a garden for every home. Upward and outward growth will continue together. The cost of doing things will continue to be the test of whether they will be done.

IF WISDOM PREVAILS

If the average citizens are wise they will see to it that their harbor is more up-to-date in its facilities; that no more money is frittered away on piers for international shipping that can be used only for minor purposes; that the slaughter-houses and the markets are concentrated in the center, adjacent to water and railroad transportation facilities; and that Jamaica Bay and Newark Bay are developed to serve only the logical demands of their localities. They will see to it that airports are selected and purchased in good time, within easy reach of the centers of the metropolis. They will no longer neglect the opportunity to make Battery Park a beautiful waterfront and the ornamental gateway of the city, with an enduring monument to its heroes. They will take advantage of the magnificent opportunities of their waterfronts and of the Harlem River Valley and open up a great part of their walled-in shore lines for their own enjoyment. They will build skyscraper towers, but keep them apart, give them room to breathe, and thus prevent their self-destruction. They will gradually force all elevated railroads underground and get rid of private uses of public streets. They will open up the centers of crowded tenement blocks so that children can play near their homes, and thereby provide space for light and air for the buildings in the congested districts. They will demand that health, safety and general welfare shall be the governing factors in determining the laws of building.

They will break down the barriers to home ownership and cover the fields of Nassau, the hills of Westchester, and the slopes of the Watchung and Ramapo mountains in New Jersey, with spacious home neighborhoods. They will permit the conservation of the estates of the wealthy and the use of wealth in the creation of natural beauty in the environs. They will reserve all the river valleys that they do not need for commerce for parkways and cease to foul the waters of the rivers. They will co-operate with the railroads in obtaining the building of new terminals encircling the city. They will create dignified civic centers and a metropolitan center for art. They will encircle the city with a great metropolitan highway loop parallel with a circumferential rapid transit and freight distribution line. They will preserve untar-

OPPORTUNITIES IN REBUILDING

nished the beauties of the Palisades and make Central Park more of a park and less of a speedway for traffic. They will retain the marsh lands of Pelham Bay and other low lying lands, conserve the islands and shallow waters on the south shore of Long Island, and develop new pleasure resorts on Staten Island and elsewhere. They will build a new city on the Hackensack Meadows where all social as well as industrial needs will be satisfied, and aid in the organization and development of model communities in suitable places in the environs. They will make the word *home* the key of the fortress that holds the secret of a secure and enduring civilization.

All these things, and much more that we have envisaged, they will do if they are wise and are able to express their wisdom in collective action.

And so we arrive at the chief difficulty and the final word—to express individual wisdom in collective action. That is the great need, but how difficult to bring about and make effective in a community that glories in the strength of its individualism! And yet how essential for civic improvement! By education the standard of intelligence may be raised; by plans, pictures and ideas individual citizens may be inspired and provoked; but without unity and association in citizenship, and the courage and passion that men may feel when acting in concert, what can we hope to achieve?

The Regional Plan is a beginning and the next step is education. We can only hope that education will develop foresight, that the greatness of the need will develop a passion for improvement, and that both these things will lead to unity of action so that the New York-New Jersey metropolitan region shall achieve unique distinction among great city-regions for the order and true economy, the balance and true dignity of its building.



Courtesy of Civil Engineering

INDEX

INDEX

- Achievements of the Regional Plan, character of, and comments upon, 576-577
- Ackerman, Frederick L., 5
- Adams, James Truslow, 582
- Adams, Thomas, 3, 5, 48 *note*
- "Adult Education and the Arts," by Dr. L. P. Jacks, 79 *note*
- Aeration basin at Kensico, New York, plans and illustrations, 554, 556
- Agache, Alfred, 582
- Airports: existing and proposed, illustrations, 265-273; design of, 265-268; air transportation and building heights, 269-270; Governors Island, 270; Hackensack Meadows project illustrated, 270; Bennett Field illustrated, 271; Glenn Curtiss illustrated, 272; planning for, 338; Barren Island terminal, 508; need of space for, 584; and the autogiro, 584
- AIRPORTS, THEIR LOCATION, ADMINISTRATION AND LEGAL BASIS**, by Hubbard, McClintock and Williams, 273 *note*
- Algiers waterfront illustrated, 337, 338
- Allen, Kenneth, 441
- Amenities: of suburban architecture, 93-97; preservation of, in civic art, 99-102, 325, 582-583; New York waterfronts destroy, illustrations, 326, 328, 335, 337, 371
- American Society of Landscape Architects, 430, 431
- Amsterdam Corporation, 244
- Angkor, a medieval city, illustration, 47
- ANTWERP AND ITS VICINITY, THE PORT OF**, 227 *note*
- Antwerp's port facilities, illustrations, 226-228
- Apartment neighborhoods: proposed groups, illustrations, 83, 91, 184; open space for, 84, 87, 89, 93; Coketown described, 88; Tudor City illustrated, 89, 366, 367; suburban, problems of, 93, 94, 195-199; in central areas, 199-201; at Forest Hills, illustrations, 197, 206, 207; Jackson Heights, 209, 211; East River frontages, 364; Columbia Heights proposals, 485-487; Newark Bay waterfront, illustrations, 531-534. *See also* Houses
- Approaches: to bridges, Regional Plan proposals, 407-409, 410; Queensboro, 407; Manhattan, through Canal Street, 407; to Holland Tunnel, 408-409; to 38th Street Tunnel, 410-411, 513-517; to George Washington Bridge, illustrated, 451, 452, 461; in Harlem River Valley, 452-454; Brooklyn Bridge, illustrations, 474, 477, 478, 479, 480-482
- Arcaded streets: in England, illustrated, 274, 288; in Paris, illustrated, 289, 291; method and difficulties of constructing, illustrations, 289-293; proposals for, 306, 307-311, 312, 313, 411-415
- Architects: collaboration of, and proposals in the Graphic Regional Plan, 305-306, 327-329; preliminary proposals for downtown and midtown Manhattan, illustrations, 345-375; American Institute of, 347
- ARCHITECTURE**, by W. R. Lethaby, 95 *note*
- Architecture: essentials of good, in New York region, 33-35; civic art in relation to, 47-78; Paris standards, 58-63; classes of artisans, 80; and the endurance of building, 82; amenities of suburban, 93-97, 99-102; skylines illustrated, 99, 104, 105, 106, 107, 110, 111, 112, 118; of skyscrapers, illustrations, 109, 111, 112-118; proposed art center illustrated, 112, 113, 115, 345; conception for Chicago exposition illustrated, 121; treatment of private open area illustrated, 150; future tower city illustrated, 111, 152; of residential neighborhoods illustrated, 184, 197, 198, 200, 202, 206, 207, 209, 211, 213, 217; of arcaded buildings, illustrations, 288, 289-293, 307, 312, 313, 314; proposals for re-planning Manhattan areas, 306-311, 327-332; type of, for elevated streets illustrated, 320; collaboration of architects' committees, 327-328; modern conception of forms of, illustrations, 329-333; affecting private property, 334; waterfront, illustrations, 335, 337, 338, 343, 344; re-planning proposals for downtown and midtown Manhattan, illustrations, 345-416; relation of studies to Regional Plan proposals, 376; Battery Park plans illustrated, frontispiece, 344, 377, 378, 379, 380, 381; civic center designs illustrated, 384, 385, 386, 387, 548-556
- Area of Region, and population density, 585
- Area-per-family regulations for housing neighborhoods, 208-211
- Art: in city building, 25, 47, 325, 578, 580-583; and economics, 79-83; Dr. Jacks on meaning of, 79; in Rome, 87; proposed center for, illustrated, 112, 113, 115, 345; Regional Plan center outlined, 391-392. *See also* Beauty; Civic art
- ART OF TOWN PLANNING**, by H. V. Lanchester, 88 *note*
- Author's acknowledgments, 5
- Bad housing: in suburban New York, illustrations, 37, 57, 336; in Paris environs, illustrations, 64, 65; Mr. McAneny on, 67-68; Coketown described, 88; city tenements, illustration, 85, 90; elements involved in improving, 195-196; area-per-family requirement to prevent, 209-214; East River frontages illustrated, 326, 328; Harlem River frontage illustrated, 455
- "Basket weaving" of street crossings, 308
- Bassett, Edward M., 5, 137, 213, 216, 217, 262, 319
- Battery Park: illustrations, frontispiece, 344, 377, 378, 379, 380, 381; early plans to improve, 377; Mr. Gugler's project for, 378-381
- Bayonne: waterfront possibilities, illustrations, 527-534; City Plan Commission report, 528, 530-534; summary of plan by Mr. Lewis, 530; Newark Bay proposals, 531-534
- Beard, Charles A., 124
- Beauty: and order in city building, 25-26, 66, 325, 338; of old villages illustrated, 35, 37; and reality in civic art, 99-118; as an objective, 99; social value of, in cities, 102-105, 327; building heights and, illustrations, 107, 108, 110, 111, 112-118, 331, 332, 333, 580-583
- Belloq, Hilaire, 81
- Bennett, Edward H., 476
- Berry, Charles W., 146
- "Bias in History," 106 *note*
- Bible quoted, 582
- Bigelow, Frederic, 535
- Black, Archibald, 267
- Blackie, John Stuart, 25
- Block, Irving Lee, 199
- Boring, William A., 328, 448, 463
- Boyd, John Taylor, Jr., 401
- Breakwater: proposed by Pilot Commissioners, illustration, 233, 234, 237; project by Colonel Wilgus, 235
- Bridges, plans and proposals, illustrations, 441, 451, 452-461, 476-483. *See also* Approaches
- Bronx, The: passenger terminal, illustration, 253, 254; grade separation in, 295; plans and proposals, 418, 419, 442, 452-470, 473; lower River Valley park areas, 442; Harlem River Valley development plans, 452-471; cross-borough highway, illustration, 470, 471; population changes, 585
- Bronxville civic center, 554
- Brooklyn: waterfront development, 231-232, 324; cost of widening Kings Highway, 285; approaches to Brooklyn

INDEX

- Bridge, illustrations, 474, 477, 478-482, 487, 489; general conditions of inner, 475-476, 478; plan of 1913, 476, 478; re-planning of civic center, 478, 479, 480; Columbia Heights, proposed development, illustrations, 482-487; marginal railroad plans, 488; parkway circuit and general needs in south section, 490-493; Jamaica Bay proposals, 493-497; population changes, 585
- Brooklyn Bridge, vicinity and approaches, illustrations, 474, 475-482, 483
- Brooklyn plan of 1913, 476, 478
- Browne, James J., 492
- Bryant, William Cullen, 41
- Buffalo city hall illustrated, 127
- Building areas and open land: proportions of, illustration, 147-151; in Manhattan, illustration, 147, 148; application of general standards, table, 149; private open area illustrated, 150; zoning standards, 154, 155-157, 166, 167
- BUILDING HEIGHT, BUREAU AND FORM**, by George B. Ford, 162 *note*
- Building Owners and Managers Association, 163
- Bulk of building: zoning principles to govern, 153-160; distribution in central areas, 160-164, 181-185, 199-201; land values and, 165; standards in open suburban areas, 166-171; in intermediate areas, 171-173, 176-177; in sub-central and central areas, 177-185; housing proposals, 203-204; and multiple street levels, 281
- Bull, W. L., 247 *note*
- Burnham, Daniel H., 31
- Bush, Irving T., 250
- BUSINESS ADRIFT**, by Wallace Brett Donham, 325, 577 *notes*
- Business centers, building types recommended, 172, 174, 175
- Bus services: and railroad sub-stations, illustration, 256-257; advantages, 256; terminals and public garages, illustration, 258-259, 262, 264-265; stations, 263; bus line groups classified, 264-265
- Butler, Dr. Nicholas Murray, 36
- Canal Street elevated speedway, illustration, 302, 407, 408, 409
- Capek, Karel, 90
- Carcassonne, medieval plan, illustrations, 52, 53
- Carfloats and lighterage stations: system recommended by Port Authority, 240-241; yard and terminal services, 250-251
- Carre, Henri, 59
- Causeway: in lower New York Bay, proposal for, and illustrations, 233, 234; described by Colonel Wilgus, 235-237
- Central areas: economics of zoning in, and building plan for, 175, 177, 181-185; problem of improving housing conditions in, 199-201; two level streets, illustrations, 298-299, 304, 307, 309, 310; sketch of general plan for, 574
- Central Park: history, problems of, and proposals, 419-436; Board of Commissioners' report, 421; Mr. Olmsted on functions of, 422-423; report by Mr. Olmsted, Jr., 423-430; traffic conditions, 423-427; preservation of a naturalistic treatment, 428; administrative problems, 429-430; American Society of Landscape Architects' plan, 430, 431; Metropolitan Museum proposals, 432; Arsenal Building, 433; streets and walks, 433-436
- Chicago: Burnham Plan, 31; problems of, 37; individuality of, illustration, 121; Daily News Building court illustrated, 150; new union market, 252; parking regulations, 261; Wacker Drive, 282; example of, 469
- Chrystie-Forsyth parkway, Regional Plan proposals, illustrations, 393, 396-398, 399, 400, 408
- Churan, Chauncey, 580
- Church buildings: in New York illustrated, 73; Durham Cathedral, 116; Chartres Cathedral, 117
- CITIES IN EVOLUTION, by Patrick Geddes, 62, 67 *notes*
- Citizens Street Traffic Committee, 261
- City as a home, 86
- "City as a Work of Art, The," by Charles Moore, 325 *note*
- City building in a democracy: beauty and order in, 25-26; Washington an example of, maps, 26-31; New England town building, illustration, 31-33; in the New York region, 33-35; problem of, in New York City, 36-38; early planning in New York City, maps and illustrations, 38-41; potentialities of growth discussed, 42-44; ideals and opportunities for, 325-343
- City Hall square: re-planning proposals, illustrations, 347, 348; expansion of the Civic Center, plan illustrated, 354, 355; Regional Plan proposals for, 381-386, 388
- City Plan Commission of Bayonne, report by Mr. Lewis on waterfront opportunities, 528, 530, 531-534
- City Planning and Zoning Committee, recommendations on parking, 260
- CITY PLANNING AND ZONING, LAW OF**, by Frank B. Williams, 217
- "City Under a Single Roof, A," by Raymond Hood, 188 *note*
- Civic art: in city building, 25; and the Chicago plan, 31; in relation to street planning and architecture, 47-78; retrogression of, in Edinburgh, illustration, 49, 55; coordination of architectural and engineering design the basis of, 56; true foundations for, 57; example of Paris, 58-66; right leadership essential, 66, 67; differences in, between cities, 68; notable buildings illustrated, 69, 70, 71, 74, 75, 76, 77; New York churches, 73; in relation to work and living conditions, 79-97; beauty and reality in, 99-118; model of Buffalo city hall illustrated, 127; scope of opportunities in city building, 325-343; inspiration of skyscrapers, 580-583. *See also* Architecture; Beauty
- Civic centers: St. Louis project illustrated, 330; City Hall square proposals, illustrations, 347, 348, 354-355, 381-386, 387, 388; Brooklyn, illustrations, 477, 478, 479-482; in Queens, 497, 499, 504-505, 507, 508; Staten Island terminal plans, illustrations, 517-518; proposals for Newark, illustrations, 533-537; Hackensack Meadows plan, illustration, 543, 546; Paterson proposals, illustrations, 548, 550-553; Islip, illustrations, 552, 553; Ossining, 553, 555; Bronxville, 554; in other suburbs illustrated, 555
- Clark, W. C., 82
- Close suburban areas. *See* Intermediate areas
- "Clover-leaf" intersection for traffic relief, 297
- Cohen, Julius Henry, 250, 252 *note*
- Cokerow characteristics, 88
- Collective action the keynote of wisdom in planning, 586-587
- Columbia Heights: section described, 482; proposals, illustrations, 483, 484; park and apartment developments, 485-487
- Communities: individuality of, and their common problems, 119-131; traditional features illustrated, 119, 124, 128; spirit, and problems of New York region, 122, 126-131; elements involved in planning, chart, 135-137; open spaces and land coverage for, 147-151; zoning standards and classification of areas, 166-185; housing neighborhood problems, 195-201; constructive policy for new, 201-214; examples of neighborhood units, 342; proposals for satellite, illustrations, 550, 568-573. *See also* Design of new towns
- Congestion: preventive planning, 67, 306-317; zoning proposals, 153-173; coverage and yard requirements, 168, 173; height and cubage restrictions, 170-171, 176-177, 182-189; regulation of housing densities, 205-208; freight transportation causes, 238-251; street expansion to prevent, 276-306; in theatre district, illustration, 317, 318; pushcarts a cause of, 583. *See also* Skyscrapers

INDEX

- Congleton, Jerome T., 538
 Connecticut: Bridgeport homes illustrated, 79; Aetna Life Insurance Building illustrated, 161
 Cooperation: needs and advantages of, in New York region, 122-126, 468; unity of spirit in a metropolis, 124; of architects in building possibilities, 327-328; of government in Jamaica Bay dredging plan, 495-496; collective action the great need, 586-587
 Cooper, Captain J., 226, 227
 Corbett, Harvey Wiley, 306, 307, 353
 Cosgrove, Hon. Michael, 494, 495 *note*
 Costs: financing local improvements, 145-147; freight distribution, 238-239; highway improvements, 285; responsibility for street congestion, 317; Jamaica Bay development, 494, 495; true economy of, in planning, 578-579.
See also Land values
 Coverage restrictions: and zoning, 148, 155, 168; yard requirement standards, 173, 176; zoning proposals and, 203-219
 Cox, Kenyon, 140
 Cross Bay Boulevard, over Jamaica Bay, 495
 Cross-borough highway, Bronx, illustration, 470, 471
 Cross, John W., 350
 Cubage restrictions: and height control, 157, 170-171, 176-177, 182-189; basic assumptions for, 203-214, and street space, 281
 Cul-de-sac street illustrated, 207
 Dalton, General A. C., 251
 Daudet, Louis, 59 *note*
 da Vinci, Leonardo, 299
 Decadence in civic art: breakdown of the Edinburgh plan, map, 48, 49, 55; in nineteenth century, 55, 56, 58; in Paris environs, 63; amenities discussed, 99-102
 Decentralization: theory of, 34; Mr. Gilbert quoted on, 347; community development and, 550-573; causes and character of population distribution, 585-586. *See also Recentralization*
 Delano, Frederic A., 4, 5, 255, 258, 302, 468
 Design of new towns: principles enumerated, 570-571; village plans illustrated, 571-573. *See also Radburn*
 Diagonal streets, 285, 286-288
 Dill, Samuel, 87
 Dock and waterfront improvements. *See Piers*
 Donham, Wallace Brett, 325 *note*, 577, 580
 Double decking of streets, illustrations, 161, 277, 278, 279, 298, 304, 307, 310, 314. *See also Arcaded streets; Elevated streets*
 DOWNTOWN BROOKLYN, report on, 476 *note*
 Downtown Manhattan: re-planning problems, illustrations, 344, 345, 347, 348-359; City Hall square plans and illustrations, 347, 348, 354, 355; West Side waterfront development, illustrations, 349-350, 358, 359; Battery Park project described and illustrated, 377-381; Civic Center proposals, 381-382, 384-386; Regional Plan improvements outlined, 386, 393-406. *See also Manhattan*
 Drainage plans: of Haarlem Lake Polder, Holland, illustration, 51; Jamaica Bay, 495-496; channel project for Hackensack Meadows, 542-543
 Early planning: of Washington, maps, 26-31; New England towns, illustrations, 31-33, 37; in New York City, maps and illustrations, 38-42; medieval, maps, 47-49, 110, 116, 117; of street systems, maps, 50-54, 55; in nineteenth century, 54-57; example of Paris, 58-66; civic character and, 119-120, 124; of two level streets in Manhattan, illustration, 277-279, 298, 299
 East River: port facilities, 226; promenades for, 228; water-
- front possibilities, illustrations, 326, 328, 332, 333, 335, 350-353, 364-375, 398, 401, 403, 405; parkway proposal, 436; Islands, uses for, 437-441; park areas in Bronx River Valley, 442
 East River Islands: new uses for, outlined by Mr. James, 437-438; playfields on Welfare Island, illustration, 438-440; sewage disposal plant for Wards Island, 440-441
 East Side waterfront: downtown proposals, illustrations, 350-353; midtown and upper, illustrations, 364-375; Regional Plan projects, illustrations, 383, 392-393, 398, 401, 403, 405, 406; Harlem River improvement plans, 452-472. *See also East River*
 Economics: and art, 79-82; significance of, in growth of cities, 80-82; and the endurance of building, 82-83 foundations of city building and, 80-82; relation of, to beauty, 101-102; of planning land for building, 135-151; science of, defined, 137; municipal finance, Mr. Berry on, 145-147; basis of, in zoning, 157-160; of factors governing distribution of building bulk, 160-162; of land values, 165-166, 183; of skyscrapers, zoning for, illustrations, 183-184, 186-189; of haphazard development, 196-199; of public purchase and development of land, 214-219; of street widening, 284-285; costs due to planning, 578-579
 Edinburgh: medieval and modern, maps, 48, 49, 55; beauty and romance of, 103, 120
 Education of public opinion toward opportunities and ideals of future New York, 94, 325-326, 586-587
 Elements involved in planning, chart, 135-137
 Elevated railroads, injurious effects of, 338
 Elevated streets: to prevent congestion, illustrations, 276-279, 284, 298-299; West Side highway cost, 285; early engineering studies for erecting, illustrations, 299, 300, 301-303; in Canal Street, 302, 407-409; proposals by Mr. Turner, 304-305; committees of architects' proposals, illustrations, 306, 307-311, 312, 313, 314, 315, 316; proposed highways in downtown Manhattan, illustrations, 351; along West Side waterfront, illustrations, 356, 357, 359, 361; Plan proposals, 411-415, 416
 Ellicott, Major Andrew, 27, 28
 Elliman, Lawrence, 364
 Empire State Building, illustrations, 164, 165, 186
 Endurance of building, significance of, 82-83
 Engineering studies, early, and proposals by the Regional Plan, 299-303
 England: village beauty illustrated, 37, 321; beneficent artisans of, 80; medieval characteristics illustrated, 116, 124; population density in, and Town Planning Act, 204, 205, 206; Ministry of Health policy, 205, 206; London motor buses, 264; arcaded streets illustrated, 274, 288; historic preservation society, 567; satellite communities, 568
 Environs. *See Planning in the environs*
 Ervine, St. John, 94
 Essay on Liberty, by John Stuart Mill, 109 *note*
 Evolution of American cities, Mr. Geddes on, 67
 "Excess Condemnation in City Planning," 287 *note*
 Ferries: transit facilities and, 257-258; economy of service, 258; provision of approaches to, 316; Staten Island terminal proposed, illustration, 517-518
 Fifth Avenue Association, reports, 430
 Financing local improvements, report by Mr. Berry on, 145-146
 Finley, Dr. John H., 129, 406
 First Avenue improvement plans, 393
 Flagg, Ernest, 188, 315
 Food terminals and markets: advocated by New York State Conference of Mayors, 241-242; proposals for, 251-252, 391, 529; for upper East Side, 471, 472

INDEX

- Ford, George B., 162, 535, 550, 554, 569
 Foresight and stability: philosophy of, 325, 579-580; developed by education, 587
 Forest Hills, Long Island, illustrations, 197, 206, 207
 Forts and ramparts of Paris, 64
 Fort Tryon Park, developments outlined, illustrations, 442, 443, 444-445
 Foundation of civic art: three classes of artisans, 80-81; economics of, 102
 Freight distribution: methods and proposals, 237-252; costs generalized, 238-239; consolidation of facilities, 240-242; inland union terminals, illustration, 242, 243-246; street and tunnel use for, 245-248; store door delivery, 248-250; yard and terminal services, 249, 250; coordination of facilities needed, 251, 388
 Future of New York City and Region: assumptions on, 42-44; Paris an object lesson, 66-67; dominance of skyscrapers, illustrations, 108-118; tower city illustrated, 111, 152; proposed art center illustrated, 112, 113, 115; human and mechanical power as primary needs in developing, 138-141; engineering studies for, by the Regional Plan, illustrations, 299-303; a three level development as pictured by a committee of architects, illustrations, 306-311; scope and character of opportunities for, 325-343; projects involved, 342; influence of the Plan and value of collective action on, 575-588
 Garages: bus terminal facilities, 258, 262; ramp types, 262
 Gasoline filling stations, coverage restrictions, illustration, 177
 Geddes, Patrick, 61, 62 *note*, 67, 125
 George Washington Bridge: illustrated, 6; approaches and vicinity of, 451, 452, 461
 Germany: order in city building in Berlin, 25-26; Cologne zoning plan illustrated, 154; Hamburg land coverage illustrated, 169; density limitation in, 204; Stettin waterfront, illustration, 221, 228, 229; Rhine view, 559
 Gilbert, Cass, 305, 328, 346, 348
 Godfrey, Dr. Hollis, 577 *note*
 Godley, Commissioner, 500
 Goodrich, Ernest P., 143, 275, 569
 "Grade Separations at Arterial Highway Intersections," 295 *note*
 Grade separation: street expansion and, illustrations, 283-285; Mr. Malcher's plan, illustration, 287, 288; in suburban areas, illustration, 294-298; "clover-leaf" intersection, 297; two level streets in central areas, 298-299; proposals, 306-311; plans in Queens, 514
 Grand Boulevard and Concourse, grade separation, 295
 Grant's Tomb illustrated, and proposed design, 449, 450
 Great Kills recreation and park plan, Staten Island project, illustrations, 519-525
 Greece, concept of art in, 80
 Guérard, M. Albert, 60, 61 *notes*
 Gugler, Eric, 5, 328 *note*, 333, 378
 Hackensack Meadows: improvement plan, illustrations, 526, 540-546; land uses, distribution of, 540-542, 544; channel project, 542-543; Reclamation Commission report, 545-547
 Haldane, J. B. S., 139
 Hall of Fame, view from, 454
 Hamilton, Alexander, 569
 Hanmer, Lee F., 437
 HARBOR COMMISSION REPORT, 39 *note*
 Harbors: plans of New York City, illustrations, 38, 39, 56; 1856 report, 39; skylines illustrated, 99, 105; at Rio de Janeiro, 123; character of, along Hudson River, 126, 223-226; building density of lower Manhattan, illustration, 147-148; proposed terminal illustrated, 220; pier-head lines, 223-226; lighthouses illustrated, 236; Jamaica Bay channel dredging, 495-496; Great Kills, 519-525. *See also* Terminal facilities; Waterfront opportunities
 Harlem River: sewage plant, 441; park and parkway opportunities, 444; valley developments proposed, illustrations, 452-470; waterfront disorder, 455; bridges and traffic, illustrations, 456-461; land development along, 462-469; parkway, illustration, 462-463, 464
 Harlem River Valley: unsightly conditions in, 335, 336; proposals for development of, illustrations, 452-470; bridges and approaches, 452-454, 456-461; natural advantages of, 455-456; as an industrial center, 462, 464; parkway plans, 462-463, 464; Mott Haven Terminal and surroundings, 464, 465, 468; speedways and traffic plans, 465-467; re-planning possibilities, illustrations, 469-472
 Harmon National Real Estate Corporation, 197
 Harmon, W. Burke, 197 *note*
 Hastings, Thomas, 101, 115, 305, 349, 445
 Haussmann, Baron Georges, 60, 61, 62, 63
 Health, zoning to promote, 155, 157, 158, 159, 167
 Height restrictions: in Hamburg illustrated, 169; zoning principles and standards, 156-193. *See also* Skyscrapers
 Hell Gate Bridge illustrated, 441
 Helme, J. B., 60 *note*
 Hendrick, Miss Loretta, 5
 Hersey, Preston, 582
 Highway connections with airports illustrated, 266
 Highway problems in Queens: civic center plan, illustrations, 497-509; along Queens Boulevard, 509-511; Nassau Boulevard, 511-512; Metropolitan Loop, 512, 513; grade separation plans, 514; Long Island tunnel approaches, 514-517
 Historic areas, agencies for preservation of, 566-567
 Hoboken: waterfront opportunities, 530; Stevens Institute site illustrated, 530
 Holden, McLaughlin and Associates, 401
 Holland: drainage plan, illustration, 51; reclamation project in the Zuider Zee, 237
 Holland Tunnel: freight traffic, illustration, 247, 248; express highway connections illustrated, 266; plaza and approaches, problem of, 408-409
 Hood, Raymond, 115, 188, 189
 Hospitals: medical center illustrated, 101, 332, 333; on East River Islands, 437-438; recommendations by Public Health Committee, 437, 438
 Houses: and housing neighborhoods, 195-219; elements involved in proposals for improving, 195-196; suburban, problem of, 196-199; in central areas, 199-201; housing policy, underlying assumptions for, 201-204; regulation of densities, 205-208; relation of open space to area per family, 208-214; public purchase and development of land, 214-219
 Housing policy: basic assumptions for a constructive, 201-203; proposals, 203-204
 Hubbard, Mrs. Theodora Kimball, 432
 Hudson River docking facilities: War Department decision on pier lengths, 224; Port development program, 224-226; frontage illustrated, 225; freight distribution methods, illustrations, 237-252. *See also* West Side waterfront
 Human and mechanical power: prerequisites in city building, 138-141; sources of energy, 139; power plants illustrated, 139, 140, 365
 ICONOGRAPHY OF MANHATTAN, 377 *note*
 Ideals and "well-building" of communities, 126, 325, 326
 Imaginative elements, in proposals for city building, 327-334
 Improving housing conditions, elements involved in making proposals for, 195

INDEX

- Improving street capacities, proposals for, 284-321. *See also* Street expansion
- Incinerators, buildings for, and symbols of, 583
- India, ancient example of setbacks in, 156
- Indianapolis, housing density in, 207
- Individuality: of power of New York illustrated, 24, 111, 112, 113, 115, 118; of communities, 119-129; Rio de Janeiro illustrated, 123; of medieval cities, 119, 124; the spirit of New York, 126-131; of West Point, illustrated, 128
- Influence and value of the Plan: the beginning and the end, 575-587; achievements, testimony concerning, 576-577; quality of art and the meaning of liberty, 578; costs due to planning, 578-579; foresight and stability, 579-580; comments on skyscrapers, 580-582; incinerators, types of buildings, 582-583; medieval pushcarts, 583; aerial travel and landing places, 583-584; population distribution, 584-585, 586; future of the Region if wisdom prevails, 586-587; collective action the great need, 587
- Inland union terminals: Port Authority's plans for, 243, 244; rail connection with, diagram, 244-246. *See also* Terminal facilities
- Institute of Politics, 43 *note*
- Intermediate areas: zoning standards, 171-173, 176; coverage and yard requirements, 173, 176; building plan illustrated, 174; height and cubage restrictions, 176-177; land values in, Mr. McMichael on, 196-197
- Irvine, Sir James, 43
- Islip civic center, illustrations, 552, 553
- Jacks, Dr. L. P., 79
- Jackson Heights, Long Island, illustrations, 209, 211
- Jadwin, General Edgar, 546
- Jamaica Bay channel, government cooperation in dredging, 495-496
- Jamaica Bay section: development plans, illustrations, 493-497; port proposals, 494, 495; Cross Bay Boulevard, 495; harbor dredging, 495-496; zoning needs, 496; sewage contamination, 497
- James, Henry, 5, 437, 438, 439
- Jefferson, Thomas, 27, 28, 29
- Jersey City-Bayonne waterfront: development possibilities, illustrations, 527-534; City Plan Commission report, 528; Bayonne city plan, 530-534
- Karlsruhe: street plan, illustration, 52, 55; individuality of, 120
- Keppel, Frederick P., 5, 327 *note*
- Kohn, Robert D., 5
- Kümmel, Dr. Henry B., 564
- La Farge, Grant, 377
- Lambert, Jacques, 444
- Lanchester, H. V., 87, 88 *note*
- Landscape Architecture, 31 *note*
- Land uses. *See* Planning land for building
- Land values: and the economics of zoning, 165-166; suburban, Mr. McMichael on, 196-199; through public purchase, legality of, 214-219; uncollected taxes and assessments in New York City, 218; increase of, in Hackensack River project, 543, 545. *See also* Planning land for building
- L'Avenir de Paris, by M. Albert Guérard, 60 *note*
- Lawrence Farms, new Westchester development, illustration, 571, 572, 573
- Leadership: in city planning, 26, 66, 67; New York a symbol of, 575-576
- Legal processes: governing planning, 135-137; determining qualities of land, 137; model zoning enabling act, 208-209; Mr. Bassett on area-per-family regulations, 213-214; in public purchase and development of land, 214-217
- Lehigh Portland Cement Company: airport design, illustrations, 267, 268
- L'Enfant, Major, 27, 28, 50, 569
- Lethaby, W. R., 95
- Lewis, Harold M., 5, 424, 528, 530, 532, 564 *note*
- Lewis, Nelson P., 5, 299, 301, 302, 351, 357, 393, 394, 564
- Lexington Avenue extension to Irving Place, 409
- Liberty, city planning not an interference with, 578
- Lighthouses at harbor entrance illustrated, 236
- Lincoln, Abraham, 96
- Lippmann, Walter, 578
- Litchfield, Electus D., 485
- Long Island: approaches to 38th Street Tunnel, illustrations, 514-517; Islip civic center, 552, 553; population growth, 585. *See also* Queens
- Los Angeles city hall illustrated, 191
- Louisiana capitol building illustrated, 179
- Lowell, Dr. A. Lawrence, 37
- Lower East Side: re-planning proposals, illustrations, 398-406; population changes illustrated, 401; highway and street improvements, 402, 403; park plans, 402, 403, 404; assessed values of land, 404; a residence district, 406; unfinished improvements, 406. *See also* East Side waterfront
- Lower New York Bay: waterfront development, 233, 235-237; Pilot Commissioners' proposals for, illustration, 233, 234, 237; causeway proposed by Colonel Wilgus, illustrations, 233, 234, 235-237
- Macy system of merchandise delivery, 259
- Magonigle, H. Van Buren, 120, 121
- Malcher, Fritz, 288
- Malden Commissioners, 33
- Manhattan: early planning in, illustrations, 38-41, 298; open area of lower, illustration, 147, 148; zoning standards, 185-189; passenger terminals, illustrations, 252-257, 276; arcaded buildings, 291-293; engineering studies for re-planning streets, 299-321; downtown, problems and proposals, 345-355; West Side waterfront, 356-364; midtown and upper East Side waterfront, 364-376; Battery Park, 377-381; opportunities in upper, including The Bronx, illustrations, 418-474; Central Park, proposals and history, 419-436; new parks and parkways, 436-440, 442-445; East River Islands, new uses for, 437-441; upper West Side waterfront possibilities, 446-452; Harlem River Valley proposals, 452-470; upper East Side improvement plans, 470-473. *See also* Waterfront opportunities
- Manhattan Bridge approach, 407
- Manhattan plan of 1811, illustrated, 38, 50
- Manhattan problems in re-planning: light and air deficiency, 345-346; place of skyscrapers, Mr. Gilbert quoted on, 346-347; architectural studies of City Hall square, illustrations, 347, 348, 354, 355; West Side waterfront plans, illustrations, 349-350, 356-361; East Side waterfront, illustrations, 350-353, 362, 363, 364-375; general plan of proposals, 383, 418; Harlem River Valley, 452-470
- Manship, Paul, 5, 380
- Maps, official, for street planning, 144
- Markets: development of regional, 241-242, 251-252; new union market in Chicago, 252; proposals, 471
- Marshall, Newell, 581
- Massachusetts: Newton playgrounds illustrated, 194; Trustees of Public Reservations, 567
- McAneny, George, 4, 67
- McClave, S. Wood, 546
- McClintock, Dr. Miller, 290

INDEX

- McElwee, Roy S., 228
 McKim, Mead and White, 448
 McMichael, Stanley, 197
 Meadows Reclamation Commission report, 546-547
 Mechanical power: increase and importance of, in industry and planning, 139-141; modern plants illustrated, 139, 140, 365
 Medieval planning: civic art in relation to, illustrations, 47-52, 53, 54, 55, 87; in Edinburgh, maps, 48, 49; street systems, 52; skylines illustrated, 104, 110; traditional cities illustrated, 119, 124; example of setbacks in India illustrated, 156
 Metropolitan Highway Loop in Queens, 512, 513
 Metropolitan Sewage Commission, 440-441
 Midtown Manhattan: re-planning problems, illustrations, 345, 349, 350, 353-375; waterfront conditions and proposals to improve, 364-375; Regional Plan projects, 393-396, 400
 Mill, John Stuart, 109
 Minority of Committee on Lands and Places, early Central Park record, 420 *note*
 Moore, Charles, 325
 More, Sir Thomas, 55
 "Morris Canal and New Jersey's Opportunity, The," by Harold M. Lewis, 564 *note*
 Morris Canal: Investigation Committee report on opportunities, 563; recommendations by Nelson P. Lewis, 564; plan by Dr. Kümmel, 564-565
 Morrow, C. Earl, 5
 Motor vehicle terminals. *See* Bus services
 Mott Haven Terminal, development plans for, illustrations, 464, 465, 468
 National value of the Regional Plan, 575-576, 577
 Negroes, Harlem apartments illustrated, 213
 Neighborhood units, character and types, 342
 Nerve centers as sectional communities, 339-341
 Newark: port plans, illustration, 534, 535; proposed civic center, illustrations, 535-537; new Pennsylvania Railroad station, illustration, 538-539; Morris Canal route near, plans for, 564, 565
 Newark Bay: waterfront development, 232; airports, illustrations, 266, 270
NEWARK BAY WATERFRONT OF THE CITY OF BAYONNE, DEVELOPMENT OF, 530 note
 New developments: planning and recentralization of, 141-145; street maps for, 144; subdivision requirements, 144-145; constructive housing policy for, 201-214. *See also* Communities; Design of new towns
 New England: traditions in town building, illustrations, 31-33, 37; individuality of, 93; Newton, Massachusetts, playground illustrated, 194
 New Jersey: waterfront development, illustrations, 224-226, 229-230, 232, 233, 234, 324; railroad yards and carfloat stations, 240-242; proposed rail connections to Manhattan, 242, 244, 254; bus and sub-station services, 256; ferry connections, 258; airports, illustrations, 266, 270; waterfronts in Hudson County, illustrations, 526-529; Hoboken building site, Stevens Institute skyline illustrated, 527, 530; Bayonne city plan, illustrations, 528, 530-534; Newark proposals, illustrations, 534-539; new Pennsylvania Railroad station, 538-539; Hackensack Meadows plan, illustrations, 540-546; Paterson civic center, illustrations, 548, 550-553, 569; Ridgewood center illustrated, 555; Morris Canal property, recommendations for, 563-566; opportunities for industrial cities in, 569; population increases, 585
 New streets: and widenings, illustrations, 285-294; diagonals, value of, 286-288; enlarging intersections, 288-289; arcades for, illustrations, 289-293; pedestrian walks, 293-294; proposals, 306, 308-311
 "New York Blazes a National Trail," by Thomas Adams, 575 *note*
 New York buildings: illustrated, 69, 70, 71, 74, 75, 76, 77; churches, 73; tenements illustrated, 84, 85, 87; medical center, 101, 332, 333; skyscrapers, 105, 106, 107, 111, 118, 153; proposed art center, 112, 113, 115, 345; future towers illustrated, 152; Hotel Pierre, 158; Empire State, evolution of, 164, 165, 186; Union League Club, 181; comparative heights illustrated, 182; proposed apartment groups illustrated, 184; Telephone exchange, 291; arcades illustrated, 291, 292, 320; at Times Square, 414; at Central Park south, 427; Roosevelt Memorial, 432; Grant's Tomb, 450; Hall of Fame, 454; Army supply base, 491; Waldorf-Astoria Hotel, 581
 New York Regional Plan "the envy of the world," 577
 New York State Conference of Mayors, 241-242
 "New York, The Metropolis of Today," by Charles A. Beard, 124 *note*
 Nineteenth century, revolutionary character of, 56-57
 Nolen, John, 569
 Norton, Charles D., 4, 327, 328, 335
 Objectives of the Regional Plan, 138, 327-332, 586-587
 O'Brien, Edward F., 482
 Obsolescence: and supply of buildings, 162-164; of Welfare Island buildings, 438; of houses on Brooklyn Heights, 482
 Olmsted Brothers, plan of Fort Tryon Park, 444, 445
 Olmsted, Frederick Law, 41, 569
 Olmsted, Frederick Law, Jr., 422, 423, 430
 Olmsted Papers, report from, 421
 "On Foresight," by Alfred North Whitehead, 325, 579
 Open areas. *See* Building areas and open land; Open suburban areas
 Open suburban areas: zoning standards, 166-171; coverage and yard requirements, 168; height and cubage restrictions, 170; building plan illustrated, 174; proposals for improving, and problem of, 195-199; grade separation, 294-298; preservation of historic, 566-567; planning new, 568-573
 Order in city building, 25-26, 66, 325-327, 338
 Orton, Lawrence M., 5
 Ossining civic center plans, illustrations, 553, 555
OUR CITIES TODAY AND TOMORROW, by Hubbard and Hubbard, 329 note
 Over-supply of office space, 163
 Page, Thomas Nelson, 27, 28
 Palisades, preservation of, illustrations, 338-339, 340, 556-563
 Paris: example of, 58-66; beauty of, illustrated, 58, 59, 63; map, 59; Department of the Seine, 59; re-planning of, 60-63; plans of Haussmann, 60-63; defects in environs, 63-65; ramparts and forts, 64; an object lesson to New York, 67; marginal quay, 228; street widening and arcades, illustrations, 286, 289, 291; waterfront development, 335
 Parking facilities: attitude toward, 259-260; recommendations by Committee on City Planning and Zoning, 260; restrictions and regulations, 260-262; Citizens Street Traffic Committee recommendations, 261-262; terminal garages, 262-264; solution of problem required, 262-263
 Parks and parkways: allocation of land for, 136, 148, 149, 150, 155; waterfront, illustrated, 221, 227, 350; Queens Boulevard, 280, 509-511; Grand Boulevard and Concourse, 295; Battery Park, 344, 377-381; City Hall proposals, 382, 384; Chrystie-Forsyth parkway plan, 393,

INDEX

- 396-398, 399, 400, 408; for lower East Side, 402; Central Park history and preservation, 419-436; East River parkway, 436; East River Islands plan, 437-440; Bronx River Valley, 442; Fort Tryon, 442, 443, 444, 445; for upper West Side, 442-444, 446, 447-452; Inwood Hill, 452, 454; Harlem River parkway, 462-463, 464; along upper East Side, 470-472; proposals summarized, 472-473; Columbia Heights development, 483, 485-486; South Brooklyn circuit, 490, 493; Creedmoor parkway in Queens, 512, 513; Great Kills on Staten Island, 519-525; Playland in Westchester, 519, 521; Bayonne plan, 528, 532, 533; for Hackensack Meadows, 544, 545, 547; Palisades, 558, 560, 561, 562
- Passenger terminal facilities: of trunk line railroads, illustrations, 252-258; proposed new, 254-255; sub-stations and bus services, 256-257; ferries and transit services, 257-258; Regional Plan proposals, 389-391. *See also* Terminal facilities
- Paterson civic center, proposed plans, illustrations, 550-553
- Pedestrian walks: providing space for, 293-294; in commercial streets, illustration, 293, 294; arcaded sidewalks, proposals for, 306, 307-311, 312, 313, 411-415. *See also* Grade separation
- Peking plan, map, 52
- Pennell, Joseph, 112
- Pennsylvania Railroad station, proposed terminal for New York, illustration, 535, 538-539
- Permanence in city building, how achieved, 66-68
- Perry, Clarence A., 342
- Perry, Miss Frances, 5
- Philadelphia, early plans, 50
- Piers: Hudson River docking facilities, 223-226; need for longer, 223-225; new lines, 224; in Hoboken, 225; along upper New York Bay, illustration, 229, 230; Staten Island, 230; along Brooklyn waterfront, 231; Newark Bay, 232; opportunities for development of, 327-328, 335, 337, 339; West Side waterfront plans, illustrations, 348, 349, 356-361; East Side plans, illustrations, 350-353, 362-375. *See also* Waterfront opportunities
- Pike, Miss Abby R., 5
- Planning in the environs: specific opportunities, illustrations, 549-567; Paterson civic center, 550-553; Islip, Long Island, 553; Ossining, 553, 555; aeration basin at Kensico, 554, 556; preservation of Palisades, 556-563; Morris Canal property, 563-566; open areas and historic places, 566-567; of new communities, 568-573; principles of, enumerated, 570-571
- Planning land for building: basic realities in, summarized, 135-141; new areas, and recentralization, 141-145; municipal finance, report by Mr. Berry, 146-147; relation to open areas, diagram, 147-151; future tower city illustrated, 152; public purchase and, 214-217; on Hackensack Meadows, illustrations, 526, 540-547
- Playgrounds: illustrated, 94, 194, 200; East River Islands for, illustration, 437-440; proposed along Harlem River, illustration, 462-463; Great Kills pleasure resort, 519-525; Playland in Westchester County, illustration, 519, 521; at Lake Ronkonkoma, 567. *See also* Recreation piers
- Pocantico Village, Westchester, illustrated, 573
- Pope, John Russell, 449
- Population: of Manhattan in 1746, 56; of Department of the Seine, 59; foreign-born in New York, 124; recentralization for, 142; density limitation of, in Europe, 204, 205, 206; density in United States, 206-208; area-per-family requirements, 208-214; changes in lower East Side, illustrated, 401; Brooklyn, 475; estimated for Hackensack Meadows region, 540; distribution changes, 585-586
- Port of New York Authority: pier development by, 224-225; freight distribution system, report, 240-241; Manhattan terminals, illustrations, 242, 243-246; tunnel study by, 247; cooperation needed, 251, 252; opinions on waterfront development, 388, 410. *See also* War Department
- Powell, Charles U., 295 note
- Power plants illustrated, 139, 140, 365
- Prendergast, William A., 476
- Price, Chester B., 384
- Private land, standards for open spaces on, illustrations, 148-151, 152
- Problems of New York City: Dr. Butler on, 36; early sanitary conditions, 55-57; community spirit and, 122-126; ratio between public and private areas in, illustration, 147-148; intermediate areas, 196-199; central areas, 199-201
- Public purchase of land: development methods and legality of, 214-217; difficulties in New York region, 218-219
- Purdy, Lawson, 216
- Pushcarts, medieval character of, 583
- Quays: waterfront development and, illustrations, 221, 226, 227, 228, 364, 365; Port of Antwerp, 226-228; Port of Toledo, 228; at Algiers illustrated, 337, 338; proposals for upper East Side, 471, 472, 473. *See also* Piers; Waterfront opportunities
- Queensboro Bridge: approach improvement plans, 353, 407, 497, 498; view from, 371; traffic capacity, proposals, 500-502
- Queens: civic center and transportation plans, 497-517; Sunnyside Terminal and business center, illustrations, 498-505; highway and street widenings, 506-508; air terminal, 508-509; intersections and improvement plans, 509-511; Nassau Boulevard grade separations, 511-513; Metropolitan Highway Loop, 512, 513; tunnel approaches, illustrations, 514-517
- Queens Boulevard, future development illustrated, 280, 509-511
- Quiller-Couch, Arthur, 578
- Radburn, N. J.: model homes and apartments illustrated, 78, 93; town plan illustrated, 134; a satellite community, 568
- "Radio City" plans, 392, 415
- Railroads: opinions, and problems of, 221-223; freight distribution methods, illustrations, 237-251; passenger terminal facilities, illustrations, 252-257; services that replace, 269; West Side improvement plans, illustrations, 348, 349-350, 356-361, 388-390; Hell Gate Bridge illustrated, 441; bridge proposals for, 460-461; Mott Haven Terminal plan, illustrations, 464, 465, 467; Brooklyn marginal plan, 488; for Jamaica Bay section, 494-495; Long Island proposals, 498-501; Sunnyside Terminal, illustrations, 498, 499, 503; airport service, 506; Staten Island Terminal, illustrations, 518, 519; new Pennsylvania Railroad station, illustrations, 535, 537, 538-539
- Ray, James C., 584 note
- Rea, Samuel, 223
- Realities in planning: legal elements, chart, 135-137; social and economic conditions and tendencies, 137-138
- Reality and beauty in civic art. *See* Beauty and reality in civic art
- Recentralization: available land for, 142; new transit facilities, Mr. Turner on, 142-143; terminal centers, 143-144; development of nerve centers, 339-341. *See also* Decentralization
- Recreation piers: proposals and sketches, 351, 352; at Battery Park, illustrations, 378-380, 382; West Side proposals, illustration, 390, 416
- Regional Plan Association, Inc., 4, officers and directors, 600

INDEX

- Regional Planning Association, Chicago, 31
 Remaking cities: art and beauty in, 25; part of leadership in, 26; recent developments in Washington, 30-31; Burnham Plan of Chicago, 31; in New York region, 33-35; problems of New York City, 36-38, 42, 199-201. *See also* Re-planning
 "Renaissance, The," by H. Van Buren Magonigle, 120 *note*
 Re-planning: of Washington, 30-31; Chicago, and the Burnham Plan, 31; for street expansion, 275-321; proposals by committee of architects, 306-311, 327-328; problems of downtown and midtown Manhattan, 345-375; possibilities, illustrated, for Harlem River Valley, 469; achievements of the Plan, 576-577
 Richmond Borough. *See* Staten Island
 Rio de Janeiro, illustration, 123
 ROAD, THE, by Hilaire Belloc, 81 *note*
 Robinson, Dr. Frederick B., 36 *note*
 Rochester bridge illustrated, 331
 Rockefeller, John D., Jr., 444, 445
 Rome: street plan illustrated, 54; love of city, 86, 87; decline of, 88
 Roosevelt Memorial building illustrated, 427
- Sanitation: early conditions in New York, 55-56; effect of improvements in, 56, 57; zoning standards and, 167, 497; sewage disposal plant on Wards Island, 440-441; of Jamaica Bay section, 497; waste disposal for New York City, 545, 583; incinerators, 583
 Second Avenue: Regional Plan proposals, illustrations, 393-396; speedway and street development plan, 394-396
 Setbacks: zoning standards for, illustrations, 156, 157, 158, 161, 164, 165, 179, 186, 191; typical building plans for business centers, 172, 174, 175; architects' proposals, illustrations, 187, 188, 189; economic justification for, 192. *See also* Skyscrapers
 Sewage disposal: plant proposed for Wards Island, 440-441; Jamaica Bay conditions, 497
 Sherred, Morris R., 546
 Sidewalks: elevated and arcaded, illustrations, 306-314, 411-415; difficulties and costs of projects for, 311-313. *See also* Elevated streets; Pedestrian walks
 Simkhovitch, V. G., 36
 Simon, Robert E., 318
 Singstad, Ole, 409
 Sixth Avenue extension, illustration, 285, 286, 287, 350
 Skylines: beauty of, illustrated, 99, 104, 105, 106, 107, 110, 111, 118, 427; of Acropolis at Athens, 119; Manhattan towers, 153; lower Manhattan, 345, 351; Brooklyn, 475; Stevens Institute in Hoboken, 527
 Skyscrapers: beauty and reality of, in civic art, illustrations, 98, 99, 101, 105, 106, 107, 108-118; dominance of, 108-109; restraint of, by zoning, 109, 116, 177-189; medieval, illustrated, 110; future tower city illustrated, 111, 152; magnificence and limitations of, 112-117; proposed art center illustrated, 112, 113, 115; Buffalo city hall model illustrated, 127; zoning limitations and setbacks for, illustrations, 156, 157, 158, 164, 165; Hotel Pierre, 158; obsolescence of, 162-164; Empire State Building illustrated, 164, 165, 186; plans of typical, 174, 175; Louisiana state capitol illustrated, 179; comparative heights illustrated, 182; effect on locomotion, Colonel Starrett quoted, 182; land costs and, 183; apartment groups illustrated, 184; practicability of standards for, illustrations, 186-190; Los Angeles city hall illustrated, 191; street widening and, 277; architectural aspiration and, 331-332, 345, 346; relation to open space, impressions on, 580-583. *See also* Setbacks
 Smith, Alfred E., 404, 576
- Social and economic realities: Dr. Young on, 137; objectives, 138; factors of, in zoning, 157-162; value of foresight, 325, 579-580
 Social-economic objectives in planning, 137-138, 158-160, 327-329
 Social value of beauty in cities, illustrations, 103-104, 120, 121, 123, 128, 325-326. *See also* Beauty
 Societies for preservation of historic places, 566-567
 Society of Useful Manufactures, 569
 "Some American Impressions," 112 *note*
 Spirit of New York: community ideals defined, 126-129; Dr. Finley on, 129-131; international influence of, 575-576
 Spiritual development: and community traditions, 119-122, 126; in New York region, 122-125; opportunities for, in city building, 325
 Starrett, Col. William A., 182
 Staten Island: pier development, 230-231, 517; waterfront and civic center, illustrations, 517-518, 520; Great Kills pleasure resort and park plans, illustrations, 519-525; union passenger terminal illustrated, 519; population growth, 585
 Stein, Clarence, 5
 Store door delivery: railroad system of, 248-250; Macy plan, 259
 Straus, Percy S., 259
 Street and Highway Safety, First National Conference on, 260
 Street expansion: fitting streets to buildings, 275-321; inadequacy of streets, 276-277, 279; single and two level streets, illustrations, 278, 279-281, 298-299; through and local traffic provision, 282-283; proposals, illustrations, 284-321; diagonals, 285, 286-288; at intersections, 288, 312; arcades, illustrations, 289-293, 306, 307, 308-311; for pedestrian traffic, illustration, 293-294, 306-310; suburban grade separations, illustrations, 294-298; Regional Plan studies, illustrations, 299-303; proposals by Mr. Turner, illustrations, 304; studies by committee of architects, sketch plans, 305, 306-311; application of proposals for, illustrations, 311-313; Mr. Flagg's plan for, illustrations, 314, 315, 316; at approaches to tunnels, bridges and ferries, 316; responsibility for cost, 317-319; conclusions on, 320-321
 Street planning: of Washington, map, 29; civic art in relation to, 47-78; medieval, maps, 47-49, 52, 53, 54, 55; early systems of, illustrations, 50-53; Edinburgh, 48, 49; and sanitation in nineteenth century, 54-57; in Paris, map and illustrations, 59-66; the Haussmann Boulevard, 60, 62; in Vienna, map, 71, 72; official maps, 144; in residential neighborhoods, illustrations, 197, 198, 200, 207; and area-per-family regulations, 213; and public purchase of land, 214-219. *See also* Street expansion
 Sub-central areas: building plan recommended for, 175; zoning standards, 177, 178, 180; housing problem, 196-199
 Sub-stations: and bus services for passenger traffic, illustration, 256-257; railroads operating, 256, 257
 SUBURBAN TRANSIT PROBLEM, 304 *note*
 Sunnyside Terminal: and business center in Queens, illustrations, 498-505; railroad routes, 498; transit, and study by Suburban Transit Engineering Board, 500-502; vehicular traffic, 502
 Susquehanna River bridge illustrated, 575
 Swales, Francis S., 348, 354, 356, 361, 364, 371, 382, 389, 392, 393, 448, 461, 463
 Tenement House Law, 210
 Tengborn, Prof. Ivar, 582
 Terminal facilities: general problem of, 221-223; Hudson River piers, illustration, 223-226; Port of Antwerp, 226; East River, 226; in upper New York Bay, map, 229-230;

INDEX

- Staten Island piers, 230-231; along Brooklyn waterfront, 231; on Newark Bay, 232; Lower New York Bay, causeway proposed by Colonel Wilgus, map, 233-237; breakwater proposed by Pilot Commissioners, map, 233, 234, 237; freight distribution methods, illustrations, 237-252; passenger, illustrations, 252-258; for motor vehicles, 258-265; airport, illustrations, 265-273; Regional Plan proposals for, 389-391; Mott Haven and surroundings, 464, 465, 468; for Sunnyside district, 498-503; of new Pennsylvania Railroad station, illustrated, 536, 538-539
 Theatres, concentration of, causes congestion, illustration, 317, 318
 Third Avenue: recommendation to scrap elevated railroad, 393; improvement plans, 471, 472
 Thirty-eighth Street Tunnel: express highway connections illustrated, 266, 410; Long Island approaches, illustrations, 506, 514-517; Board of Transportation plan, 514-517; tolls for, 515
 Thomas, Augustus E., 317
 Titherington, R. N., 421
 Tower city of future New York illustrated, 111, 152
 "Town and City Planning," by Thomas Adams, 48 *note*
 Town Planning Act in England, 205-206
 Traditions: and civic character, illustrations, 119-121; spirit of New York, 126-131, 575-576
 Traffic problem of Central Park: early report on, by Board of Commissioners, 421; report by Mr. Olmsted, Jr., 423-427; street widenings to aid, 433-434
 Transportation of freight. *See* Freight distribution
 Tri-borough Bridge, illustration, 434-435, 440, 470
 Tudor City illustrated, 89, 366, 367
 Tunnels: proposed for Lower Bay, illustration, 233, 234; for freight distribution, 246-248; for general traffic, 247; Holland, illustrated, 247, 248; provision of approaches to, 266, 316, 408-409, 410; 38th Street project, 410, 506, 514-517; list of proposals, 416-417
 Turner, Daniel L., 143, 304
 Tuttle, Arthur S., 290, 291, 411
 Uniformity between zoning and housing regulations, kinds of, 154
 Upper Manhattan: and The Bronx, illustrations, 418, 419-474; Central Park problems and proposals, 419-436; park and parkway proposals, 436-445; West Side waterfront opportunities, 446-452; Harlem River Valley development plans, 452-470; East Side proposals, 470-473
 Upper New York Bay port development, map, 229-230
 Utopia, by Sir Thomas More, 55 *note*
 Utopian ideals in city building, 105, 325
 Utopias and earthquakes, an impression, 577
 Vaux, Calvert, 421, 422 *note*
 Vienna a capital city, map, 71, 72
 Wacker Drive, Chicago, 282
 Waid, D. Everett, 305, 306, 350
 Waldorf-Astoria Hotel, 581
 Walker, Ralph, 183
 War Department: approves pierhead changes, 224; report on piers, 451; bridge clearance orders, 454 *note*, 458; Harlem River plan, 467; army supply base illustrated, 491
 Wards Island, sewage disposal site on, 440-441
 WASHINGTON AND ITS ROMANCE, by Thomas Nelson Page, 27 *note*
 Washington, George, 27
 Washington: planning and building of, maps, 26-31; early zoning in, 28; street system illustrated, 29; recent developments in, 30-31; Lincoln Memorial illustrated, 30; street plan, 50, 68
 Waterfront opportunities: proposals to reconstruct, illustrations, 301, 324, 326, 327, 332, 333, 335; East River views 326, 328; extent of shore line, 335; views of Algiers, 337, 338; along Palisades, illustration, 338-339, 340, 556-563; view of Geneva, 343; Regional Plan project for Battery Park, illustrations, 377-381; for West Side Manhattan, 388-392, 442-452; East Side Manhattan, illustrations, 398, 401, 403, 405, 470-473; summaries of, 416-417, 472-473; proposed watergate, 447-449; in Harlem River Valley, 452-470; in lower Brooklyn, 486-487; Jamaica Bay, 493-496; Staten Island, 517-525; in Hudson County, N. J., 526-535; for Newark Bay, illustrations, 531-535; Hackensack Meadows plan, illustrations, 540-546. *See also* Piers
 Watergate: Battery Park plan, 377; Hudson River proposal, illustrations, 446, 447, 448-449
 Waugh, Frank A., 33
 Welfare Island, recreational uses proposed, illustration, 438-440
 "Well-building," conditions of, 325, 326
 Wells, H. G., 222
 Westchester: Hutchinson River Parkway cost, 285; bridge and highway proposals, 452-454; Playland, illustrations, 519, 521; civic centers, illustrations, 553, 555; Lawrence Farms plan, 571, 572; Pocantico Village illustrated, 573; population growth, 585
 West Point illustrated, 128
 West Side elevated highway: cost, 285; unsightliness of, illustrations, 337, 339, 389; plans and proposals, 356-361
 West Side waterfront: proposals, illustrations, 349-350, 356-361; Regional Plan projects, illustrations, 388-391, 446-452; park proposals, 442-445; Fort Tryon Park project, 442, 443, 444-445; Hudson River watergate, illustrations, 446, 447, 448-449; Fort Washington Park section, 449, 451-452; George Washington Bridge, approaches to, illustrated, 451, 452, 461
 Whalen, Grover, 261
 Wheelwright, Robert, 421 *note*
 Whitehead, Alfred North, 325, 579
 Whitten, Robert, 5, 157, 208, 212
 Wilgus, Col. William J., 233, 244, 248, 388, 496 *note*, 521
 Williams-Ellis, Clough, 114 *note*
 Williams, Frank B., 217
 Wisconsin, Kohler Village illustrated, 202
 Work, analogy to civic art, 79-97
 Wren, Sir Christopher, 49, 94
 Wright, Henry W., 5
 Yard and terminal services, by rail and water, 250-251. *See also* Terminals
 Young, Dr. Allyn A., 137
 Zoning: early, in Washington, 28; for skyscrapers, 109, 116; and official maps for new developments, 144-145; scope and methods, illustrations, 153-157; restrictions, character of different, 155-157; social and economic basis of, illustrations, 157-166; basic standards for, 166-193; open suburban areas, 166-171; intermediate areas, 172-173, 176-177; sub-central and central areas, 177-185; proposals to amend, 184, 185; private open spaces, 190; corner lots, 190; general problems of, 191-193; for housing neighborhoods, 195-219; example of lack of, 198-199; for Jamaica Bay section, 496-497
 Zoning restrictions: coverage requirements, 155, 168, 173; height limitation, 156, 170, 176; cubage, 157, 170, 176; drawings of buildings recommended under, 174, 175
 Zoning standards: basis of proposals, 166; for open suburban areas, 166-171; for intermediate areas, illustration, 171-173, 174, 176-177; for sub-central and central areas, plans, 175, 177-185; practicability of, 185-193; recommended by Committee on City Planning and Zoning, 260

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LIST OF VOLUMES

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