

OUTLINE OF TOWN AND CITY PLANNING

A Review of Past Efforts
and Modern Aims

BY

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THE HEART OF A NATION, WASHINGTON, D. C.

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To

DEAN AND MRS. WILLIAM EMERSON
IN APPRECIATION OF THEIR SERVICES
TO THE CAUSE OF UNITY OF THE ARTS
OF ARCHITECTURE AND CITY PLANNING

When we mean to build,
We first survey the plot, then draw the model;
And when we see the figure of the house,
Then must we rate the cost of the erection;
Which if we find outweighs ability,
What do we then but draw anew the model
In fewer offices, or at least desist
To build at all? Much more, in this great work,
(Which is, almost, to pluck a kingdom down,
And set another up) should we survey
The plot of situation and the model

HENRY IV, PART II

FOREWORD

CITY planning is as old as civilization, but among the most important needs of our modern civilization is the proper regulation of both urban and rural development. It is especially true in America, where urban expansion has been exceptionally rapid and has tended in recent generations toward over-concentration, and where rural industries continue to bulk so large in our national life. Often this has led to blighted areas and serious economic waste. To meet these needs we must exercise more foresight in regulating the development of land. What is known as city and country planning is desirable in order to safeguard the health and safety of persons and communities, and to promote economy and the general welfare. Successfully to achieve this purpose, the major part of all city and regional plans must consist of proposals that will help to secure a better balance than hitherto in the distribution of industries and population, both within cities and between cities and country districts. With the aid of well-conceived plans, based on sound economic principles and with a high social purpose, we should be able to prevent much waste of money and unwholesome conditions in the environment of dwellings, such as has occurred too often as a result of want of planning in the past.

It is obvious that the city and country planning that is needed must be based on adequate study of social and economic conditions and trends of civic growth, as well as on a sane conception of what constitutes true economy and healthful conditions of living. It is equally obvious that the physical and economic problems of cities have become so complex and difficult of solution that we need to approach their planning in a scientific spirit and with the aid of the best technical skill. The modern city is very different from cities of the pre-industrial age, but it is nevertheless apparent that there is much we can learn from examining the methods of city planning and development in past times.

OUTLINE OF TOWN AND CITY PLANNING

In this book Mr. Thomas Adams defines the scope and purpose of city planning and of the preliminary surveys which must precede the making of intelligent plans. He has assembled information regarding the application and growth of city planning both as a science and as an art. He gives an outline of city planning efforts in different periods, discusses the influences that have affected urban growth in these periods, and finally describes the evolution of the city and regional planning movement in the United States.

Such contributions to public knowledge of a movement which is of interest to every citizen are certainly welcome at this time, when the necessity for economy makes it so important to plan ahead and to avoid the wasteful consequences of haphazard growth.

City planning, to be successful, depends on a high degree of co-operation between leaders in public affairs, owners of property, the general body of citizens, and those who practice the profession of city planning. To obtain this co-operation it is essential that there should be something equivalent to an agreement as to the meaning, scope and purpose of the movement, an understanding of what it involves in connection with public policies, and finally the best methods of controlling such developments. The author of this book has drawn on an experience of thirty years, both as a practitioner and teacher of city planning in the United States, in Canada, and in England. He is therefore peculiarly qualified to speak with authority on the subject.

FRANKLIN D. ROOSEVELT

Executive Mansion
Albany, New York
December 23, 1932

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AUTHOR'S PREFACE

THERE is need for a book giving a connected outline of city planning in different countries and periods both as an art and as a movement of policy. I have attempted in the following pages to meet this need with conditions and problems in America particularly in mind.

The present volume is based, to a large extent, on a course of lectures on city and town planning delivered to students of the Department of Architecture of the Massachusetts Institute of Technology over a period of eleven years. These lectures considered the subject under two main aspects: one reviewed general and historical backgrounds, and existing conditions and problems; the other dealt with the principles and technique of city planning.

I have confined this outline in the main to the first aspect, endeavoring to show how change in the scope and art of city planning has responded to change in the character and size of cities, and leaving for future presentation the discussion of principles and technique.

In the Introduction to the book I have given a brief description of the meaning and scope of city planning in relation to modern practice. Part I reviews in broad outline the character of early efforts in the planning of cities down to the middle of the nineteenth century; Part II describes developments in the United States and other countries since about 1830, concluding with a discussion of modern methods and aims, and of some considerations relating to the future. The Appendix summarizes in detail the many aspects of the subject which the city planner may have to consider.

Generous aid has been given toward the cost of preparing and publishing the book by the Massachusetts Institute of Technology. I greatly appreciate this aid and also the confidence shown by the Russell Sage Foundation in undertaking the chief responsibility for publication. While, mainly for reasons personal to myself, the date of publication has been delayed by over eighteen months, this

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delay has made it possible to make desirable improvements in the text and illustrations.

I am indebted also to Dean William Emerson, head of the Department of Architecture of the Massachusetts Institute of Technology, for much helpful co-operation, to Frederick J. Adams, assistant professor of city planning in the Department, William L. Hare, and to the editorial staff of the Russell Sage Foundation for valuable aid in preparing and editing the text. Grateful acknowledgment must also be made for the large amount of assistance received from the published works of others.

It is hoped that this general outline will be of value to students of the subject of city planning, whether they be interested in the management of cities and towns or desirous of training themselves in the technique of civic design, and also to legislators, administrators of state and municipal civic departments, members of commissions, and the men or women who would cherish the order and sanity of city life and the beauty of the countryside.

THOMAS ADAMS

INTRODUCTION

CITY and town planning is a science, an art, and a movement of policy concerned with the shaping and guiding of the physical growth and arrangement of towns in harmony with their social and economic needs. We pursue it as a science to obtain knowledge of urban structure and services and the relation of its constituent parts and processes of circulation; as an art to determine the layout of the ground, the arrangement of land uses and ways of communication and the design of the buildings on principles that will secure order, health, and efficiency in development; and as a movement of policy to give effect to our principles.

The foregoing definition makes it obvious that we shall confuse our minds if we think of city planning in one only of its three categories. This confusion has prevailed in the past owing to the failure to distinguish properly between city planning as an *act* and city planning as an *art*. Many writers have suggested that city planning is a substitute for want of planning, or for what is called "unregulated growth." It is clear, however, that merits or defects in towns have not been owing to the presence or absence of planning but to the way in which the planning has been done. The chief defects in modern cities are because of piecemeal planning, mainly by real estate developers in their private interests and without adequate consideration for the community as a whole. The result is a hodge-podge of unrelated plans, based largely on existing highway routes and rural divisions of land, with no greater amount of co-ordination than is secured by uniform building and street regulations.

The mere act of planning in itself may be valueless, may even be harmful. Sinclair Lewis illustrates the point when he makes one of his characters in *Main Street* say of Gopher Prairie that it must have taken genius to make it so scrawny. What matters is not whether we plan but whether we plan intelligently. This means, first, that we must have sound social and economic objectives;

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second, we must strive to achieve these by design based on knowledge and by methods that will lead to results; and, third, we must not overemphasize the value of the administrative processes by which plans are carried out as compared with the technical processes by which plans are made.

OBJECT OF CITY PLANNING

A plan is only a means to an end, and that end is a stable and well-balanced physical structure so designed as to secure health, safety, amenity, order and convenience, and, generally, to promote human welfare.

To achieve health a community must have a satisfactory system of water supply, drainage, and sewage disposal; and it must have spaciousness so that its inhabitants may enjoy light and air in their dwellings and places of work and have open areas for recreation.

Safety requires that buildings shall not only be well constructed, but that their uses be so arranged and distributed and their means of access by streets and walks so ample, well arranged, and free from congestion of traffic that the danger of fire and street accidents can be averted or reduced to the minimum.

The purpose of amenity—which may be defined as agreeableness in surroundings of buildings and in their design—requires that the buildings be skilfully planned and arranged with sufficient space about them, that they be suitable for their purpose and location, and that the beauty of natural features be preserved.

Convenience relates chiefly to movement or locomotion in all its forms—transportation, transit, and traffic—and is a governing factor in enabling a city to function economically and efficiently.

In the less specific field of general welfare, major considerations are to secure the maximum social benefit without endangering the stability of the community from an economic point of view, or infringing too greatly on individual liberty.

It is a commonplace to say that wise planning is that which promotes human well-being and gives the highest degree of social satisfaction. Yet the wide acceptance of this commonplace is too often interpreted to mean that the measure of human well-being and satisfaction should be judged in terms of financial profits to individuals rather than in those of public health and efficiency.

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SCIENTIFIC BASIS OF CITY PLANNING

Before we can make a plan of a city we must know all the aspects of its physical structure. This involves study of its related economic, social, and physical conditions; the trends toward change in these conditions; the mistakes and success in past developments; and the possibilities of securing improvement. It also requires the study of past examples in city planning for guidance in design and policy; and of customs and laws to ascertain to what extent plans can be carried out in practice.

It is of paramount importance in making studies of conditions and trends, to limit them to the essentials that bear on the problems of physical growth; to consider these in their proper order of importance as well as of their relations to one another; and to recognize the existence of features that are unchangeable because of their being part of the foundations rather than of the superstructure of the city.

In the last category we will find that a major influence that has controlled ground plans from the earliest times has been the original layout of land for purposes of agricultural settlement. The custom of surveyors to divide and measure land into square or oblong farming units laid the foundation for the adoption of the system of rectangular streets and building blocks in cities of ancient Rome and modern America; while unsymmetrical divisions of estates, farms, and fields, their boundaries usually governed by natural features or by the pre-existence of old trails that later became highways, led to winding streets and irregular shapes of building areas in the towns of England.

THE ART OF CITY PLANNING

There is need of christening the art of city planning. The name "civic design" should be chosen so as to distinguish it from the act or machinery of making plans. To be an art, city planning must be creative design, directed by intelligence, and applied to the forms and masses of buildings and the spaces about them. It must recognize the essential unity between buildings and landscapes, between forms and uses of buildings, and between architectural and engineering elements in structures. It should express fitness or

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organic utility, taking account of the purposes of structures and spaces and the adaptability of both to their environment; proportion and scale in plan and elevation; and order in composition and arrangement.

In every city plan problems arise that call for the application of fundamental principles of design and the relative importance of aesthetic and economic aspects. Like landscape design, civic design is concerned largely with problems of change and growth. Consequently, the results are not usually discernible until long after a plan has been made. Many external influences may operate to change a city and give it a new direction before a particular proposal can be carried out. We cannot achieve perfection through civic design, but only the approach toward perfection which the application of foresight and technical skill makes possible.

City planning has always been the combination of an instinctive process and a conscious effort. In some instances the effort may have taken the form of a comprehensive design of the whole city, and in others of attempts to co-ordinate separate parts of it. But even those cities that have been comprehensively designed have had important features that are instinctive or accidental in their origin rather than the result of deliberation. This is of the nature of things, because a city is an evolving and dynamic institution. It has characteristics of growth which can be only partly controlled by human design.

In considering formal or informal street patterns; the use of straight lines or curves; whether the aim should be agreeable variety or a purely harmonious effect; and what should be the scale of buildings in relation to streets and other surrounding open spaces, the city planner must be guided by his own judgment rather than by any formulae.

Perhaps the most important general need in civic design is to obtain a unified and well-balanced co-ordination of parts in the related fields of (a) distribution of civic functions, (b) the disposition and character of residential, business, and industrial areas, arrangement of facilities for communication, and (c) the composition and form of structures.

Unity should be achieved not only between artificial elements but between these and the natural elements of a site. In other

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words a plan must be based on a blending of the artificial structure with the informal, natural features inherent in the land on which a city is built.

Orderly development is to be secured as much by maintaining that which is good as by getting rid of that which is bad. Communities frequently destroy natural beauty and then, at a later period, by spending much money attempt to create a less satisfactory aspect of the landscape. A fallacy that prevails among many is that the preservation or creation of beauty or amenity involves unnecessary expenditure or loss of money. The opposite is usually true. Wherever natural beauty is destroyed and opportunity for artistic design is obstructed by unnecessary and costly changes in the levels of the land, or where avoidable untidiness exists about factories and other utilitarian structures, money must be spent to restore what at first had been pleasing, or to render sightly what has become ugly.

PROBLEMS IN CITY PLANNING

Before giving a historical résumé of city planning efforts in different periods, it is well to direct attention to the present conception of its scope.

The major problems are to secure:

1. Convenience and general efficiency of ways of communication, including waterways, railways, highways, and streets.
2. Adequate facilities for development of industries and all economic activities, including the co-ordination of industry with the ways of communication, the reservation of the most suitable sites for factories, and the planning of sites in relation to the places of residence and to permit of healthful conditions for employes.
3. Wholesome housing conditions and pleasant surroundings for dwellings, including the restriction of densities of residential and other buildings and of areas for residence of different character, the development of good sanitary conditions, and the reservation of adequate open space for recreation.
4. Classification and zoning of land in harmony with the best economic use of the land for building or open development.
5. Orderly arrangement and design of buildings and engineering structures and the maintenance of ample space for light and air about buildings.
6. Development of appropriate civic, transportation, and cul-

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tural centers and subcenters in relation to the system of communication and the functional arrangement of the city.

These are only the general headings of the problems to be considered. A detailed classification of their numerous and complex aspects is given in the Appendix.

PUBLIC POLICY AND LEADERSHIP

As will be frequently pointed out or implied in the following pages, the success of city planning materially depends on the methods of carrying it out under the law.

Law is based on public opinion and public opinion on the leadership of men in public affairs. In a democratic society communities act through leaders who express their desires. In civic affairs each community is guided chiefly by the desires of individuals to secure, each for himself, the maximum degree of economic and social welfare. On this point there is common ground. The question as to what is the best means of achieving these desires, and thus obtaining the welfare of the community as well as of the individual, requires an amount of study that can be given only by a few.

In matters of civic improvement what people will accept is what they can understand, and education is essential to give this understanding. Education may be imparted through two methods: first, by actual instruction in sound principles; and second, by object lessons that demonstrate the application of principles. The latter is the more important; for seeing things in concrete form is the only convincing argument to those who read as they run, which is true of the majority of people.

Progress in obtaining advances in the art of city planning has been slow in democratic countries largely owing to the difficulties of instructing public opinion in the principles which underlie sound methods of land and building development. The average person is rarely able to discriminate wisely between cause and effect. Few perceive that determination of building uses and densities must be part of any policy for controlling or improving social and industrial conditions and circulation of traffic.

Public opinion and policy in different countries have governed advances in civic improvement. For example, the tendency in the

INTRODUCTION

United States to construct skyscrapers and the haphazard mixing of business and residential buildings, together with an exceptional rapidity of urban growth, have made the zoning of areas already developed or that are in course of development the most popular part of city planning. People have seen the effects of the lack of planning control and have turned to zoning regulations as the most obvious remedy. Zoning, however, cannot be an effective remedy unless it is combined with general city planning, and the greatest effectiveness of this combination is obtained in undeveloped areas.

In all countries much has been done in the nature of tinkering with, rather than effective remodeling of, existing cities. Beneficial results have been obtained in ameliorating the evils of traffic congestion, overbuilding, and haphazard extension of towns; but these fall far short of what could have been obtained from the same efforts if devoted to more comprehensive planning and replanning of whole cities or towns. At the same time, these tentative efforts help to educate the community to an understanding of the importance of complete city planning.

The value of such demonstrations lies in their guidance toward a better conception of city development in the future, rather than in the immediate results which they yield. This point leads one to consider the type of ability and training which the city planner, or civic architect, needs in order that he may properly guide public opinion and contribute to the successful development of communities.

THE CITY PLANNER AND PRACTICE

Civic design as the art of planning cities in a comprehensive sense requires collaboration of experts in different fields of art and science. This will be evident to anyone who realizes the scope of city planning operations and the manifold aspects of civic growth with which it deals, as is shown by the summary of the problems presented in the Appendix. That one person may alone plan a city in a satisfactory manner is even more unlikely than that one person can alone deal with all branches of architecture, including landscape architecture; or that another can combine in himself the qualifications of a specialist in electrical, mechanical, and civil engineering.

Scientific achievement has brought in its train the necessity for

specialization in all technical professions, and in turn specialization has given rise to the need for co-ordination of different professional activities. In an important sense the city planner has to be a specialist in co-ordination, particularly in that of architectural, landscape and engineering design, as applied to the layout and growth of cities and towns.

Members of different professions have become united in the pursuit of a common social ideal—that of improving the content and natural environment of community life. Architects and landscape architects, by virtue of their training in the principles and practice of design, their cultivation of artistic and imaginative qualities, and their responsibilities for the design of buildings and landscapes, are in a special degree planners of cities.

An effective combination of trained men capable of making a comprehensive plan would include one man who has specialized in city planning, and who therefore will be able to act as a leader and co-ordinator in developing the project as a whole. Naturally such a man would be trained to some extent in architecture, landscape architecture, and municipal engineering. He might be good in any one of these fields and so be able to deal with its details. As a city planner he would require sufficient knowledge of the law of city planning, of political economy, and of sociology and public health to enable him to understand the general influence of these subjects on his operations. This understanding would enable him to recognize his own limitations and to know when to call in special advice. In dealing with the complex problems of the modern city he should limit himself to doing only those things which he can do well. Besides the contributions in skill and knowledge, such collaboration would bring to the plan the thought and advice of men of varied talents and aptitudes.

The choice that a city makes of a planner, or of planners, will determine the character of its plan—not so much because of differences in the technical skill as of differences in the matter of personality, of philosophic approach, and of artistic conception. Whatever may be considered to be the proper theoretical scope of a plan, its scope in practice will be determined by the capacity for foresight and understanding of the planners and of those who employ them and define the limits within which they must work.

INTRODUCTION

The city planner must get back to the first origins of the community he is planning, in order that he may better understand the elements that have promoted its growth and the needs of its future development. He must have a true conception of the principles of design and the technical skill to present his conception in graphic forms. But above all, he must have an understanding of those social and economic needs that give endurance to society and aim to secure their fulfilment.

A first step to be taken in acquiring the knowledge necessary to plan or to administer planning is to study the underlying conditions and the methods of city planning in the past, and to obtain an understanding of the aims and methods and results of present practice. It is the purpose of this book in the chapters that follow to give an outline of these conditions, methods, aims, and results.

PART I

EARLY EFFORTS IN TOWN AND CITY
PLANNING

CHAPTER I

ANCIENT CITY PLANNING

COMPARATIVELY little is known regarding the origins and methods of planning ancient cities; but such information as is available is worthy of study by the city planner, in order that he may obtain a background of knowledge of the relations that have always existed between city planning and city building, and of the conditions which have influenced methods of civic design under widely varied conditions.

An examination of the plans of ancient cities, as well as of those of the mediaeval and later periods in Europe, shows how important in their design was the protection against military attack. In the degree of their fortification and in the smallness of their size, they had the characteristics of great castles.

The common purpose of their occupants being military security, these cities show a high degree of uniformity in their artificial arrangement; but a study of them shows that they comprised distinctive types. They resemble the cross-road town, the bridge-and-ford town, and the harbor town of modern times. Each fortress city was usually developed around a central meeting and market-place, such as the Greek agora or the Roman forum, with wide processional ways leading from it to the gates of the city, and having crowded blocks of land, intersected by narrow streets, in the parts where the people lived.

Another feature common to all ancient cities was the limited means of communication. Long distance transportation had to be by water, and cities had to be close to estuaries or situated in the valleys of navigable rivers. Purposes of sanitation also required that they be accessible to flowing water. The Chaldeans and the Egyptians laid out their important cities in the valleys of the Euphrates and the Nile; while the great Greek and Roman cities were near to ports or had rivers flowing through them. All land communication being by road, the primitive condition of highways,

although these were developed to a comparatively high degree of excellence by the Romans, restricted the areas from which food supplies could be obtained.

The need of security, coupled with the undeveloped character of road communications, influenced the selection of sites and size of cities. These had to be comparatively small to enable the population to be fed from the surrounding land. The great size of the modern city has been made possible chiefly by the development of transportation.

These conditions, as well as the varying character of the rulers and of the social habits and religion of peoples of different periods, were leading influences in early city building and architecture.

IN EGYPT, ASIA, AND AMERICA

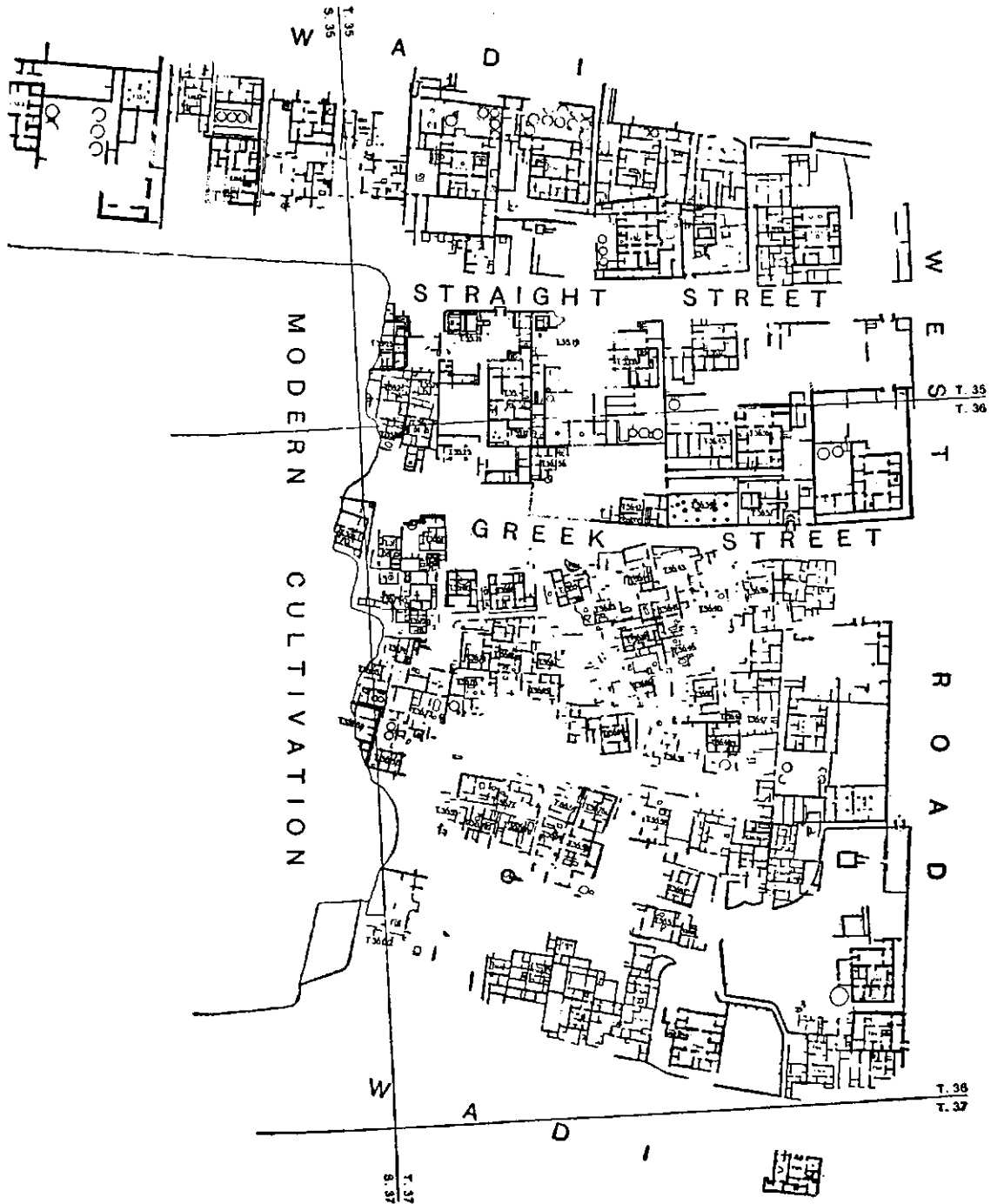
EGYPTIAN AND MESOPOTAMIAN CITIES

Excavations have shown that a city of the name of Kahun in Egypt was laid out in rectangular form between 3000 and 2500 B.C. It has been described as the oldest example of town planning, but some earlier cities, in India for instance, appear to have been laid out in the same formal pattern. Kahun was built for the men engaged in the construction of the Illahun pyramid and has the straight streets and crowded blocks of small workers' dwellings that might be expected under the leadership of the pyramid builders. The Acropolis was not situated in the center of the city, but on high grounds adjacent to the boundary. This suggests that an elevated site was more important than a central location for the seat of government and religion. The sanitary facilities appear to have been comparatively good, a system of drains having followed the middle lines of streets.

The men responsible for the architecture of the tombs and temples that distinguished the ancient Egyptian cities of Memphis and Thebes seem to have introduced much art into the planning of their cities.

At the beginning of the fourteenth century B.C., Thebes with its hundred gates was the capital of the largest empire that had existed up to that time, extending its territory from the Nile to the Euphrates. When the great Pharaoh of Egypt, Amenhotep III,

ANCIENT CITY PLANNING



NORTHERN SUBURB OF TELL-EL-AMARNA, EGYPT
(Reproduced from Journal of the Architectural Association [London], August, 1933)

was succeeded by his son, Amenhotep IV, the latter adopted a new religion, the worship of the Aten, or Disk of the Sun. In 1375 B.C. the new Pharaoh changed his name to Akhenaten, left his capital at Thebes, and founded a new city near the present Tell-el-Amarna on the Nile, half way between Thebes and the modern Cairo.

The results of the excavation work at Tell-el-Amarna, carried out in recent years by the Egyptian Restoration Society under the leadership of Professor Flinders Petrie, have been described by J. D. S. Pendlebury, field director, and H. W. Fairman, member of the excavation party of the Society.¹

The great temple occupied the center of the city, situated on a huge enclosure half a mile long and 1,500 feet wide. The main city lay to the south, afterward expanding northward. A principal thoroughfare ran north and south serving all important buildings. Mr. Pendlebury says that the North Suburb is the only complete section of the city yet uncovered. He describes it as follows:

Its two main streets—East and West Road—continue the line of roads in the South City. Well beyond this plan to the west in the cultivation can still be traced the Royal Road. . . . When concessions were granted to prospective landowners they were plotted out more or less rectangular. . . . Then finally comes the tangle of slums huddled together, badly built, the houses sharing small courts and alleys with their neighbours.

Mr. Fairman tells us that the three wide roads that ran from end to end of the city parallel with the river would not have disgraced a modern city. From these ran out narrow streets and lanes. The whole city was never more than a quarter of a mile wide over its five-mile length and consisted of mighty palaces and minor temples, estates and houses of the nobles, office buildings and storehouses, and extensive slum quarters.

Reproductions of houses of Egyptian nobles in this period show a remarkable resemblance to some models of modern architecture.

After Akhenaten's death, when he was succeeded by his son-in-law, Tutankhamen, the latter was persuaded by the priests of the old régime to return to Thebes, and Tell-el-Amarna became an abandoned city.

¹ See "Recent Excavations at Tell-el-Amarna," by J. D. S. Pendlebury, in *Journal of the Architectural Association*, August, 1933; and "Digging Up a Dead City," by H. W. Fairman, in *John O'London's Weekly*, London, August 12, 1933.

The famous descriptions of Babylon by Nebuchadnezzar and Herodotus provide valuable clues to the forms of ancient cities of the Mesopotamian plains. Babylon was built to replace Nineveh as a capital. It is recorded of Nineveh that Sennacherib (705 to 681 B.C.) carried out a scheme of reconstruction that included the clearance of slums to create new thoroughfares, and to provide space for the building of a new palace.

In the Babylonian and Assyrian Room of the British Museum there is a series of barrel-shaped cylinders inscribed with a record of the building operations of Nebuchadnezzar and his father, Nabopolassar, in Babylon and other great cities of his empire.¹ Together with the famous inscription in the East India House in London, these records give details of the work of Nebuchadnezzar in building temples and roads, and reconstructing the great walls of the city of Babylon prior to 562 B.C.

The following is an interpretation of Nebuchadnezzar's description taken from these sources:

Nabopolassar, King of Babylon, my father, made the great ramparts of Babylon but did not finish their erection. He dug the moat and made two strong embankments as its border. He made the embankment of the Arakhtu and the brick walls along the bank of the Euphrates, but did not finish the rest. He beautified the road from Du-azag to Aiburschabu with bricks. I, his son, finished the ramparts, the Imgur-Bel and Nimitti-Bel. I built the sides of the embankment of its moat; the two strong embankments and joined them with the embankment my father had constructed and carried them round the city for defence. I threw a brick wall round the fortress on the western side. I filled the Aiburschabu, the street of Babylon, with bricks and stones from the mountains, and beautified the road. The portals of the Imgur-Bel and Nimitti-Bel were too low so I tore them down and laid their foundations firmly with bitumen and brick, and tastefully constructed them. I placed strong cedar beams for their roofing and set up doors of cedar, plated with copper and hinges of bronze. I set up also strong bronze bulls and great serpents at their thresholds, and adorned them to astonish the multitudes of people. In order to prevent wars coming up to the Imgur-Bel and the Nimitti-Bel—

¹ See A Guide to the Babylonian and Assyrian Antiquities, British Museum, 1908, p. 194; the Museum Journal of the University of Pennsylvania, December, 1923, pp. 266-281; and Royal Inscriptions and Fragments from Nippur and Babylon by Leon Legrain, curator of the Babylonian Section of the University of Pennsylvania, 1926.

OUTLINE OF TOWN AND CITY PLANNING

and this had not been done before by any king—I threw a mighty rampart round Babylon on the east. I dug a moat and built a mountain-high rampart on its bank, and constructed portals with doors of cedar so that foes might not approach Babylon. I conducted great waters, like seas, round the land, and to cross them was like crossing a great sea. To prevent them from overflowing, I banked them in and put banks of burnt brick round them. I strengthened the defences and made the city of Babylon fit for defence.

After a visit to Babylon in 450 B.C., Herodotus wrote of it:

It lies in a great plain, and is in shape of a square, each side an hundred and twenty furlongs in length; thus four hundred and eighty furlongs make the complete circuit of the city. Such is the size of the city of Babylon; and it was planned like no other city whereof we know. Round it runs first a fosse deep and wide and full of water, and then a wall of fifty royal cubits' thickness and two hundred cubits' height. . . .¹

On the top, along the edges of the wall, they built houses of a single chamber, facing each other, with space enough between for the driving of a four-horse chariot. There are an hundred gates in the circle of the wall, all of bronze, with posts and lintels of the same. . . .

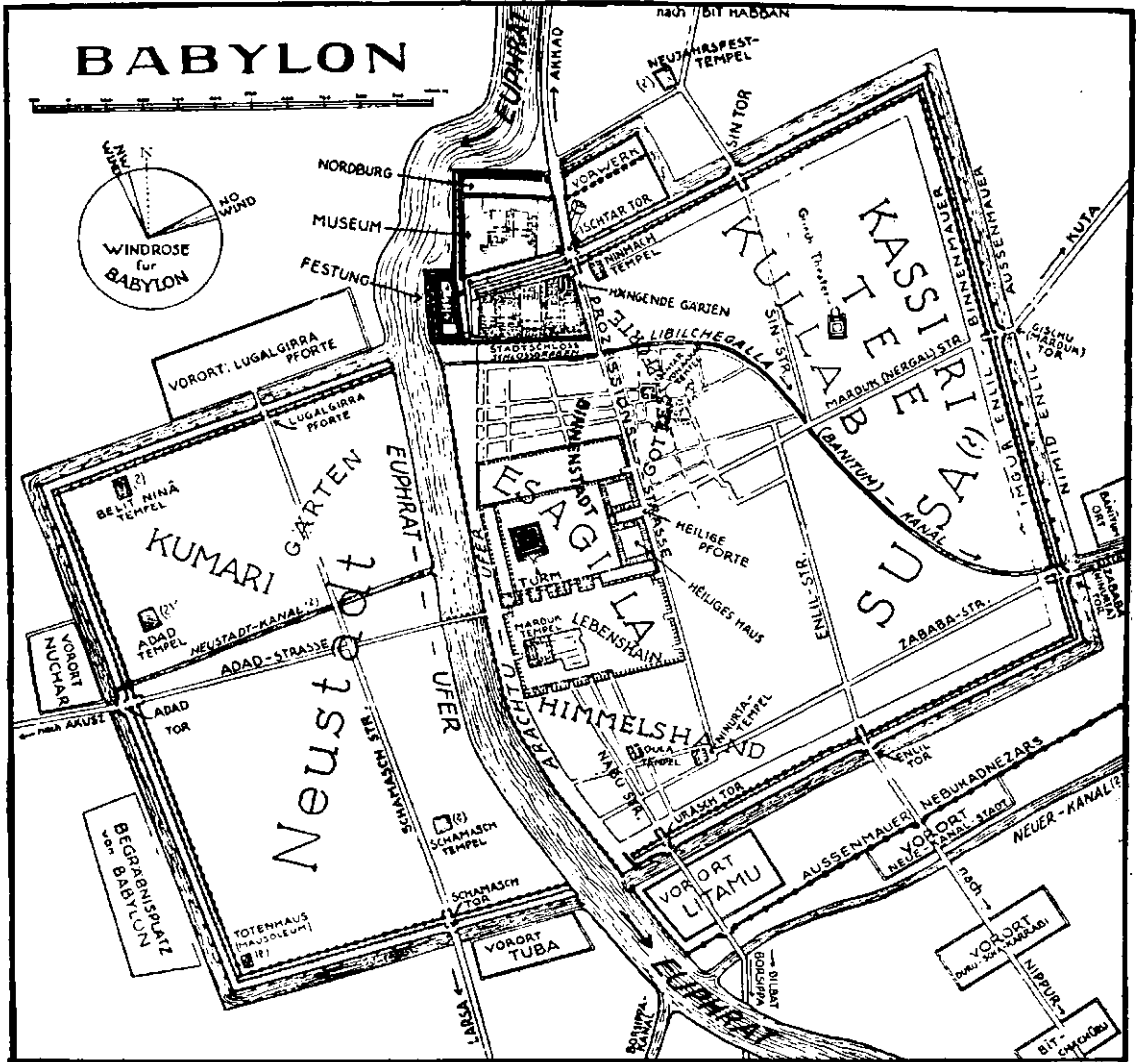
Thus then was this wall built; the city is divided into two parts; for it is cut in half by a river The city itself is full of houses, three and four stories high; and the ways which traverse it—and those that run crosswise towards the river, and the rest—are all straight. Further, at the end of each road there was a gate in the riverside fence, one gate for each alley; these gates also were of bronze, and these too opened on the river.

These walls are the city's outer armour; within them there is another encircling wall, well-nigh as strong as the other, but narrower. In the midmost of one division of the city stands the royal palace, surrounded by a high and strong wall; and in the midmost of the other is still to this day the sacred enclosure of Zeus Belus (Bel or Baal, the greatest of Assyrian gods), a square of two furlongs each way, with gates of bronze. In the center of this enclosure a solid tower has been built, of one furlong's length and breadth; a second tower rises from this, and from it yet another, till at last there are eight. The way up to them mounts spirally outside all the towers; about halfway in the ascent is a halting place with seats for repose, where those who ascend sit down and rest.²

¹ Common cubit, 18¼ inches. Royal cubit, 20½ inches.

² Herodotus, Book I (Translated into English by A. D. Godley). G. P. Putnam's Sons, New York, 1921.

ANCIENT CITY PLANNING



PLAN OF BABYLON

(Reproduced from *Babylon: the Holy City*, by Eckhard Unger, Walter de Gruyter and Company, Berlin and Leipzig, 1931.)

This plan shows the line of the outer wall and the inner wall of the oblong city. The city occupied both sides of the River Euphrates. A great street and fortified wall existed parallel with the river. The main thoroughfares extended from the palace to the gates, but did not run straight through the city. A stately portal spanned the road at the Ishtar Gate.

TRANSLATIONS OF GERMAN TERMS ON THE MAP

Aussenmauer, outer wall; *Begraebnisplatz*, cemetery; *Binnenmauer*, inner wall; *Binnenstadt*, inner city; *Festung*, fortification; *Hängende Gärten*, Hanging Gardens; *Heiliges Haus*, House of Prayer; *Kanal*, canal; *Lebenshain*, coppice; *nach*, to; *Neue-Kanal-Stadt*, New Canal Town; *Neuer-Kanal*, New Canal; *Neujahrsfesttempel*, New Year's Feast Temple; *Neustadt*, Newtown; *Nordburg*, North Stronghold; *Pforte*, gate; *Schlossgraben*, palace moat; *Stadtschloss*, City Palace; *Strasse*, street; *Tafel*, plate; *Tempel*, temple; *Tor*, gate; *Totenhaus*, mausoleum; *Turm*, tower (turret); *Ufer*, bank (of river); *Vorort*, suburb; *Vorwerk*, advance fort.

The foundations of the great ziggurat or temple-tower, the central shrine of Babylonian faith, remain to confirm the accuracy of the historian's description. A plan of Babylon taken from German sources is reproduced here.

Nebuchadnezzar's description of Babylon shows his interest in beautifying the roads leading to and from the city and in adorning the portals and gates. He also constructed the Hanging Gardens of Babylon for his Median queen, whose craving for the open country of her native land caused the king to provide her with surroundings of trees and greenery. These foreshadow modern attempts to compensate for the absence of natural scenery and gardens in the central areas of large cities by constructing elaborate roof gardens.

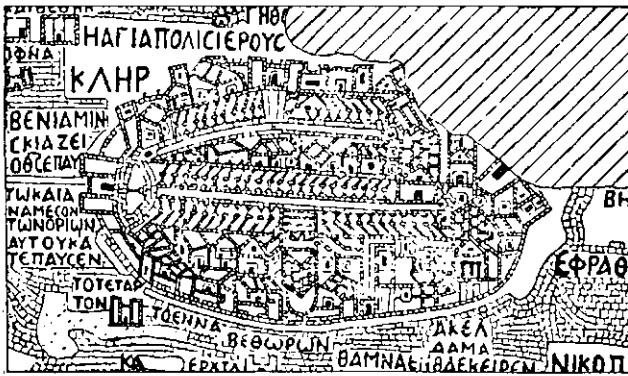
C. Leonard Woolley, lecturing on Sumerian history, states that if Nebuchadnezzar rebuilt the city of Babylon entirely, it is probable that he remodeled the old city of Ur in the south of his dominions. In Ur, broad avenues replaced winding lanes that were common in the era before the seventh century B.C.; also, one-story houses replaced the earlier two- and three-story structures. The avenues were intersected by cross-roads, laid out on plans to conform with a general scheme of decoration. The larger houses had ample sites, one house often occupying a whole block. The walls were staggered on the street front, creating, with the play of light and shadow, interesting street pictures. "In the new town planning system," says Dr. Woolley, "we can see that conformity to order which the harsh rule of Assyria had imposed." Jericho, another great city of the Biblical period, had a rectangular street system. It is said to have existed in 3000 B.C. It was destroyed and rebuilt a number of times, the last time by the Crusaders.

In Palestine, between Egypt and Mesopotamia, lay the historic city of Jerusalem, occupying the watershed between the desert and the sea. During the 33 centuries of history through which this city has maintained her spirit, she has undergone 18 reconstructions. The first mention of "zoning" is in connection with Jerusalem. The city was besieged by Nebuchadnezzar in 597 B.C. and he carried its people, including Ezekiel the prophet, into exile. In his prophecies, Ezekiel described the division of the land of Palestine into "zones." The Dean of Canterbury, in the course of a sermon delivered on the occasion of a meeting of the British Town

ANCIENT CITY PLANNING

Planning Institute in October, 1925, quoted the following portions on the planning of the "Temple" from the book of Ezekiel translated by Dr. James Moffat:¹

Next to Judah, from east to west, shall be the reservation which you must set apart, eight and a third miles wide, and as long as one of the clan-zones from east; the sanctuary shall stand there. . . . No part of this choice land is ever to be sold or exchanged or alienated; it is sacred to the Eternal. The remaining section of the reservation, a mile and two thirds wide and eight and a third miles in length, shall not be sacred, it is for the city with its houses and suburbs, the city lying in the middle.



*Courtesy of American Geographical
Society of New York*

AN EARLY PLAN OF JERUSALEM

The city shall measure a mile and a half square; its suburbs shall cover a hundred and forty-seven yards on each side of the square, and the remainder of the strip, over three miles on the east and over three miles on the west, stretching along the sacred reservation, shall serve to support the workers in the city, and shall be cultivated by the workers in the city belonging to all the clans of Israel. . . . The rest of the territory shall belong to the prince, that is, the land on either side of the sacred reservation and of the city-strip.

In 37 B. C., Herod sought inspiration from Rome in developing great architectural enterprises in Jerusalem. He rebuilt the Temple and the fortifications and erected a great palace.

¹ Doubleday, Page and Company, New York, 1922, p. 951.

INDIAN CITIES

Two sites in the Indus Valley, at Mohenjo-Daro in Sind and at Harappa in the Punjab, have been excavated, resulting in the bringing to light of buried cities.¹ Five thousand years ago this valley supported a great urban civilization, and evidence indicates that its cities were planned and built in rectangular blocks. Broad, straight streets, well laid with burnt bricks, provided access to two-story houses, which were built around small courtyards and were mostly occupied as flats. Sanitation was of a high order, streets being drained with covered sewers led into soak pits at intervals, and it is even suggested that every large house had a bathroom. The cities were apparently well organized and planned, and the remains that have been excavated show little distinction between the richer and poorer streets. No vast temples or palaces have been found in these cities.

The old Vedic² treatises contain descriptions of the town planning and building laws and regulations which were imposed on towns in India in very ancient times. The character of these is shown in the following extracts from the treatise *Viśvakarmaprakāśā*, as interpreted by Binode Behari Dutt:

(1) First lay out the town and then only plan the houses. Violation of this rule portends and brings evil. (2) First plant the trees and erect the premises thereafter: otherwise they will not look graceful and seemly. . . . (3) The houses of Brāhmans should be *chatuḥśālā*; that is, they must occupy the four sides of a quadrangle which is an open space in the centre. *Sālā* means a long structure of one span only. The houses of Kshatriyas should be *triśālā*, *i.e.*, occupying the three sides of the rectangular plot. The houses of Vaiśyas should be *dviśālā*, *i.e.*, forming the two sides of the plot, while those of Sūdras should be *ekaśālā* [on one side]. . . .

(4) The imperial palaces should be raised to eleven storeys; the buildings of Brāhmans to nine storeys; those of the ordinary kings to seven storeys; the buildings of the provincial satraps (*sāmanta*) to five storeys; Vaiśyas and the soldier class (Kshatriyas) should have four-storeyed buildings and Sūdras should have their houses one to three storeys high. . . . Now

¹ Brailsford, H. N., "The Buried Cities of the Indus." In *The Listener* (London), July 8, 1931.

² The ancient sacred Hindu literature comprises more than 100 books called "Veds" or "Vedas."

in ancient India folkplanning set up an inter-relation between the site, the breadth of a street . . . and the rank of the residents in that quarter. This rule worked out in such a way that the high class people were given premises along the wide thoroughfares, while the low class people were relegated to the comparatively narrow roads, so that in all structures along the street the number of storeys was the same. . . . It is obvious that a definite proportion between the width of streets and the heights of buildings was arranged for in practice. The height of the walls of the buildings should not be too small or too great.¹

Important regulations were imposed to secure space about buildings: footpaths, for instance, were required to be as wide as one-third the breadth of the house; all the houses had to face the royal roads, and at their backs narrow lanes were provided to allow passage for removal of offal and night-soil; between any two houses, or between the extended portions of any two houses, the intervening space had to be four pādas or three pādas (feet).

Mr. Dutt points out that in Indo-Aryan tradition the beginnings of town planning are traced to Brahma, and the treatise *Viśvakarmaprakāśā* is attributed in origin to the renowned divine architect *Viśvakarmā*. The knowledge of town planning appears to have been as extensive as it was intensive. Even laymen knew something of the subject, as is evident from the descriptions of the towns that are met with in the various literatures of India. The *Mānasāra* and the *Mayamata* discuss the following cognate topics of town planning: examination of soil, selection of site, division of the grounds into squares, the planning of villages and towns, buildings and their different stories, and the construction of buildings. Also the directions given by Krishna about the planning of his capital, *Dvāravātī*, referred to the selection of building plots and the placing and spacing of buildings, triangular and quadrangular plots at the junction of roads, and the orientation of buildings.

These descriptions of ancient laws afford even more striking testimony to the knowledge and common sense of the early peoples of India in regulating their building development than is revealed in the excavations of ruined cities. They indicate a remarkable wisdom in the administration of municipal affairs.

¹ *Town Planning in Ancient India*. Thacker, Spink and Company, Calcutta and Simla (India), 1925, p. 248.

The possible influence of the Aryans on city planning in Mesopotamia is referred to by E. B. Havell in *The Ancient and Mediaeval Architecture of India*, from which the following is quoted:

If it be true . . . that the Kassites, who took Babylon in 1746 B. C. and established a dynasty there which lasted 600 years, were Aryans speaking Vedic Sanskrit. . . . Babylon must be regarded as a half-way house of the Aryan race in its march towards the Indus Valley, and some at least of the early Aryan tribes must have acquired . . . not only the high spiritual culture which is reached in the Rig Veda, but a prolonged experience of the civic arts, including architecture.

Recent German excavations on the site of Babylon show that the science of building in Vedic times had advanced much farther than has hitherto been suspected.¹

The forms of Indian villages described in the same volume show that attention was given to village as well as to city architecture.

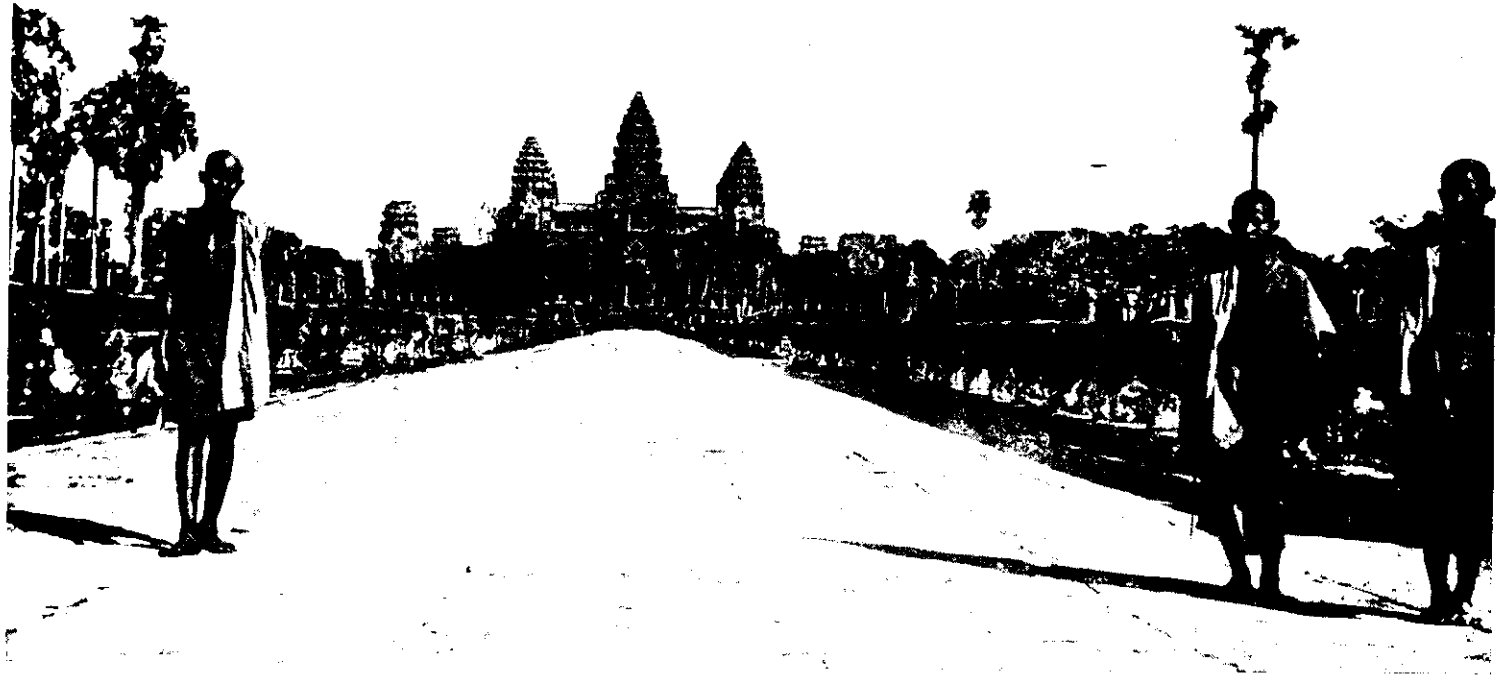
In India craftsmen were divided into special castes, and they exercised their artistic faculties in a hereditary manner. Everything in India was connected in some way with traditional religious ideas, and Vedic literature gives many instructions as to the design and arrangement of buildings associated with sacrifices. It also contains interesting descriptions of ancient cities, such as Ayodhya (Oudh).

The famous ancient town of Pataliputra (now Patna) drew the admiration of Greek visitors, who described it in terms almost as appreciative as those of Herodotus with regard to Babylon.² The plan of Jaipur corresponds to that of many Greek and Roman cities: it has broad central roads, small narrow streets serving the interiors of blocks and a central location reserved for the palaces. Other examples which have less regular patterns are Ahmedabad, Ajmir, and Calcutta.

The famous ruins of Angkor-Thom and Angkor-Vat in Indo-China illustrate the genius of ancient peoples in monumental planning. These were described by the late Charles Reade, town planning adviser to the Straits Settlements, in a communication

¹ John Murray, London, 1915, p. 3.

² Acharya, Prasanna Kumar, *Indian Architecture According to Mānasāra-Silpaśāstra*. Oxford University Press (England), 1927.



VIEW OF ANGKOR-VAT, CAMBODIA—RUINS AND APPROACH

to the writer, as much more than one of the world's greatest temples. There Mr. Reade saw remnants of a great town, five miles square, surrounded by walls, gateways, and moat. In the center, at the crossing of four main avenues, laid out strictly according to the cardinal points of the compass, rises an extraordinarily massive ruin of a great temple, the "Bayon," its stone walls decorated with elaborate carvings. This temple is the heart of the four-square checkerboard area. Such a parallel with the remains of many ancient cities in India, China, and other parts of Asia is both remarkable and suggestive.

The town plan of Angkor-Thom was made well over a thousand years ago. The heart of the city contained a magnificent processional terrace and "civic center"; and town, walls, gateways, moat, temples, palaces, terraces, balustradings, and processional ways were piled up in architectural splendor, only to disappear beneath the overpowering jungle after the last of the race of the Khmers, who created the great temple-city, moved away seven or eight hundred years ago to escape plunder and murder by the Siamese hordes.

Outside the town lie the remains of the great pile of Angkor-Vat itself—the master temple set in its own grounds. Instead of being built in a belt of parklands surrounding the city, Angkor-Vat and its massive stone walls and gateways are enclosed in a huge moat 220 yards wide and connected with the mainland by a broad stone-flagged and balustraded causeway. The causeway is terminated by a gateway piercing the walls, with separate entrances passing under the massive weight and cut-stone architecture of an age that was devoid of cement or mortar. The central archway frames a vista of the dominant tower of the Vat itself, lying half a mile beyond the archway at the end of a raised stone-flagged processional way.

Angkor-Vat is but one of a whole series of temples, walls, enclosures, moats, and massive stone emblems of a vanished civilization. There are 25 square miles to be traveled and seen within and beyond the confines of the city of Angkor-Thom itself. In that region are the remains of networks of irrigational canals and water systems flowing from artificial lakes through towns and extensive fields. A vast arid waste exists on the edge of the jungle where

Angkor-Thom lay buried for centuries. The city was rediscovered and opened up in the middle of the nineteenth century by French archaeologists,¹ but save where man has come to the rescue its many temples and ruins still lie strangled by the triumphant forest. The civilization which gave Angkor-Thom perhaps a million inhabitants also built the great pyramidal temples of Java, and planted strange remains in many outlying islands of the Pacific. It spread through Eastern Asia, and as some believe to South America.

CHINESE CITIES

The development of Chinese cities reflects the influence of their long enduring civilization, their unique social philosophy with its emphasis on family life, and their continuous civil warfare and recurring dynastic changes over many centuries. Chinese civilization has been largely free from extraneous influences. Worship of the ancestral home has led at one extreme to the excessive subdivision of the land and to congestion in cities with its concomitant mass poverty, and at the other extreme to the development of interior walled-in cities, within cities, as the home of Imperial ruling families. Their continuous strife and changes of governors have led to the repeated rebuilding of their cities, usually on the same plan.

Military influences have always tended to encourage formality in the Chinese street systems. Along with these influences, the system of subdivision in urban areas had some of its origins in the parceling of the land into blocks for agriculture. According to the Chinese system, land was divided into square parcels and each parcel again subdivided into nine equal squares. One of these nine squares was reserved for the benefit of the state. Both in respect of the division of land into squares and of the reservation of portions of the divided area for public use the early Chinese system compares with the practice followed in dividing new terri-

¹ Henri Mouhot, who visited Angkor-Thom between 1858 and 1861, published his findings in a book entitled *Travels in Indo-China, Cambodia, and Laos*. (English translation, Murray, London, 1864.) Well-equipped expeditions were made by Captain Doudart de la Grée in 1866, and by Captain Delaporte in 1873. A complete and very detailed model of Angkor-Vat was constructed in the Colonial Exhibition in Paris in 1931.

tory for land settlement in the Roman Empire and in large parts of the United States and Canada.¹

The ancient Chinese were adepts in the planning and erection of cities with fortified walls. There were entrance gates and interior connecting highways and, as already indicated, their functional arrangement was influenced by the custom of segregating great families into special city districts with their own walls.

Traces of former rectangular planning are to be found in towns that were settled as military colonies before the twelfth century A.D. The plan of one such colony, Khara-Khoto built in Central Asia, is shown on page 124 of the Transactions of the Town Planning Conference (London) of October, 1910. The plan shows a square town surrounded by a fortified wall, laid out in rectangular blocks, with main streets connecting the gates with the center but not forming direct connections between the gates.

The Great Wall of China, probably begun at an earlier date, was extended and completed in 214 B.C. by Shih Huang Ti, the famous Ch'in Emperor, to keep out the northern barbarians. This wall wound 1,500 miles over mountain, valley and river, and had a height of over 20 feet with a roadway 15 feet wide on the top and a fortified tower every hundred yards. It was a great example of regional planning under military necessity.

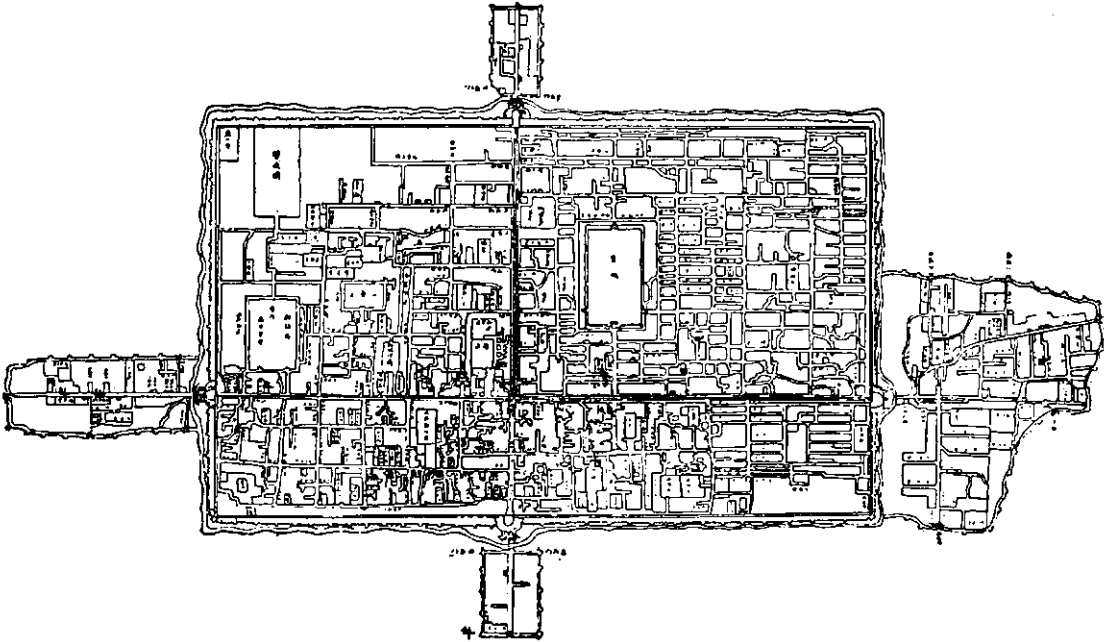
The tendencies toward symmetrical arrangement of land divisions and destruction of scenic beauty by railways and other enterprises have been counteracted to some extent in China by the superstitious belief in fêng shui, meaning "wind and water." An ancient Chinese characteristic has been worship of the spirits of hills, rivers, and other natural objects. Artificial changes in the landscape that affect use are judged by whether they provide the necessary fêng shui to commend them to the spirits and thereby bring luck to cities and their inhabitants. As valleys surrounded by hills are supposed to be the chief abodes of the spirits, the preservation of much lovely scenery has been one of the beneficial results of belief in fêng shui.

Buddhism, which first gained a hold in China in the sixth century B.C., had considerable influence in promoting the art of city

¹ See pp. 60 and 162.

building and other arts. The organization of communities is referred to in the second set of rules in the *Viñāya-pítaka*.

It was in the northwestern province of Shensi, and secondarily in Honan and Kansu that Chinese culture had its origins. The plans of Sian-Fu (the capital of Shensi), of Kaifêng (the capital of Honan), and of Lanchow (the capital of Kansu), are worth noting as typical early examples of city planning. Evidences of such planning are mostly in the capitals where great rulers dominated and erected their palaces, temples, and fortified works.

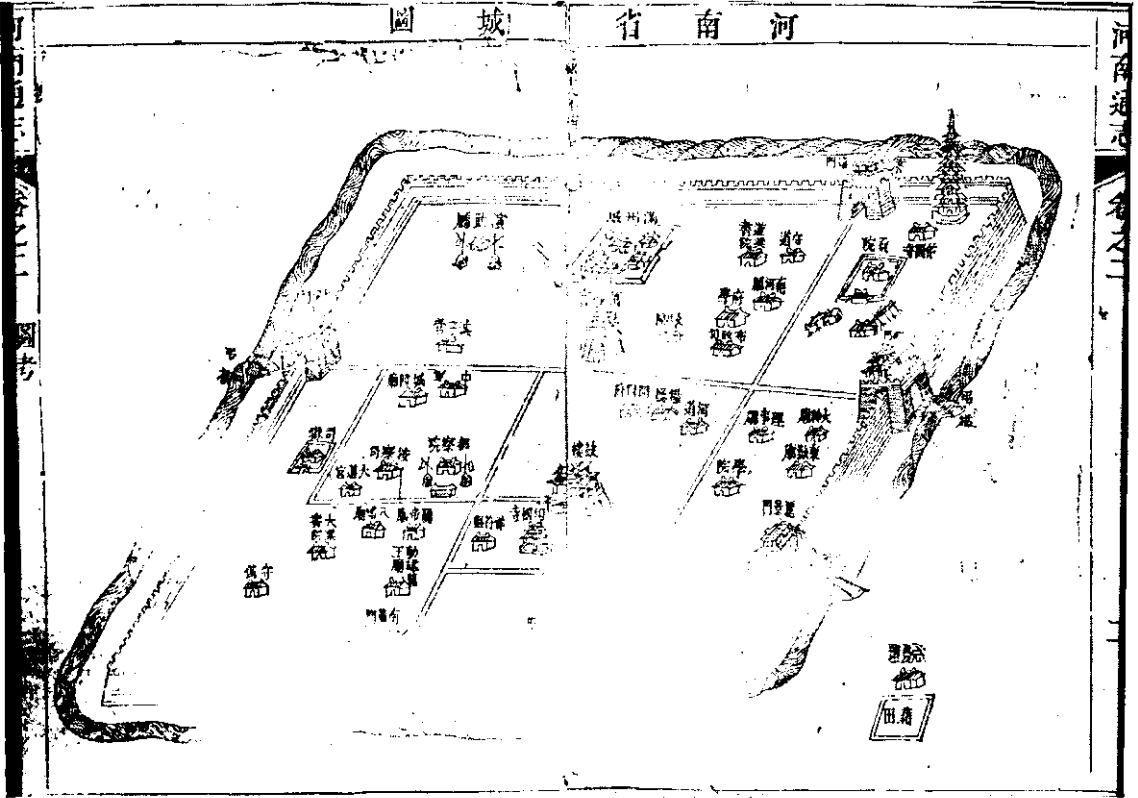


PLAN OF SIAN-FU, CAPITAL OF SHENSI, CHINA

Sian-Fu (or "western repose") occupies a strategic position at the entry to China from the west. The city is square tending to oblong in shape, and includes within its boundaries two large urban districts. The early plan shows a rectangular arrangement of roads of varying width with four gates each provided with a bar-bican. There are extensive walls or fortifications surrounding the city and fine temples and public buildings within it.

Kaifêng lies a short distance south of the Yellow River. It guards the eastern end of the long corridor which runs through Sian-Fu to Lanchow. The city fell after a siege in 1233 and again in the early half of the seventeenth century. A plan of its

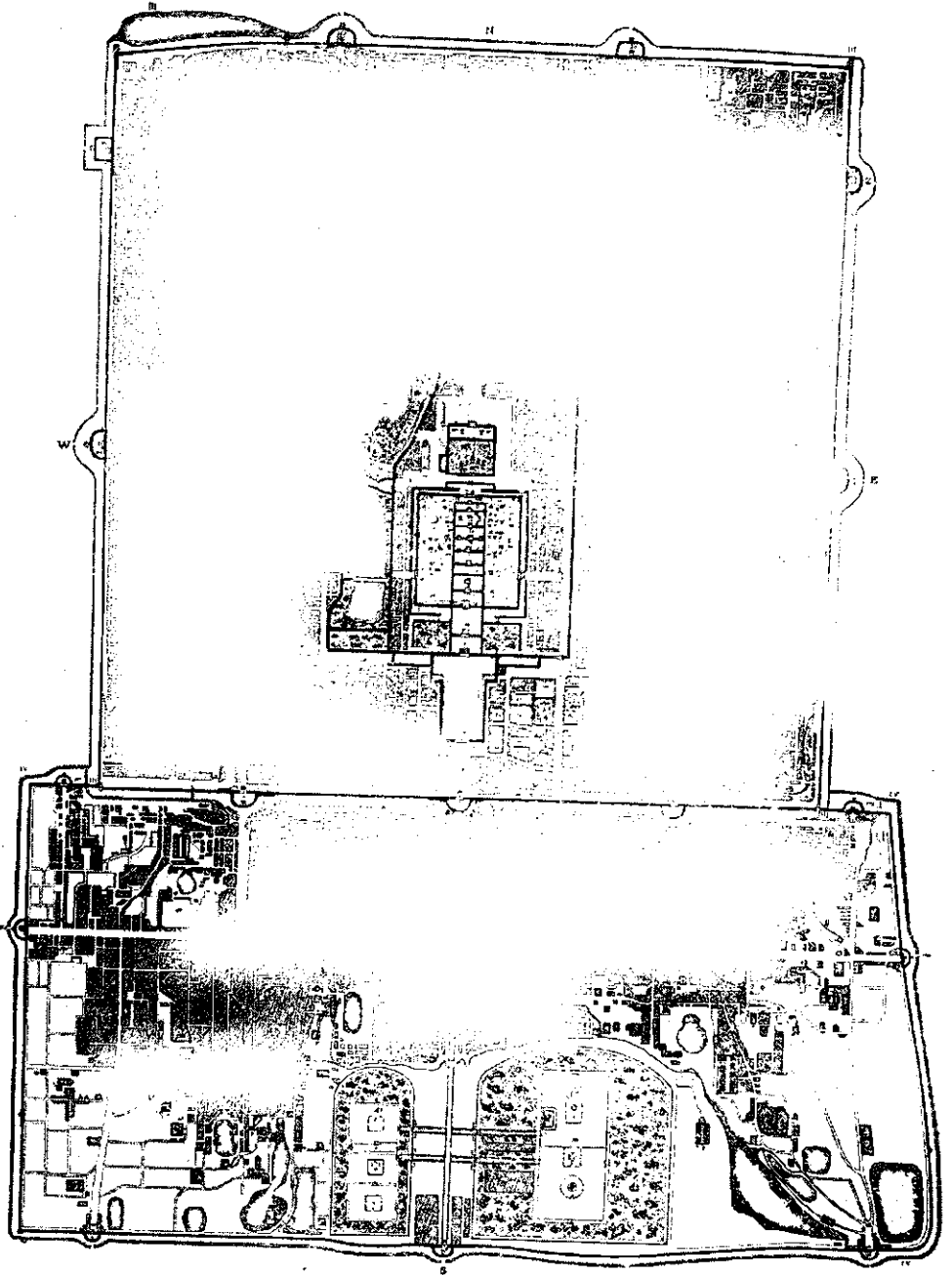
河南省城圖



Courtesy of Columbia University Library

PLAN OF SEVENTEENTH CENTURY KAIFÊNG, CHINA

The above plan shows the principal thoroughfares and the city surrounded by the main wall with its five entrance gates. Only one of the thoroughfares connects two gates in a straight line. Outside the moat, on the lower right side of the picture, is the Agricultural Altar



PLAN OF PEIPING, CHINA

functional arrangement after its reconstruction (which is reproduced from the Honan T'ung Chih¹) shows an interior walled city within the outer walled city. The position should be noted not only of the principal gates, each approached by a drawbridge over the moat,² but also of the temples, courts, libraries, schools, and government offices.

Lanchow-Fu, the provincial capital of Kansu, to the north of Shensi, lies on the right bank of the Hwang-ho, and is another walled city with a rectangular plan. It has a riverfront to the north, and on the three other sides walls pierced by gates and surrounded by moats. Suburbs extend on the three moated sides of the city, and are enclosed within walls.³

Probably no city on rectangular lines has a better plan than Peiping (formerly Peking). This is because its functional arrangement, interior land and water spaces, important buildings and system of enclosing walls, gates and approaches have been developed in harmony and in proper scale to the original layout of the site. However well conceived, a rectangular plan may have no particular merit, and if ill conceived in relation to topography, or if ample open squares are not reserved, it may be the least meritorious of plans. This is one reason why it is incorrect to assume that formality in street arrangement is a mark of distinction in city planning in ancient cities, any more than in modern cities.

Kublai Khan, the great Mongol Emperor, was primarily responsible for the plan of Peiping when he made it the capital of his immense territory in 1267 A.D. But it had had an interesting history before his day. In 986 A.D., the city was elaborately reconstructed with walls said to be 13 miles long and 30 feet high. It was again enlarged and beautified after 1122 A.D. by the Tartars, becoming one of the three capitals of the Empire, the others being Kaifêng and Mukden. It was then rebuilt by Kublai Khan on

¹The Honan Provincial Gazetteer (1869). The illustration is taken from the second *chüan*, pages 2b and 3a, and has been supplied by Miss Helen B. Chapin of Columbia University Library. See plan facing p. 48.

²Although the map does not properly represent the drawbridges, the characters inscribed on the map state them to be such. Chinese walled cities were usually provided with these aids in time of war.

³Geil, W. E., *Eighteen Capitals of China*. J. B. Lippincott Company, Philadelphia, 1911.

more elaborate lines than before. In the course of time it became not only the seat of government but the intellectual center of China. It was the capital of the Republic of China until 1928, when the capital was transferred to Nanking.

The superiority of the original plan of Kublai Khan is evidenced by the fact that the new developments which were carried out in the city in the nineteenth century, six centuries after the plan was made, did not involve any considerable clearance of buildings or changes in the plan. The plan shows the city divided into two main portions, the northern being the Tartar city with walls nearly 15 miles in length, and the southern the Chinese city, oblong in form and having surrounding walls about 14 miles in length. Within the Tartar city are the Imperial city and the Inner or Forbidden city. Seven artificial lakes form an irregular chain from the north wall of the Tartar city to the south wall of the Imperial city. The Imperial palaces and temples are grouped around the three most southerly of the seven lakes.¹

It will be observed from the plan that, in common with Babylon and many other ancient cities, the main streets connecting with the four gates of Peiping do not intersect the city in continuous straight lines.

The plans of three other earlier Chinese cities have features of special interest, namely, Nanking, Mukden, and Hanchow. The walls of Nanking, the present capital of the Republic of China, were 70 feet in height, 30 feet in thickness at the base, and 20 to 24 miles in circumference. On the northeastern and south sides a second wall enclosed about double the space of the inner area. The walls of Nanking, its public buildings, and chief monuments were destroyed in 1853.

The existing old city of Mukden formed the ancestral home of the Manchus. Its Imperial palaces and government offices were well arranged within an enclosing wall 30 feet high and 4 miles long. An interesting contrast is afforded in Mukden between the old city and the new town or Japanese concession, with its wide roads, squares and parks laid out in the modern manner.

Hanchow, built at the foot of a splendid range of hills, possesses beautiful buildings and gardens, and some of the most famous

¹ See article on China in *Encyclopaedia Britannica*, 14th ed., vol. 5.

ANCIENT CITY PLANNING

monasteries in China. Marco Polo, the Venetian, regarded it as the finest city in the world. Like most Chinese cities it has suffered from frequent spoliation.

What gave distinction to the formal plans of cities in ancient and mediaeval times, in China, Greece, and Italy, was the organization of the civic architecture and building uses in relation to streets and other interior open spaces, a quality also to be found in many irregular plans.

KYOTO (HEIAN), JAPAN

The Japanese appear to have derived their first inspiration in city planning from the Chinese. When the T'ang Dynasty (618 to 907 A.D.) had made China the largest and strongest empire of the world, the Japanese took home ideas of art and civic architecture from the T'ang court in Shensi. The Emperor Kwammu of Japan selected a site for his capital, Heian-jo (Kyoto), and laid it out on rectangular lines on the model of Kaifêng. Heian was the capital city of Japan for eleven centuries after 793 A.D.

An old map of the city shows a large palace in the center of the northern part, with an avenue of great width and $3\frac{1}{2}$ miles long extending inward from the main gate and separating the city into two parts. The city was further divided into sections of 16 blocks each, the blocks being about 400 feet square. Each section was administered as a neighborhood with its superintendent who enforced local regulations. These neighborhood units comprised about 75 acres, including their street areas, and the population of each section appears to have been about 6,000. Streets 80 feet wide cut across the city every few blocks, the intervening streets being 40 feet wide. The city covered an area of between nine and ten square miles. The four boundary roads had canals down the center and there were six canals from north to south.

Its architecture conformed to the symmetrical style known as the Shinden. The city still possesses magnificent temples and shrines, fine monuments and beautiful gardens, and remains the chief Buddhist stronghold in Japan. One of the most picturesque avenues in the world, the Tokai-do (Eastern Sea Way) extends from Kyoto to Tokyo. It is 345 miles long and lined with great pines.

MAYA CITIES IN CENTRAL AMERICA

Archaeological discoveries in northern Guatemala and in the Yucatan peninsula of Mexico have revealed evidences of some degree of city planning by the linguistic group of people known as the Maya. Remnants of towns built before and after the Christian era have been uncovered in northern Guatemala where building seems to have ceased in the sixth century A.D. Yucatan contains traces of well-organized towns, built by the Maya after their colonization of the peninsula about the fourth century A.D. An example of these is shown in the bird's-eye view of Tulum which is shown on the opposite page. By the eleventh century these towns, with stone buildings, housed a considerable population, but from 1201 onward they gradually decayed as a result of tribal warfare. The Maya were a people of culture ruled by priest-kings, with much proficiency in architecture and in the arts of wood-carving, stoneworking, pottery, and weaving. The towns were not built for defense but were more in the nature of ceremonial centers. The temples and chief buildings were erected on pyramidal mounds with a series of setbacks or steps, the buildings being often arranged around large open courts. The Maya architecture influenced the early architecture of Mexico.¹

CITY PLANNING IN THE GREEK AND ROMAN EMPIRES

A study of city planning methods in the ancient Graeco-Roman world brings to light numerous examples of the planning and building of entire towns and cities along preconceived and definitely formulated lines.

In his book on *Ancient Town Planning*,² F. Haverfield treats of the subject in periods corresponding to the early Greek Empire, the Macedonian Age, the Late Republic, and the Empire of Italy. He traces the history of town planning down to the time of the Roman by-laws; while he suggests that the only definite principle adopted in the early street systems is based on the straight line and the right angle, yet some of their curvilinear street patterns seem to

¹ See articles on Ethnology and Archaeology in the *Encyclopaedia Britannica*, 14th ed., vol. 5, pp. 128-132.

² Haverfield, F., *Ancient Town Planning*. Oxford University Press (England), 1913.



AERIAL VIEW OF TULUUM, YUCATAN

Photo by Fairchild Aerial Surveys, Inc.



THE ACROPOLIS, ATHENS, GREECE

Publishers Photo Service

have been the result of as much conscious planning as the rectangular ones.

While the decorative splendor of public buildings and places varied in intensity at different times, it appears to have taken a foremost place in the Greek conception of the building of a city. The Greeks gave true dignity to civic architecture. Dr. Percy Gardner, in his definition of "art" quoted in Webster's New International Dictionary, says: "All ages must owe a debt to Greece for the simple beauty, the sanity, the healthfulness of the ideal element which she introduced into *art*, making it for the first time in history a true exponent of the human spirit."

The Greeks introduced this spirit into their public buildings and places rather than into their private homes. Rich and powerful city-states set up magnificent dwellings for gods and kings while failing to provide a decent standard of comfort for their common men. They taught people to love the city and to sacrifice their individual comforts in order that it might become more beautiful. In our day we might well emulate the Greeks in their pride of public order and beauty and still try to secure a high standard of individual well-being.

The Roman city, with some exceptions, including Rome itself, was usually a rectangle broken up into four more or less equal and rectangular parts by two main streets which crossed at right angles at or near its centre. To these two streets all the other streets ran parallel or at right angles, and there resulted a definite "chess board" pattern of rectangular house-blocks (*insulae*), square or oblong in shape, more or less uniform in size.¹

What is called "zoning" was used by the Romans to keep industries out of central areas, to prevent projection of buildings into streets, and to limit the height of buildings. The last were limited first to 70 feet by Augustus but later to 60 feet by Trajan and, subsequently by Nero, to twice the street width.

A German authority says of Greek cities, what was probably also true of the Roman, that they followed four distinct periods, namely: (1) Fortress, (2) Development of Trade, (3) Artistic Embellishment, and (4) Decline. The artistic embellishment was

¹ *Ibid.*, p. 17.

carried out in cities of both empires at the expense of living conditions. The standard of sanitation was higher in Roman than in Greek cities, but even in the best of the small ancient cities the vice of overcrowding of dwellings occurred.

Both Athens and Rome were planned and replanned by successive rulers. In its earlier period Athens was laid out with narrow streets more distinguished for their charm than for their convenience. It appears to have been extensively planned under Themistocles when in 460 B.C. he renovated the city and built the long walls connecting it with the seaport city of Piraeus five miles away. A view of the Acropolis is shown opposite page 53.

GREEK CITIES (PRIOR TO 350 B.C.)

The Ionian city of Ephesus, situated on the west coast of Asia Minor, affords a striking example of an ancient city in which architecture and city planning appear to have been combined, and of which it is possible to show a conception of its monumental development. The Greeks dominated Ephesus for long periods of its early history, although it later passed to the Romans.

The site of this city appears to have been selected with the usual intelligence shown in such matters by the ancients. Occupying the lower slopes of hills rising out of a fertile plain, it was easy to drain, and accessible to a food supply. It was near the mouth of one river, the Cayster, and had access to two others, thereby giving it the advantages of water transportation on which to develop its commerce.

The history of Grecian Ephesus dates from its conquest by Androclus, during or after the eleventh century B.C.¹ At different periods Ephesus was under the control of the Persians, as well as of the Greeks and Romans. Some of the most dramatic episodes in its history took place between the years 700 and 500 B.C. Democratic government was established by Alexander the Great in 334 B.C., but following his death the control of the city passed again to the Greeks and later became more permanently subject to the Romans, under whom it became the first port and richest city of Asia Minor.

¹ *Encyclopaedia Britannica*, 14th ed., vol. 8, p. 641.

Excavations conducted for the British Museum from 1863 to 1874 and in 1904, brought to light the ruins of several temples, one built in 350 B.C. and others at earlier dates. Beginning in 1894, more extended excavations of the city were undertaken by the Austrian Archaeological Institute, which resulted in the clearing of the remains of the Great Theatre.¹ The Greek Agora, forming a huge square to the southwest of the Theatre, was found to be surrounded by porticos and large public halls. In the Roman Forum large halls were found and later other excavations disclosed a stadium and fortifications. Two of the streets were partly cleared, one extending from the Greek Agora to the Magnesia Gate and another from the Theatre to the port. The imaginary reconstructions of its public structures in the drawings that have been made reveal the dominance of public over private life that prevailed in the civic architecture of the Greek and Roman empires, and the elaborate facilities made by the ancients for communal recreation.

A plan by Jean Hulot, winner of the Grand Prix de Rome, embodying a conjectural restoration of the city of Selinus, or Selinonte (see illustration facing page 57), a Greek colony in the south of Sicily, shows an interesting pear-shaped city, which was founded about 648 B.C. The city was strongly fortified, but endured for only two centuries. The plan, attributed to Hermocrates, shows a large and magnificent acropolis, with a well-arranged system of main thoroughfares between the entrance gates and surrounding walls of the interior city, and a rectangular arrangement of blocks. An indication of the narrowness of streets at this period is shown by the fact that the main streets of Selinus were 30 feet wide and the secondary 12 to 18 feet wide. The needs of defense undoubtedly brought about this compactness of cities within their walled fortifications that would otherwise have been absent.

Of the personalities of the ancient Grecian period one of the most interesting was Hippodamus of Miletus who was born about 480 B.C. He was one of the earliest Greek architects to practice the planning of cities. Aristotle says that he introduced the principle of

¹ For plans and illustrations of conjectural restorations of Ephesus see *Town Planning in Practice* by Sir Raymond Unwin (published by Fisher Unwin, London, 1913, pp. 23-35).

right-angled, wide streets in Greece, and was the first architect to provide for the proper grouping of dwelling houses, as well as the combining of the different parts of a town centered round the market-place into a harmonious whole. Following the developments initiated by Themistocles to which reference has already been made,¹ he laid out Piraeus,² the port of Athens, in rectangular form with the agora, named after himself, in the center. He also planned Thurii and Rhodes. The latter, laid out in fan-shaped fashion, was one of the most splendid of ancient cities. Olynthus, recently excavated, under the direction of Professor David M. Robinson of Johns Hopkins University, is seen to have been laid out with straight streets and oblong blocks.

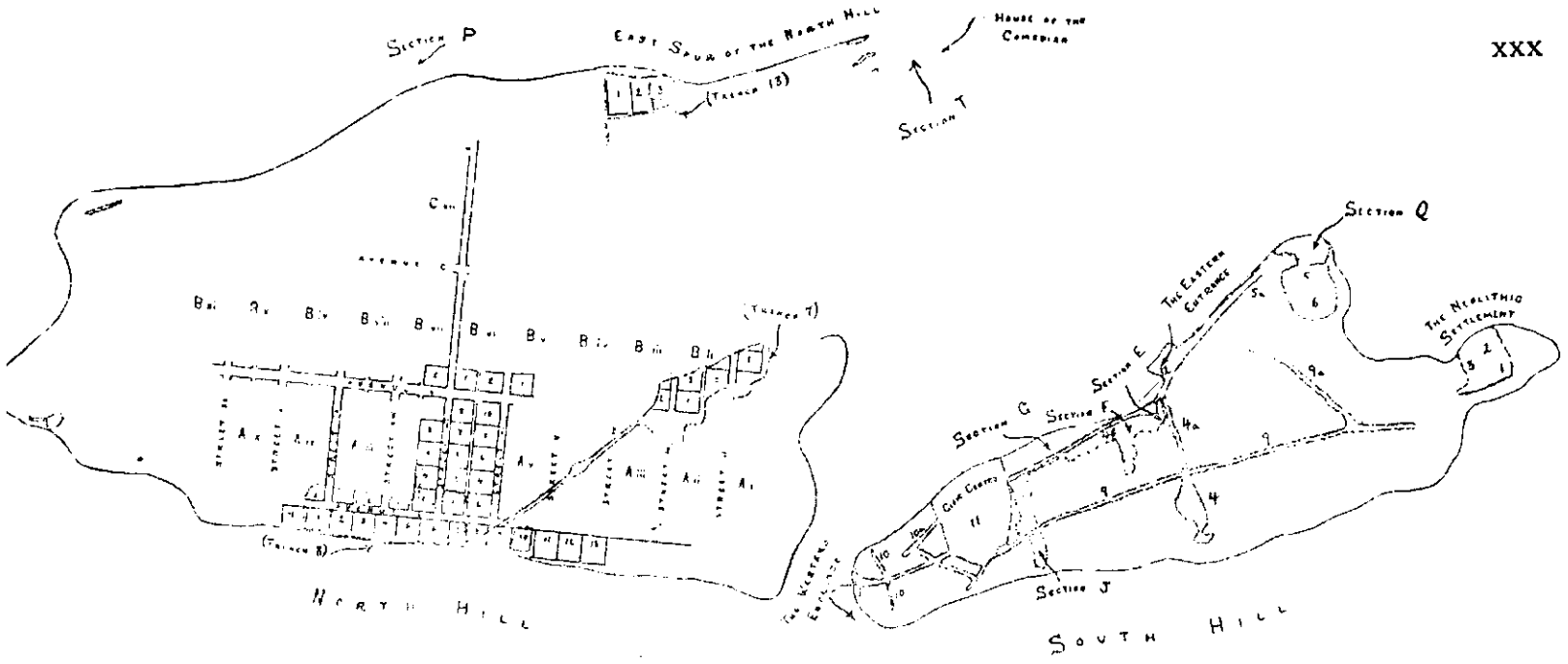
Cyrene, near the Mediterranean coast in northern Africa, had its great processional highway and its rectangular street form. City regulations dealt with policing, scavenging, and the general public order of markets and streets. As early as 430 to 424 B.C. mention is made, under a regulation that restricted the projection of private buildings into public thoroughfares, of the prosecution of those who built on the public land. Two or three writers speak of the prohibition of balconies and verandas leaning over or projecting into public streets—a feature that was common also in the architecture of the Middle Ages.

Dr. Percy Gardner says that the agora, or market-place, in the ancient Grecian city was merely an irregular open space where streets met; while the agoras of the Ionian cities of Asia Minor, lying in the heart of the cities, were square and surrounded by porticos.³ He also points out that in the time of Alexander the Great and his immediate successors city building became more active as well as more of an art; and that the conquering of new territory and the founding of cities went hand in hand. He describes the Greek city as consisting of four parts; namely, the arrangements for defense, comprising the wall and towers; the abodes of the gods in the Acropolis, with the sacred precincts which

¹ See p. 54.

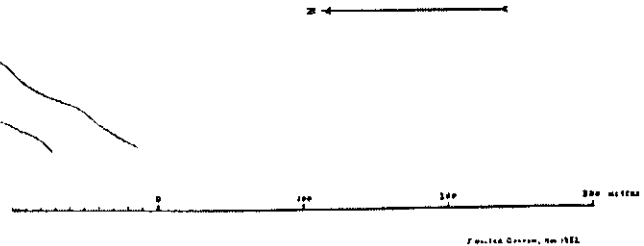
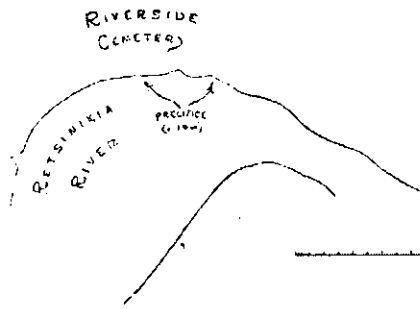
² For plan see *Ancient Town Planning* by F. Haverfield, p. 30.

³ "The Planning of Hellenistic Cities." In *Transactions of the Town Planning Conference* held in London in 1910, pp. 113-114 (published by the Royal Institute of British Architects, 1911).



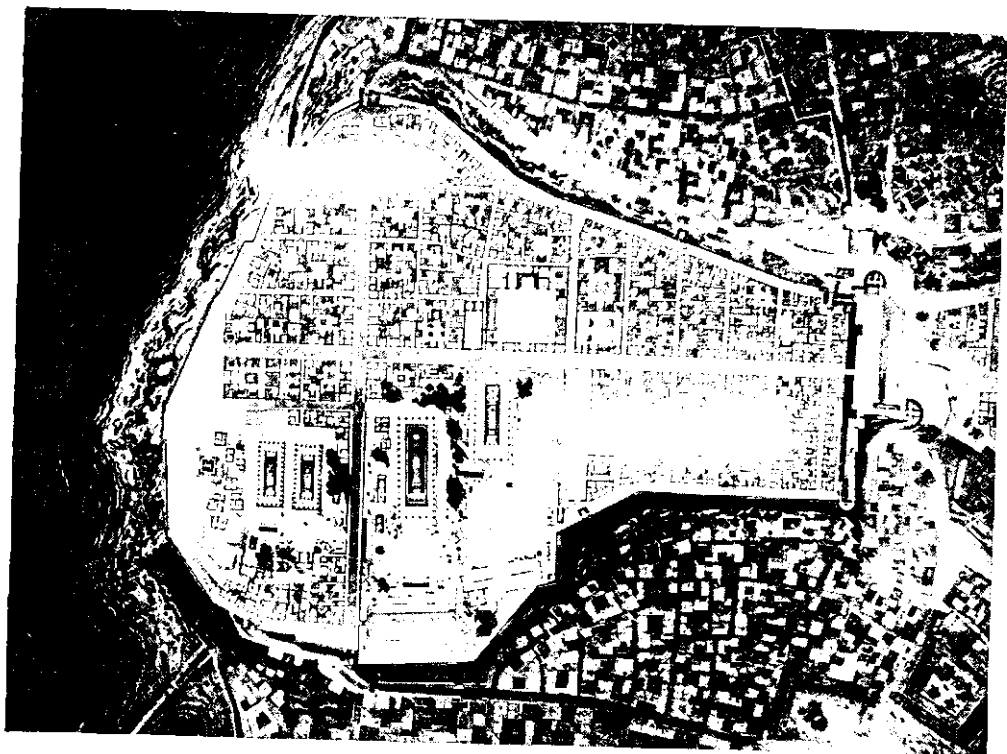
MAP SHOWING LOCATION OF EXCAVATED DISTRICTS

Areas excavated in 1928
 Areas on South Hill excavated in 1931.
 Numbers on South Hill refer to trenches dug in 1929.
 "Sections" refer to districts excavated in 1931 and not falling within the Hippodamian system.
 The East Cemetery is located about 700 m. east of the Neolithic Settlement.



OLYNTHUS, IN MACEDONIA, AND ENVIRONS

Courtesy of David M. Robinson



RECONSTRUCTED PLAN OF GREEK CITY OF
SELINONTE (SELINUS), SICILY

surrounded them; the market-place with porticos and public buildings surrounding it; and the houses of the inhabitants.

One reason which is referred to as an underlying factor in the adoption of a system of straight streets by the ancients was that it permitted air to flow faster through the city. Vitruvius, the Roman, criticized this system, maintaining that it gave too free an entrance to the winds.

Although in a less scientific manner than the Romans, the Greeks appear to have provided themselves with a good supply of water for their cities. They were essentially city dwellers and had no passion for gardens; yet, while they do not appear to have had large park areas, in the modern sense, their liking for active recreation led them to maintain open spaces for this purpose. Antioch was said to be renowned for its parks.

All Greek citizens spent a great part of their time in the baths and gymnasiums, and crowded the theaters for whole days at the festivals. It was partly because the Greek lived very little in his own house and passed most of the day in public places, that he cared little for his private accommodations and less for those of slaves and shopkeepers. The most striking feature of the modern small town, open spaces with lawns and trees and flowers, was almost unknown in Greece, but we must remember that towns were very small and that access to the fields was easy.

MACEDONIAN CITIES (350 TO 300 B.C.)

In the Macedonian Age a number of planned cities were built—some of these being for discharged soldiers—with their streets laid out in a chessboard pattern. The natural tendency of military leaders was to employ rigid geometrical forms in planning a city as in planning an army camp.

The Egyptian city of Alexandria, founded by Alexander the Great in 332 B.C., was planned in rectangular form by Dinocrates, a Grecian architect. In his second book Vitruvius describes how Dinocrates announced that he was competent to plan a new city to be named after the Emperor. Among other things, he proposed to erect a gigantic statue of a man holding in his left hand a spacious city, and in his right a vase in which would be collected all the streams of the mountain. The Emperor found, however,

that the neighborhood in which Dinocrates proposed to build Alexandria would not provide enough food for the estimated population, declaring that a city depended on the fertility of the country surrounding it for its riches, its strength in population, and not less for its defense against an enemy. He finally retained Dinocrates to lay out the city in a more favorable location, occupying a long strip of land lying between the Mediterranean and a series of lakes.¹

Alexandria, situated on a delta of the Nile, has been reconstructed to some extent as the result of recent excavations. When the Arabs invaded Egypt in the seventh century A.D., the city was partly in ruins, having shrunk into a comparatively small town, and it remained so until the appearance of Napoleon's Egyptian expedition in 1798. Canopic, the main street, 100 feet wide, is still in use in part, as the Rue Rosette. Another main street, also 100 feet wide, crossed Canopic Street near the center of the city. The city appears to have been zoned in sections, including one devoted to royal palaces and public buildings, another to residences of Egyptians, and another to residences of Jews. It had subterranean canals and a surrounding wall, fortified by towers. The city was completed and much improved by Ptolemy II (285 to 246 B.C.).

Miletus, an ancient Greek city in Asia Minor, was built in the Alexandrian period. It, too, was planned in rectangular form with a central market-place. In the quarter that has been fully excavated, the streets cross at right angles and enclose regular blocks of dwelling houses 32 yards by 60 yards, each being subdivided into two smaller blocks approximately square.

Across the estuary, opposite Miletus, the town of Priene has been excavated.² It is presumed to have had a population of at least 4,000. It had its market-place, temple, and other large buildings, and about 80 blocks of private houses—each block having average dimensions of 360 by 450 feet. The broader streets were 32 feet wide and the narrower 10 feet. The town was compactly built, without any open space other than the agora.

¹ See plan of Greek Alexandria in *Regional and Town Planning in Principle and Practice*, by W. H. McLean, Crosby Lockwood & Son, London, 1930; also "Alexandria, Its Town Planning and Development," by Mahmoud Riad, in *The Town Planning Review* (illustrated with plans), December, 1933, p. 233.

² See plan and Panorama facing p. 42 in *Ancient Town Planning*.

Alexandria, Miletus, and Priene are the most important examples of Macedonian planning. Others were Sicyon and Thebes, in Greece; and Nicaea, Smyrna and Mitylene, in Asia Minor. Vitruvius referred to Mitylene as unhealthy but splendid. Thessalonika, 315 B.C., had one or two diagonal streets. Cities of this period were wealthy, and as the capitals of powerful rulers, included many public buildings, temples and palaces.

One of the most thoroughly explored of the towns of the Macedonian Age is Pergamum, 50 miles north of Smyrna and dating from 300 B.C. It vied with Smyrna and Ephesus as the first city of Asia. Professor Haverfield describes it as follows:

The dominant idea was that of a semi-circle of great edifices, crowning the crest and inner slopes of a high crescent-shaped ridge. . . . These buildings ringed the hill-top in stately semi-circle; below them, a theatre was hewn out of the slopes and a terrace 250 yards long was held up by buttresses against precipitous cliffs. Lower yet, beneath the Agora, the town of common men covered the lower hill-side in such order or disorder as its steepness allowed.¹

While Pergamum was chiefly noted for its public structures, it had laws for the protection of private buildings. These required owners to repair buildings, failing which, magistrates were to make good the defects and recover the cost. The laws expressly forbade brickfields within the city. There is also an indication that the widths of roads in suburban areas were regulated and that owners of adjacent land were held liable for their repair.

Provision for repair of inner walls and prevention of damp from being transmitted from one building to another shows the mutual relations of adjacent owners in regard to the maintenance of abutting properties. Similar rules were embodied in the local government of the Roman municipalities.

ROMAN CITIES (1400 TO 183 B.C.)

Evidences of planning in the Roman Empire are more plentiful than in the Grecian period. Professor Haverfield suggests that Roman planning originated in the Bronze Age, 1400 to 800 B.C. He refers to what is known about the villages called *Terremare*

¹ *Ibid.*, pp. 52-53.

and gives an illustration which shows that these settlements, inhabited by a people who had originally been lake dwellers, were laid out in rectangular form.¹ The ruins of a rectangular Etruscan town at Marzabotto furnishes a later example.

Pompeii is an important example of a town which showed evidence of careful planning.² First founded about the sixth century B.C. as an Oscan city, it was refounded as a Roman colony in 80 B.C., one hundred and fifty-nine years before its destruction by Vesuvius. Its street system includes several diagonal routes. Two main streets crossed the town from southwest to northeast, and two others from northwest to southeast. The plan of the street and block system shows many irregularities. There is a lack of symmetry between the different sections called "regions," and the different sizes of the blocks. Some of the latter are 110 feet by 310 or 480 feet, and some about 200 feet square. Pompeii seems to be a composite of different plans made at different times. It is described as trapezoidal, not unlike Haverfield's example of the settlements of Terremare.

The Forum of Pompeii was 500 feet long by 150 feet wide. Fronting on it were the temples of Jupiter and Apollo, and the Pantheon with the arch of Tiberius over the entrance gateway. Three municipal buildings stood on the south end facing the Temple of Jupiter on the north end.

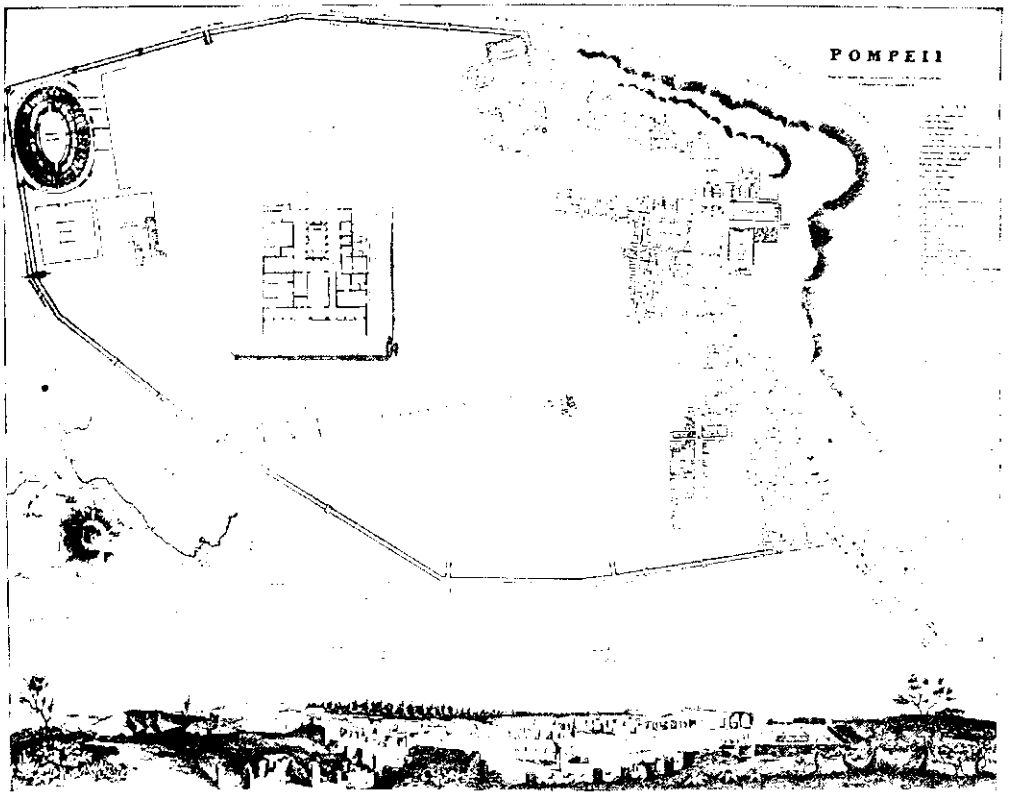
Another town in Italy that has features similar to Pompeii is Mutina (Modena). In some respects, however, the Modena plan closely resembles the irregular plans of the Middle Ages.

We are told that farm plots in Rome were laid out in square forms corresponding to those adopted in early Chinese systems of land division and in the system followed in the early days of colonization in the United States.³ The influence of these farm divisions and of military methods of laying out camps probably produced the regular forms of Roman towns, quite apart from any influence that may have come from Greece.

¹ Ancient Town Planning, p. 59.

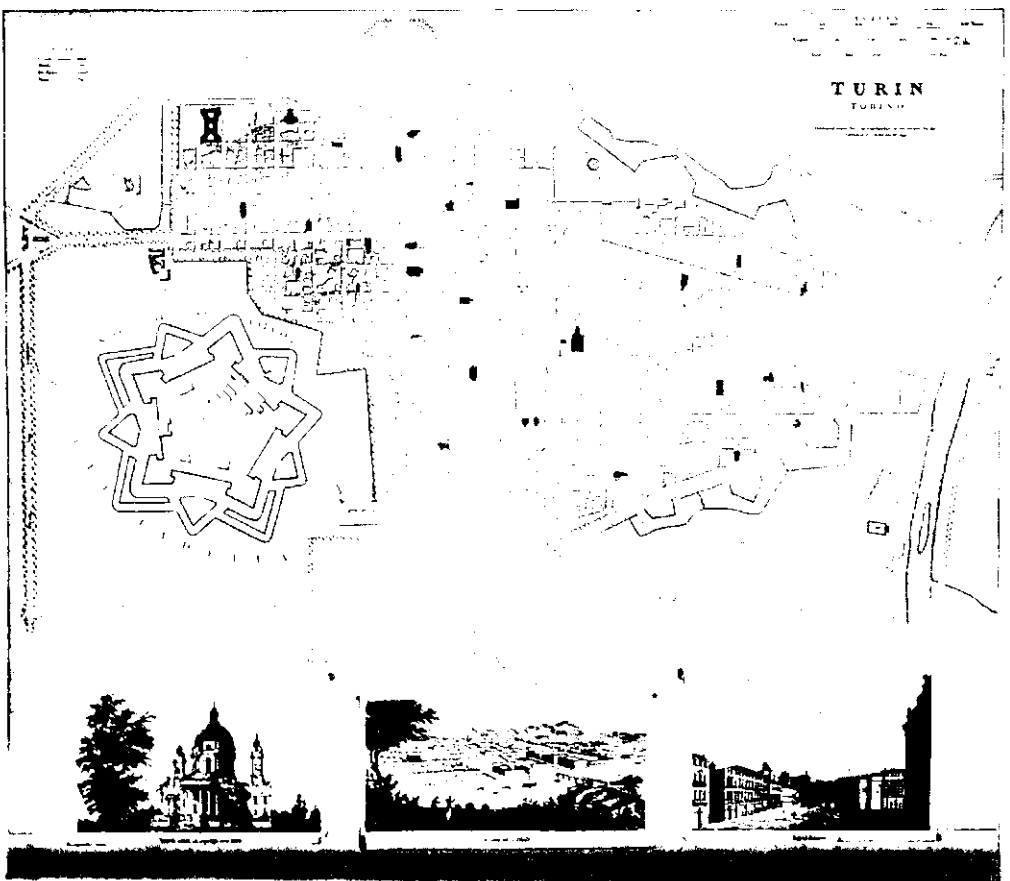
² Mau, August, Pompeii, Its Life and Art (Translated into English by F. W. Kelsey). The Macmillan Company, New York, 2d ed., 1908.

³ See pp. 47 and 162.



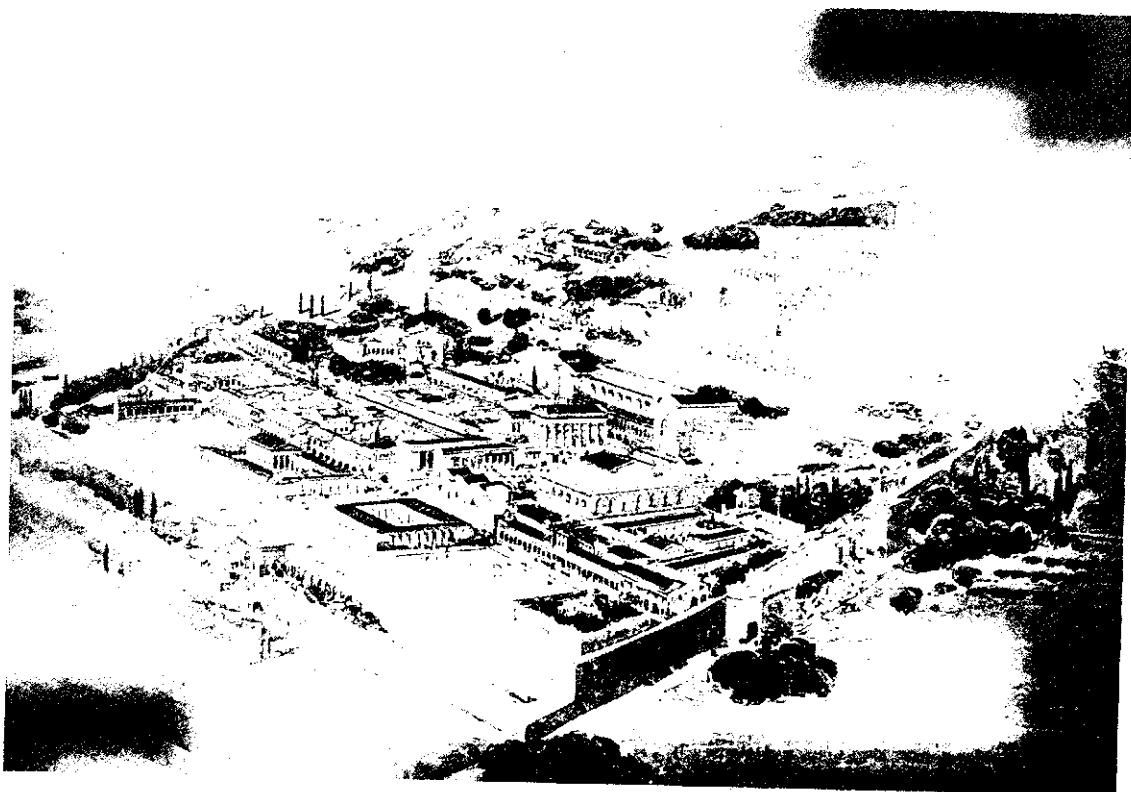
POMPEII

PLAN OF POMPEII, ITALY



TURIN
TORINO

PLAN OF TURIN, ITALY



CONJECTURAL RECONSTRUCTION OF PRAENESTE (PALESTRINA), ANCIENT CITY IN LATIUM, ITALY, BY H. CHALTON BRADSHAW, A.R.I.B.A.
Reproduced from *Towns and Town Planning, Ancient and Modern*, by T. H. Hughes and E. A. G. Lamborn, Oxford University Press, 1923

LATER ROMAN CITIES (90 TO 20 B.C.)

In later periods the Romans continued to develop colonies for discharged soldiers, still laying out the towns along the lines of their military camps. They appear to have deliberately fostered emigration from populous places to what are now called satellite cities.

There was the same absence of spaciousness in the residential areas of Roman as in Greek cities. The blocks varied, some being from 70 to 80 feet square, as in Timgad in northern Africa; and others 225 by 240 feet, or 240 feet square, as in Turin. A usual size approximated 120 by 240 Roman feet,¹ which was the unit of the Roman iugerum.

Referring to Rome, Dr. Thomas Ashby, director of the British School in Rome, has said that the natural topography of the site of Rome rendered any systematic scheme of planning very difficult.² The planners of old Rome may have acted consciously in avoiding a rectangular pattern because they recognized the value of fitting the plan to the difficult ground levels. They had some regard for natural features and could not but be influenced by the position of the walls and gates. Julius Caesar spent a sum equal to about \$3,000,000 in extending the Forum and made changes in order to improve communications. He provided additional space for street traffic by widening the Via Lata; issued an edict prohibiting streets from being used in the daytime by commercial vehicles; and built colonnades and porticos to protect pedestrians from the rigor of the elements.

Rome had a group of forums comprising the Trajan, Augustus, Julium, Romanum, Nerva, and Vespasian—all, except the Forum Romanum, being laid out in rectangular form. The largest was the Forum of Trajan which, combined with the Basilica Ulpia, covered an area of 500 by 400 feet.

In the time of the Republic (510 to 28 B.C.) the great oblong Forum Romanum, comprising two and one-half acres, was the center of public life of the city. Julius Caesar made efforts to improve the connections between this forum and the northern portion

¹ Approximately the same in English feet.

² Ashby, Dr. Thomas, "Rome." In Transactions of the Town Planning Conference, London, 1910, p. 133.

of the city. The most direct connection is along the Corso, the great thoroughfare stretching from the foot of the Capitoline Hill to the Piazza del Popolo, where two other principal streets, the Via di Ripetta and the Via del Babuino, also converge from different directions.

During the reign of Nero in 63 A.D. advantage was taken of the fire which destroyed the city to change its plan. Nero appropriated certain lands for public uses and compelled private owners, under pain of forfeiture, to reconstruct their houses immediately and in a more substantial way, as well as requiring them to allow a greater width for streets. Other emperors followed with extensive improvements or changes.

Prominent examples of rectangular planning in the late Roman period are found in Turin, Verona, Pavia, Piacenza, Florence, and Lucca. Turin,¹ the most famous, was founded about 28 B.C., and covered an area of approximately 127 acres. The street plan has survived intact and shows the town cut into two sections by the principal street. The insula was about 240 feet square; and the cul-de-sac place was extensively used to form access to the interiors of blocks. Modern Turin has largely followed the same lines of development, although its principal street, Contrada del Po, is diagonal.

Other examples are Aosta, built about 25 B.C., and Florence, one of the original Roman *coloniae*, built probably between 90 and 80 B.C. The original plan of Florence was rectangular,² although it developed certain irregularities in its street alignment outside the central part of the city.

Lucca is typical of most of the early Italian cities in that it combines a main rectangular form with jogging lane connections serving the interior of the blocks.

Farther south are the cities of Naples and Herculaneum. Naples was a Greek city before 90 B.C. Its blocks were oblong, generally 117 by 594 feet.³ Some of the larger buildings were spread across two blocks. This practice is being followed in the United States

¹ See illustration facing p. 60.

² See plan Figure 2, p. 125, of *Transactions of the Town Planning Conference*, London, 1910.

³ See plan facing p. 101 of *Ancient Town Planning* by F. Haverfield.

today, in Manhattan, New York, where large plottage is necessary in order to accommodate its huge skyscrapers. The general size of blocks fixed in the plan of Manhattan adopted in 1807 was 200 feet by 600 feet and more nearly resembled those of Naples than of other early cities. Professor Haverfield draws attention to the similarity between the plan of Naples and that of Carthage. Praeneste (Palestrina), situated 22 miles from Rome, was an important summer resort of the Roman nobility; among those who occupied villas having been Augustus, Horace, Tiberius, and Hadrian. A conjectural reconstruction of the city shows its monumental character.¹

ROMAN PROVINCIAL CITIES (123 B.C. TO 270 A.D.)

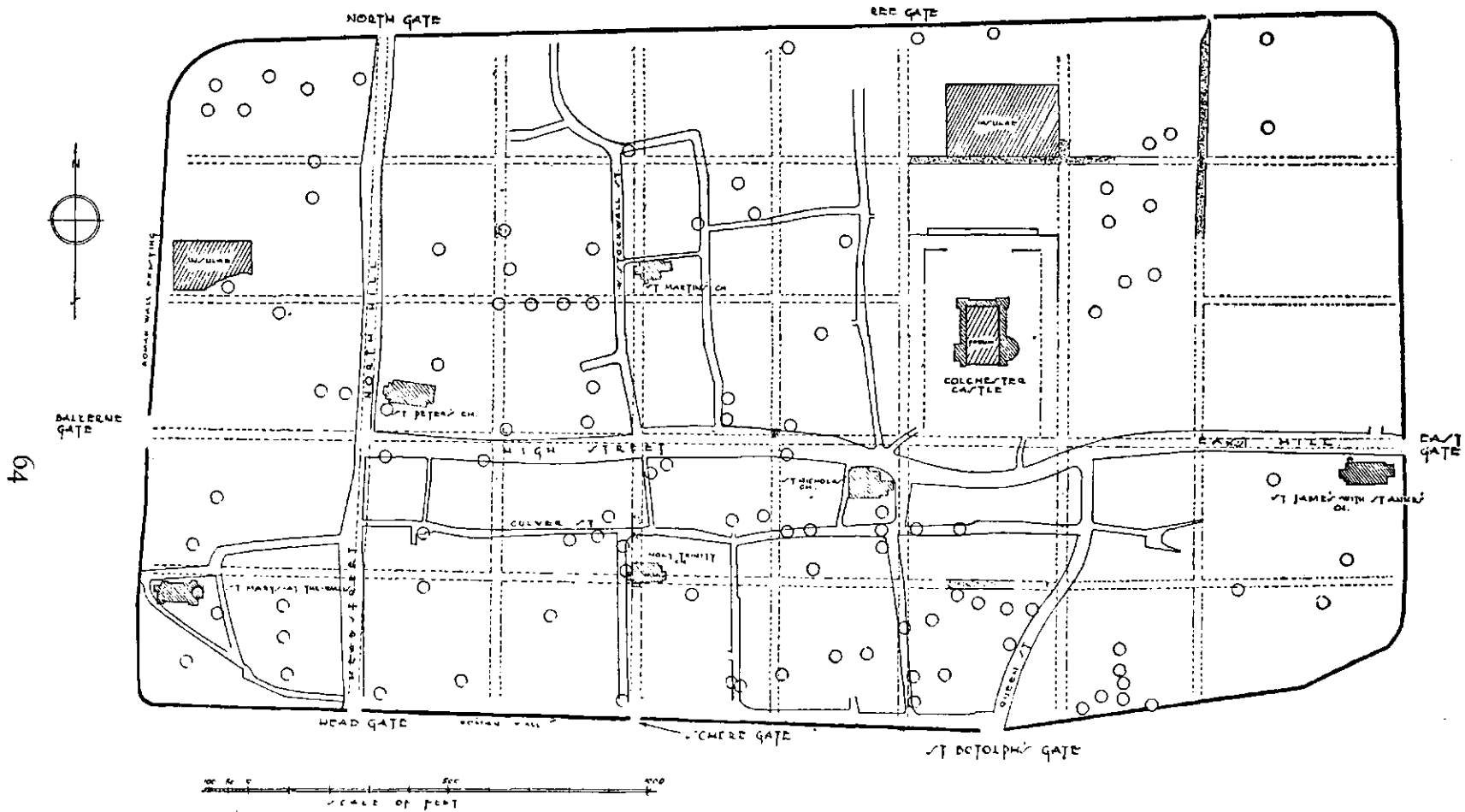
Timgad, in northern Africa, built about 100 A.D., was one of the Roman colonies founded for time-expired soldiers.² It has a regular chessboard pattern, the blocks averaging 70 to 80 feet in each dimension. Streets were 15 to 16 feet wide, but in certain instances main streets were widened by colonnades. All had well-built sewers. There was no provision for open squares other than the forum. The town grew beyond its walls, and apparently no attempt was made to extend it in conformity with the walled-in area.

Carthage, 123 B.C., covering about one mile by two miles along the shore of the Mediterranean, contained 1,200 acres and had blocks 130 by 500 feet, roughly, two Roman iugera. Lesser provincial towns of whose plans something is known are Autun, rectangularly planned in central Gaul; Trier (or Treves), in northeastern Gaul; and Lincoln, Caerwent, and Silchester in England. From excavations made in 1909, Silchester was found to have been a regular eight-sided area of 100 acres, its plan conforming to the characteristic Roman pattern.³ Its distinction, compared with the other Roman provincial cities, rests on the large proportion of its area devoted to gardens and other open spaces.

Civita Augusta which occupied the site on which the city of London now stands was never a strictly Roman town in design. It was not founded by the Romans until after the first century of

¹ See illustration facing p. 61.

² Ancient Town Planning by F. Haverfield, frontispiece and p. 100. ³ *Ibid.*, p. 128.



ROMAN COLCHESTER, ENGLAND
 (Copy of Plan at Hollytrees Museum)

The Roman streets are shown in dotted lines, existing streets in solid, and sites of Roman buildings in hatched. Circles indicate the places where pavement or house walls have been found

the Christian era. It was situated on high ground between the Fleet and Lea Rivers and had its north, south, east, and west gates leading to the great Roman roads. Previously, in 5 A.D., Cymbeline, a mythical king of Britain, had established a seat of government at Camulodunum (Colchester) and the Roman Verulam had been developed on a site near the present St. Albans. The walls with the remains of the guardroom of the Roman stronghold at Colchester can still be traced.

The Roman town plan of Colchester is described by R. E. Mortimer Wheeler and Philip G. Laver, in the *Journal of Roman Studies of the English Society for the Promotion of Hellenic and Roman Studies* thus:

The general plan of the Roman town as we know it is a natural compromise between the conventional Roman pattern and the exigencies of the site. The north-eastern corner of the "promontory" rises sharply from the broad marshy valley of the Colne on the north and east, is further defended on the south by a small, steep re-entrant, and only on the western back of the ridge is the site naturally accessible. Here, at the weakest point, a great fortified gateway (the largest known in Britain) was thrown across the path. . . .

The available information only allows us to suppose tentatively that the evidence indicates a quadrangular area some 350 feet broad from east to west and perhaps rather more from north to south, bounded on at least two sides by variously paved compartments between two parallel systems of Roman walls, of which the inner may have supported a colonnade. Within the quadrangle and slightly west of its center are the vaulted compartments which probably formed the sub-structure of a temple. The whole scheme if verified is reminiscent of that of the forum at Aosta. . . . Excavations revealed the general plan of a considerable part of the *insula*, together with the line of the streets. These streets are of special importance since they are the only Roman streets hitherto definitely detected by excavation within the walls of the town. . . .

The first street was found 310 feet south of and parallel to the north wall of the town and extending across the whole width of the Park. It was from 23 to 25 feet wide, but it had at some period been reduced in width to rather less than 20 feet. On the west boundary this street was crossed by another which ran partly under the modern Ryegate road toward the side of the Roman North Gate. . . . The *insula* would thus be bounded by three roads on the west, south and east.¹

¹ *Journal of Roman Studies*, vol. 9, pp. 139-169.

OUTLINE OF TOWN AND CITY PLANNING

The famous city of Palmyra, situated on an oasis in the desert east of Syria, first came into political importance between 17 and 66 A.D., and reached the most splendid period of its history between the years 130 and 270. It stood on a site where the Arab colony of Tadmor had been founded, probably in the twelfth century B.C., as the trade center on the great routes between the Phoenician ports and the Persian Gulf, and between Arabia and Egypt. It was a product of Arabic, Aramaic, Greek, and Roman civilization. Much of the wealth derived by the merchants of Palmyra was used in adding to the embellishment of the city. The most imposing architectural achievements were the great Temple of the Sun and the colonnaded avenue which formed the main axis of the city. This latter began at a triumphal arch, had a length of 3,500 feet, and at one time had several hundred columns. Lofty towers were erected as tombs, the architectural quality of these being finer than that of the buildings used for residential purposes, but the greater part of its inscribed monuments were erected after 105 A.D. Its government was modeled on that of a Greek municipality under the Roman Empire, an illustration of the interweaving of Greek and Roman influence on civic government and art of this period.

Aurelian destroyed Palmyra in 273 A.D. and, although he restored the walls and the Temple of the Sun, the city never recovered its former prestige. In 527 A.D. an aqueduct and a wall were built by Justinian. The city was destroyed again in the eleventh century, this time by an earthquake, but it remained a place of some wealth and importance until the fourteenth century. A book published by L. F. Cassas in Paris in 1799, entitled *Voyages Pittoresques de la Syrie et de la Phoenicie*, contains many fine drawings of Palmyra, some of which are reproduced in *Town Planning in Practice*, by Sir Raymond Unwin, already referred to, together with a description, of which the following are extracts:

Cassas draws attention to the curious bends in the main colonnaded street, and to the masterly way in which these bends have been treated by means of triumphal arches, so that looking along the street from either direction the arch set square with the line of the street terminates the vista. . . .

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We must admire also the treatment of the road junctions, at one of which four immense pedestals, each carrying a group of four columns with their entablature, emphasize the crossing. . . .

In these streets the central space or roadway was open to the sky, the side avenues or footways being covered in with a terraced roof, often extending over the shops and offices on each side, which, in some cases at any rate, were of two storeys. . . . The central avenue of the main street at Palmyra is 37 feet wide, flanked on each side by a row of columns 31 feet high. There were originally 454 columns in this street, of which 116 were still standing erect in Cassas' time. The side avenues or covered walks were 16 feet wide.

Constantinople (now Istanbul) was planned and developed by the Romans. It was laid out on the splendid site of Old Byzantium by Constantine the Great in 328 A.D. and became the capital of the Christian Roman Empire lasting from 330 to 1453 A.D., when it was stormed and taken by the Turks. The march of the Roman Empire toward the east depleted Rome of its greatness, caused a gradual dwindling of its population, and made the Christian and Greek city of Constantinople the first city of the world during the Middle Ages. The powerful position and prestige in Europe held by the Later Roman, or so-called Byzantine Empire in this period, is not always recognized by historians of European civilization.¹

Into his new city of Constantinople, Constantine incorporated ancient Byzantium, with its existing walls, gates, market-place surrounded by porticos, baths, hippodrome, theaters, acropolis, and stadium. He erected new walls two miles beyond the old city boundaries. As happened when Washington was laid out as the capital of the United States, Constantine was criticized by his courtiers for making the city limits too wide, but eighty years later they were found to be too narrow for the population. In 413 A.D., the city was enlarged and refortified.

The plan was adjusted to an unusual topography, which comprised three distinctive areas: one consisting of level ground and slopes facing the Sea of Marmora; one of a range of hills forming the middle portion of the promontory; and one of level ground and slopes facing the Golden Horn. The plan of the city was divided

¹ See article on Roman Empire, Later, in the Encyclopaedia Britannica, 14th ed., vol. 19, p. 432.

into three parts corresponding to these physical divisions. A great street was planned through each part from east to west, lined with arcades on both sides in the business centers and on one side elsewhere; other streets were mostly narrow. This street, called the Mesé, formed a triumphal procession way, linking the great forums of Augustaiion, Theodosius I, Amastrianon, Boûs in Ak Serai, Arcadius or Theodosius II. On the north side of the Augustaiion Forum, at the center of the city, stood the church of St. Sophia, the greatest cathedral of the East. The Chalcé, the great gate of the Imperial Palace, faced the south side. The Palace with the Hippodrome occupied the territory down to the water's edge—and as extended by the successors of Constantine, consisted of a large number of detached buildings in large grounds with fine views from the Sea of Marmora. On the east was the Senate House and on the west the Law Courts. The University of Constantinople occupied the Capitol close to the Forum of Theodosius I. Great aqueducts were constructed to supply water and several artificial harbors were created along the southern shore of the site.

In later periods Constantinople changed for the worse, suffering much spoliation from numerous sieges. Insanitary slums increased, streets were narrowed, and haphazard development took place in what became a conglomeration of small cities and towns rather than a unified city.

The equally famous city of Antioch, Syria, vied with Constantinople as a center of Christianity, as it had vied with Rome in splendor before the reign of Constantine. It was founded about 300 B.C., and has been described as the most splendid of sixteen cities built by Seleucus Nicator. The ancients called it "Antioch the Beautiful" and its citizens took great pride in its colonnaded streets, especially because of their value in facilitating social intercourse.

R. C. Bosanquet, writing on Greek and Roman towns,¹ quotes "Oration XI" on Antioch written by Libanius in 360 A.D., as follows:

People in other cities who have no colonnades like ours stretching before their houses are kept apart by bad weather; nominally they live in the

¹ In *Town Planning Review*, University of Liverpool, vol. 5, pp. 286-288.

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same town, but in fact they are as remote from one another as if they lived in different towns. . . . How different is Antioch! where Zeus sends no fierce hail nor prolonged snow nor heavy rain to interrupt our continuous intercourse.

Roman municipalities followed definite principles in regulating the planning of buildings. Many charters provided that no urban building could be destroyed unless replaced by another, with the special permission of the City Council; and as already observed, rules existed to prevent encroachment onto streets, to prohibit the placing of cemeteries or brickyards inside residential areas, and to limit height of buildings. While these rules were drafted in a haphazard manner and were scantily observed, the same can be said of similar rules in modern cities.

Niles Carpenter, professor of sociology at the University of Buffalo, in writing of changes in modern cities and the effect of urban expansion on the character of the natural scenery, recalls that this, too, was a phenomenon bemoaned in Roman times.

Blighted areas existed in Rome as in modern cities. They were a condition parallel with, if not incidental to, the expansion of the city in its period of great prosperity. It appears that Rome had two distinct slum and vice areas during the greater part of its history.

It is not certain when the Romans began to pave their streets. The pavement of a street ascending the Capitoline Hill in Rome was laid in 174 B.C. However, excavations now being made on the site of the city of Minturnae, in Lazio (formerly Latium), by the Museum of the University of Pennsylvania, have unearthed remains of Roman paved streets that are stated to be of the fifth century B. C.

The Romans had difficulties, not unlike those of modern times, in maintaining a prosperous agricultural population. It is recorded of the Latium region that its peasant proprietors were replaced in the fourth and third centuries B.C. by large residential estates of the aristocracy and that this led in time to decay of both town and country life in the region. Horace referred to Gabii and Fidenae in Latium as mere "deserted villages," and Strabo as "once fortified towns and villages belonging to private indi-

viduals.”¹ The decline of rural population at a much later period (1471 to 1484 A.D.) led Pope Sixtus IV to attempt methods of replacing pasture with agriculture in the Campagna.

GIBBON ON ROMAN CITIES

The following paragraphs, taken from Gibbon’s *Decline and Fall of the Roman Empire*, afford an interesting commentary on ancient cities:

In the commonwealths of Athens and Rome, the modest simplicity of private houses announced the equal condition of freedom; whilst the sovereignty of the people was represented in the majestic edifices destined to the public use; nor was this republican spirit totally extinguished by the introduction of wealth and monarchy. It was in works of national honour and benefit, that the most virtuous of the emperors affected to display their magnificence. . . .

All the other quarters of the capital, and all the provinces of the empire, were embellished by the same liberal spirit of public magnificence, and were filled with amphitheatres, theatres, temples, porticos, triumphal arches, baths, and aqueducts, all variously conducive to the health, the devotion and the pleasures of the meanest citizen. The last mentioned of those edifices deserve our peculiar attention. The boldness of the enterprise, the solidity of the execution, and the uses to which they were subservient, rank the aqueducts among the noblest monuments of Roman genius and power. The aqueducts of the capital claim a just pre-eminence; but the curious traveller, who, without the light of history, should examine those of Spoleto, of Metz, or of Segovia, would very naturally conclude that those provincial towns had formerly been the residence of some potent monarch. The solitudes of Asia and Africa were once covered with flourishing cities, whose populousness, and even whose existence, was derived from such artificial supplies of a perennial stream of fresh water. . . .

Ancient Italy is said to have contained eleven hundred and ninety-seven cities. . . . The splendour of Verona may be traced in its remains. Yet Verona was less celebrated than Aquileia or Padua, Milan or Ravenna. The spirit of improvement had passed the Alps, and been felt even in the woods of Britain, which were gradually cleared away to open a free space for convenient and elegant habitations. York was the seat of government; London was already enriched by commerce; and Bath was celebrated for the salutary effects of its medicinal waters. Gaul could boast of her

¹ See article on Latium in the *Encyclopaedia Britannica*, 14th ed., vol. 13, p. 759.

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twelve hundred cities; and, though, in the northern parts, many of them, without excepting Paris itself, were little more than the rude and imperfect townships of a rising people, the southern provinces imitated the wealth and elegance of Italy. Many were the cities of Gaul, Marseilles, Arles, Nismes, Narbonne, Thoulouse, Bourdeaux, Autun, Vienne, Lyons, Langres, and Treves, whose ancient condition might sustain an equal, and perhaps advantageous, comparison with their present state. . . . Three hundred African cities had once acknowledged the authority of Carthage. . . . The capitals of Syria and Egypt held a still superior rank in the Empire: [to Pergamus, Smyrna, and Ephesus] Antioch and Alexandria looked down with disdain on a crowd of dependent cities and yielded with reluctance to the majesty of Rome itself.

All these cities were connected with each other, and with the Capital, by the public highways, which, issuing from the Forum of Rome, traversed Italy, pervaded the provinces, and were terminated only by the frontiers of the empire. If we carefully trace the distance from the wall of Antoninus to Rome and from thence to Jerusalem, it will be found that the great chain of communication, from the northwest to the southeast point of the empire was drawn out to the length of four thousand and eighty Roman miles. The public roads . . . ran in a direct line from one city to another, with very little respect for the obstacles either of nature or private property.¹

Gibbon also refers to the extent to which the Romans corrected the natural deficiencies of ports, as in the case of the artificial port of Ostia at the mouth of the Tiber.

PRINCIPLES OF VITRUVIUS

Perhaps the first statement of principles of architecture in relation to city planning that we have in literature is that contained in the books of Marcus Vitruvius Pollio, the Roman architect,² to whom allusion has already been made.

Much of what Vitruvius said remains not only sound in theory, but also appropriate for practical application to our modern conditions. As an architect, he visualized his task as a builder of

¹ The History of the Decline and Fall of the Roman Empire. W. Strahan and T. Cadell, London, 1776, 2d ed., vol. 1, pp. 47-51.

² The quotations from Vitruvius that follow are taken from the translation of the Ten Books of Vitruvius by Joseph Gwilt, Crosby Lockwood and Company, London, 1880.

See also the translation by Morris H. Morgan, Harvard University Press, 1914.

cities rather than of separate units of buildings. The following comments and quotations give us some idea of his understanding of those principles which have as much bearing on the planning of cities as on the design of individual structures.

At the outset it is of interest to note his observation that combination of the theoretical and the practical was a "double armor," and that architecture should express the intent and purpose of buildings. Vitruvius anticipates our modern demand for city planners who can co-ordinate the work of men in the professional fields of architecture, landscape architecture, and engineering when he says of the different branches of the art and science of city building: "It is not important that preëminence in each [branch] be gained, but he [the planner] must not, however, be ignorant of the general principles of each."

When Vitruvius discusses the things on which architecture depends he stands on the firmest ground. His list emphasizes first *fitness* and *arrangement*, and secondly *proportion*, *uniformity*, *consistency*, and *economy*. These words are still used to express fundamentals in architecture and city planning.

What Vitruvius meant by *fitness* was proportioning the size of each part of a composition to its particular use; by *arrangement*, the disposition in their just and proper places of all parts of a building (and the pleasing effect of the same), keeping in view its appropriate character.

He pointed out that arrangement was divisible into three heads, viz.: the ground plan (ichnography), elevation (orthography), and perspective (scenography). His definition of *proportion* is agreeable "harmony"; for instance, in the relation of height to width, width to length, and each of these to the whole. To a lack of proportion is due so much of the failure of modern city planning. The importance of proportion is indicated by his definition of beauty: "Beauty is produced by the pleasing appearance and good taste of the whole, and by the dimensions of all parts being duly proportioned to each other." His idea of *uniformity* was symmetry rather than a continuous sameness. In *consistency* he seems to have meant sound expediency—it being that quality which made a work, in whole and in part, suitable to the occasion: and that gave guidance to design "from circumstance, custom and nature."

Economy, which so few even now associate with architecture, he defined as follows:

Economy consists in a due and proper application of the means afforded according to the ability of the employer and the situation chosen; care being taken that the expenditure is prudently conducted. . . . The other branch of economy consists in suiting the building to the use which is to be made of it, the money to be expended, and the elegance appropriate thereto; because as one or other of these circumstances prevails, the design should be varied.

CHOICE OF SITE

In connection with the building of a new city or the expansion or rebuilding of parts of an existing one, a primary task is to advise in the choosing of sites for different purposes. What Vitruvius says respecting the qualities which a site should possess, while referring specifically to the needs of new cities, has a bearing on the general problem of the location and character of land for building development. Healthful situation was of first importance, high ground, an absence of marshy places, and a temperate climate being suggested as desirable objectives. He recalled that the ancients, when prospecting for a permanent encampment, examined the livers of animals native to the site to see whether or not they were healthy. Marshy lands near the seacoast were not altogether improper because of the ease with which sewage could be discharged into the sea; but care had to be taken that seaside situations were not too insalubrious.

Vitruvius gives the following description of an unhealthfully located city:

The old city of Salapia, in Apulia, built, as some say, by Diomedes on his return from Troy, or, as others write, by Elphias the Rhodian, was so placed that the inhabitants were continually out of health. At length they applied to Marcus Hostilius, and publicly petitioned him, and obtained his consent, to be allowed to seek and select a more wholesome spot to which the city might be removed. Without delay, and with much more judgment, he bought an estate in a healthy place close to the sea, and requested the Roman senate and people to permit the removal of the city. He then set out the walls, and assigned a portion of the soil to each citizen at a moderate valuation. After which opening a communication between the lake and the sea, he converted the former into an excellent

OUTLINE OF TOWN AND CITY PLANNING

harbour for the city. Thus the Salapians now inhabit a healthy situation, four miles from their ancient city.

The operation here described was not unlike that carried out by Edward I of England, when he moved the city of Winchelsea from its site on the marshes adjoining the sea to high ground several miles inland.¹

Of the various matters to be considered in making a city plan, Vitruvius writes as follows:

When we are satisfied with the spot fixed on for the site of the city, as well in respect of the goodness of the air as of the abundant supply of provisions for the support of the population, the communications by good roads, and river or sea navigation for the transport of merchandise, we should take into consideration the method of constructing the walls and towers of the city.

This is a clear indication of the importance attached to transportation. In modern times this question is more related to the supply of food than when cities were much smaller.

PLANS OF CITIES

On the subject of design, Vitruvius makes this statement:

The plan of a city should not be square, nor formed with acute angles, but polygonal; so that the motions of the enemy may be open to observation. A city whose plan is acute-angled, is with difficulty defended; for such a form protects the attacker more than the attacked.

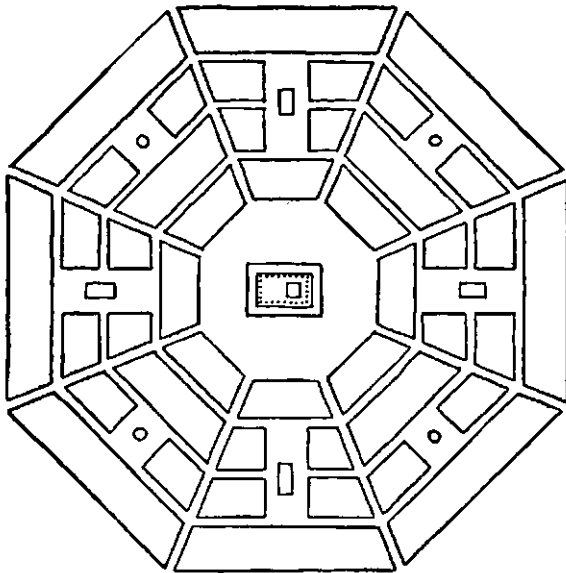
Here we see the question of protection regarded as of first importance. This shows also in the statement that the first branch of architecture to be considered in planning is "the general plan of the walls of a city and its public buildings"; that the second relates to private buildings. In modern city planning similar divisions are made, and proposals dealing with public property are separated from those dealing with private property.

Next to defense as an object of planning were the purposes of religion and security of the public in matters relating to convenience of communications and to health. In the modern city, of course, defense is no longer a factor in the erection of walls, towers,

¹ For fuller description see p. 94.

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and gates; but artificial limitations do exist, such as railroad embankments which enclose or separate certain parts of our cities and hamper their growth. On the other hand communities and railroad companies have been wisely guided on occasion in designing railroad stations to form dignified gates to cities. In matters of religion, cathedrals and churches have taken the place of pagan "fanes and temples of the immortal gods"; but less concern is now shown in selecting dominant situations and in preserving open surroundings of religious buildings than was shown by either the Greeks or Romans.



VITRUVIUS' IDEAL CITY PATTERN

In the ancient city, the question which had to be considered after the circuit of the walls and the placing of public buildings was the disposition of the area within them, and "the proper directions and aspects of the streets and lanes." Thus, Vitruvius did not have that erroneous conception of city planning which puts the street system first. In the laying out of streets, he with other ancient planners placed a good deal of importance on exclusion of winds. In this connection, he refers to Mitylene as "magnificently and elegantly designed, and well built, but imprudently placed."

He suggests that the forum should be situated close to the harbor, if the place adjoins the sea, or in the center of the town if it is in-

land, and he recalls that the Greeks proportioned their agoras to the size of the population, so that the space should be neither too small nor too large.

BUILDING AND ZONING

Descriptions by Vitruvius of details of building operations give us some idea of the regulations imposed by public authority. He referred to the fact that public laws in Rome forbade a greater thickness of wall than one foot and a half where such walls abutted on a public way; and to prevent loss of room, the other walls were not built thicker. He goes on to say in regard to a structure that "since therefore the area it occupies would not in such case contain the number to be accommodated, it became absolutely necessary to gain in height that which could not be obtained on the plan."

This brought about the erection of stone piers or walls of burnt bricks, tied together by timbers, which enabled the Roman people to multiply the number of stories to their houses. Obviously, the reason for the regulation against thick walls was the narrowness of the streets, which indirectly contributed to a greater height of building. Vitruvius stressed the need of providing ample and pure supplies of water and effective sewage disposal. The Romans used their wealth to beautify their public buildings and places, and they required that theaters should be healthfully situated so that people could enjoy games in good air, free from noise, and well shaded from the sun. When Vitruvius speaks of the convenience of symmetry of private houses, he is alluding chiefly to dwellings for the wealthy.

An important principle put forward by Vitruvius was that the height of buildings should be related to the width of streets and courts with the object of securing adequate lighting of rooms. Disregard of this principle has been productive of some of the worst social evils and economic blunders in the development of modern cities.

Of the principles he expounded in relation to building and city planning, none was more important than that proportion required the greatest care; that when this was sound, a skilful man should consider the nature of the place, the purpose of the building, and its beauty. He placed great emphasis on orientation of private

houses; bed-chambers and libraries should be toward the east, and so forth. In country districts, the size of a house should be dependent on the extent of the land attached to it. The first condition was salubriousness of situation.

The accompanying city pattern prepared by Vitruvius shows a well-co-ordinated arrangement of diagonal and rectangular streets and series of squares.

CHAPTER II

CITY PLANNING IN EUROPE IN THE MIDDLE AGES

GENERAL CONDITIONS

WITH the fall of the pagan Roman Empire and the invasion of the great provinces by the barbarian races from the North, southern Gaul and Spain were overrun by the Visigoths, the Rhone Valley was taken over by the Burgundians, and Italy itself by the Ostrogoths. Africa fell to the power of the Vandals, while the Franks held most of France and part of western Germany. Thus began the long period of strife now known as the Dark Ages. By the end of the eighth century Spain was almost entirely in the hands of the Moslems, who had also conquered Egypt and the northern coast of Africa. Meanwhile, the great kingdom of the Franks had been largely extended. In general this was a period of destruction of existing cities, rather than of planning and creation of new cities.

After the eleventh century, however, much town building took place and we have evidence that some towns were carefully planned. Most of the early mediaeval towns in Europe were laid out in irregular lines and apparently no effort was made to arrange their street systems in geometrical form. Such towns as the bastides of southern France¹ were an exception. The fact, however, that a town was planned with rectangular streets and blocks did not mean that it was designed more intelligently than towns that were planned or developed with irregular street systems. Judgment of the art of planning must rest on a conception of the organization of cities as a whole, not merely on the layout of streets. Street patterns of mediaeval towns, many of which are still in their original state, show the extent to which irregularity of planning was contemporary with a high degree of artistic achievement in city building.

¹ For fuller description see pp. 86-87.

Many picturesque effects produced by variations in the widths of streets and the closing in of public places in towns of the Middle Ages may have been the result of accident rather than design; on the other hand it may be, as Camillo Sitte has contended, that much of the architectural arrangement of these cities was the result of deliberate planning.¹ To the extent that they show conformity with levels of the land, and result in agreeable composition of large groups of buildings with closing of vistas in public places, they show evidence of a quite high standard of civic architecture. The curving of streets and variation in their width that permitted a better display of buildings are apparently the result of conscious effort. In any event the picturesque charm of these towns seems to justify the conclusion that, if they were not planned as a whole, they were planned in a series of parts and revealed great skill in the art of building. From the point of view of circulation of traffic, their irregularly shaped places, their radial roads connecting the center of the town with encircling routes following the lines of their fortifications, produce, on the whole, a more convenient arrangement than had the pattern been rectangular.

The picturesqueness that distinguished their streets was present also in their civic centers and market-places. Public buildings were irregularly grouped about central places with some effort to create an artistic effect. Usually the open spaces were irregular in shape but some were symmetrical in conformity with Roman tradition. The focal life of the city was around a cathedral or a church combined with an open market-place, which was largely occupied by itinerant vendors on market days and on other days was a quiet resort.

As fortified communities with encircling walls, mediaeval cities had to a large extent the same compact unity as great castles. The ring roads that abutted on fortifications tied together the radial streets, giving direct access to the various city gates. The scale of buildings was nearly always well adapted to the widths of streets and other open areas.

¹ Hegemann, Werner, and Peets, Elbert, *The American Vitruvius: An Architect's Handbook of Civic Art*. The Architectural Book Publishing Company, New York, 1922, pp. 7-28.

When we compare the mediaeval city with the modern city, we have to remember that the ill effects of lack of proper sanitation in the former were offset to some extent by their small size and consequent nearness of the inhabitants to the open country.

The nature of the sites had much influence on their planning and development. A picture of Teschen, Silesia, as viewed in the seventeenth century, presents an interesting silhouette of a mediaeval town. The defensive walls formed a fine base for the variety of towers, spires, and roofs that made these cities as interesting in mass as in detail.

The informal street patterns of the mediaeval city harmonized with Gothic architecture just as the formal patterns of Greek and Roman cities harmonized with the classic design of their buildings. Where we find either at its best, it connotes a higher sense of order than is present in most of our modern cities.

Mediaeval builders were craftsmen with a strongly developed aesthetic sense, combining with it a freedom of action which enabled them to avoid the particular evils that arise from the adoption of a stereotyped system of street planning.

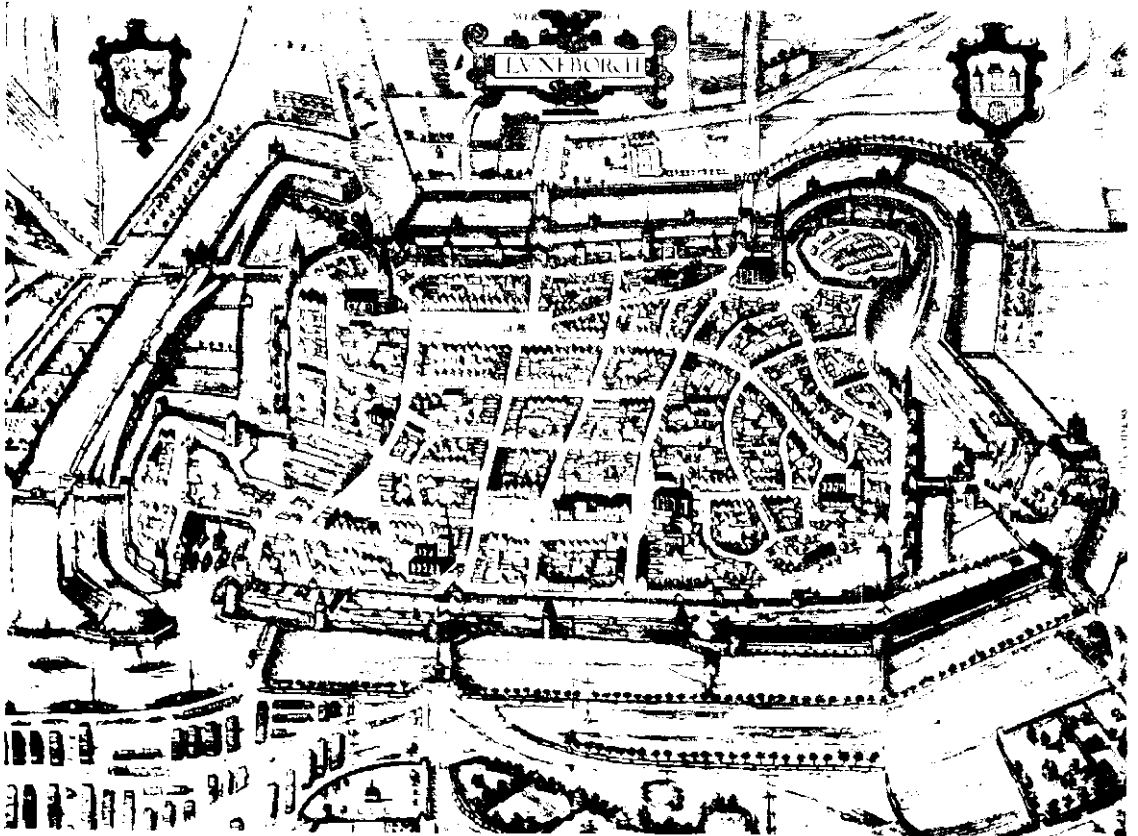
Probably no German town of the Middle Ages had more than 25,000 inhabitants. As in later feudal times, in England and elsewhere, civic improvements were made at the whim of a few rulers rather than in response to public demand.

Professor T. F. Tout, of the University of Manchester, to whom the writer is indebted for valuable information,¹ tells us in his book on Mediaeval Town Planning that normal mediaeval conditions were not favorable to the art of city planning. The small size of the ordinary state, and the limited control which it had over material resources, prevented an extensive urban growth. The development of large cities in the great nations of today has been made possible by that increase of knowledge which has given almost unlimited power in the harnessing of nature to their service. Modern conditions were more nearly approximated in the great days when the civilized West was ruled by the Roman Empire, or, in a still more distant period, when Alexander and his successors

¹ Tout, T. F., Mediaeval Town Planning. The University Press, Manchester (England), 1917.



Courtesy of American Geographical Society of New York
 PERSPECTIVE VIEW OF TESCHEN, AUSTRIAN SILESIA



PLAN OF LÜNEBURG, GERMANY



PLAN OF ROTHENBURG, GERMANY, AS IN 1884

(Reproduced from *Town Planning in Practice* by Raymond Unwin)

Note comparative regularity of arrangement but variations in width of main thoroughfares. The widest street (Herrngasse) leads to and ends in the Market Place, facing which is the fine Gothic Town Hall.

compelled the Near East to submit to a veneer of Western civilization.

There is a great gulf between the types of civilization which existed in antiquity and those of later periods. With the Middle Ages we are again on fresh ground. For many centuries we see conditions very inimical to town life in all its forms. Greek and Roman thought that the happy life could be lived only in the city; but the nascent civilization of the Middle Ages in Europe was of the country, not of the town. Its unit was the court and manor of the feudal landlord, with the homesteads and farm buildings of his humbler tenants adjacent to it. There existed neither the good government necessary for ordered town life, nor the industry and commerce that made it economically practicable for great hordes of men to live together in an urban area. When men gathered together, they did so only for mutual protection and defense. Had it not been for this necessity, every man would have remained close to the fields and meadows which assured him his subsistence.

Charles Seignobos, professor of modern history, University of Paris, tells us that there have been only slight changes in the country districts of France since the Middle Ages. Of peasant settlements he writes:

In the plains of the south, north, and east the houses cluster together in a village, from which the peasants go forth every morning to till their lands, the inhabitants living in a compact group in houses standing along the sides of a road, as in the towns. In mountain districts, as in the "*Bocage*" in the west, the houses are isolated, or grouped in little hamlets; the peasants live scattered about with their families, tilling lands which are usually adjacent to their houses. This difference has persisted down to the present day and has given rise to two different modes of life among the country population.¹

The tenants of these settlements enjoyed perpetual possession of their homes and owned parcels of arable land "distributed over the whole territory of the village in accordance with a plan." Forests and rough pastures usually remained the property of the superior landlord. In addition to the principal peasants there were "cottiers" (*hôtes*) who had smaller houses and land holdings.

¹ *The Evolution of the French People* (Translated from the French by Catherine Alison Phillips). Alfred A. Knopf, New York, 1932, pp. 99-100.

CITY BUILDING AFTER 1000 A.D.

After the eleventh century strong kings and princes ruled effectively, though roughly, over large dominions. With comparative security a relatively high standard of well-being was insured, and as a result there came the wonderful progress and prosperity of the twelfth century. With this revival of strong rule two factors appeared that boded well for town development. Emperors, kings, and dukes wished to hold down their conquered enemies and to promote among them their own ideals of civilization; at the same time, improved material prosperity gave more opportunity for trade and industry. Thus conquest and commerce alike raised the need for towns, and stimulated the fever for founding them that marked the twelfth and thirteenth centuries.

The political necessity for town-making arose earlier than the economic need. In the Middle Ages military considerations were always paramount in the humble beginnings of the new towns. A strong ruler would conquer some adjacent territory, and in order to defend his frontier would build rude fortresses and encourage his subjects to live in them and undertake the responsibility of their permanent defense. Thus arose the "boroughs" of Alfred the Great, the towns set up by the Franks and, later, the fortresses erected by Saxon emperors beyond the Elbe in the Slavonic districts. These artificially made towns grew into something more than fortresses, and with the coming of the clergy and traders developed to a comparatively large size.

TEUTONIC CITIES

The growth of the early cities of Prussia, Silesia, Poland, and Lithuania followed the procedure outlined above, and, to a large extent, their oldest parts were planned in rectangular forms.

Breslau had its origin in a Teutonic outpost among the Slavs of Silesia, and the towns situated in Prussia, Livonia, and Poland originated in a similar manner. These influences are visible in the disposition of Cracow, the old capital of Poland, and their effects may have been felt even farther east.

The Russian province of Lithuania long resisted all Teutonic and Christian influences, and at last only took them filtered through



VIEW OF ROTHENBURG, GERMANY
(Reproduced from *Town Planning in Practice* by Raymond Unwin)



VIEW OF NUREMBERG AND THE RIVER PEGNITZ, GERMANY

Polish channels. Vilna, the ancient capital of Lithuania, shows an orderly ground plan of the central parts contrasting with the oriental disorder of its suburbs.

Two of the best preserved and most interesting examples of old towns are the mediaeval parts of Nuremberg and Rothenburg in Germany. Both contain evidence of orderly development on somewhat irregular and highly picturesque lines.

Old Nuremberg was built on both sides of the River Pegnitz. Presumably begun by the erection of a cluster of dwellings around the Imperial castle in the eleventh century, it was enlarged at different times. A new wall was built about the thirteenth century, at a time when an increase of prosperity in Europe led to much public building and embellishment of cities. This was the period when guilds of craftsmen had much influence in promoting the art of building.

Nuremberg was apparently planned in sections as the town expanded, but was finally co-ordinated by the erection of the wall and the arrangement of the main thoroughfares in relation to the gates of the town. It contains no comprehensive grouping of public buildings around a forum as in Roman cities. The Haupt-markt Platz is near the Rathaus Platz but not combined with it. The churches are distributed, each occupying a dominating position in a small platz.

The plan of the old city illustrates how pictures have been created as a result of the convergence of streets on churches and other public buildings, and by irregularities of the building lines. Facilities for through communication are fairly direct although never along straight lines, and the minor street system is arranged, either deliberately or by accident, so as to discourage through traffic.

When the plan of old Nuremberg is compared with that of the more modern city developed outside its walls, it will be found that the latter bears strong evidence of the influence of Renaissance art; but it is also evident that an effort has been made to preserve certain values inherent in the picturesque street arrangement of the old town. While a degree of formality has entered into the planning of the streets, few of them are straight for a long distance. A

large proportion are short or curved, so that pictures are created along the axes. The expansion of Nuremberg into a large modern city has made the street system of the old town inadequate to meet its needs; but this would have happened if the plan had been of the most formal kind.

Rothenburg has not been greatly enlarged outside its walls, although there is some straggling development of a less orderly kind than is found within. It has a simple, straightforward plan fitted to its size and to the ground. Built in the thirteenth and fourteenth centuries, it was probably planned more as a whole within its fortified walls than was Nuremberg. The architecture of the streets and buildings of Rothenburg¹ affords, perhaps, the most striking illustration of the picturesque qualities of one of the best of the mediaeval cities.

Aachen (Aix-la-Chapelle) in Rhenish Prussia has some Roman history and many mediaeval associations and characteristics. Between 777 and 786 A.D., Charlemagne erected a great palace on the site of the present Rathaus (town hall). The latter was built in the sixteenth century and is of Gothic architecture. For a time the city was the center of Western culture. In 1166 Frederick I surrounded it with walls. These have now been replaced by promenades, but two ancient gates remain. The city has many fine streets and squares and a distinguished cluster of buildings in the center, including the ninth century Cathedral and the Rathaus.

Freudenstadt, in the Black Forest, was laid out in 1599 on regular lines by a German architect with Italian training.

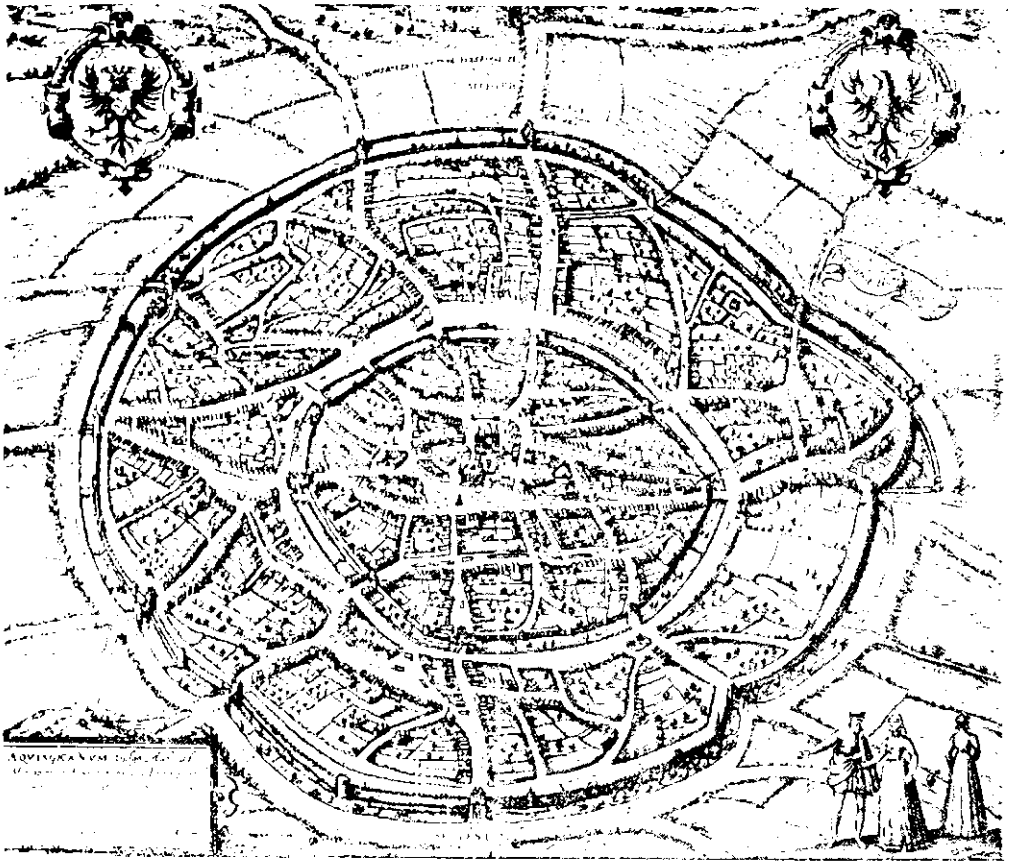
Early German cities are largely unspoilt because of German reverence for historic buildings. Good examples in addition to those already mentioned are Wurzburg, Dinkelsbühl, Hildesheim, Brunswick, Düren near Cologne, Ravensburg, Lüneburg,² Dresden, and Bremen.

FRENCH CITIES

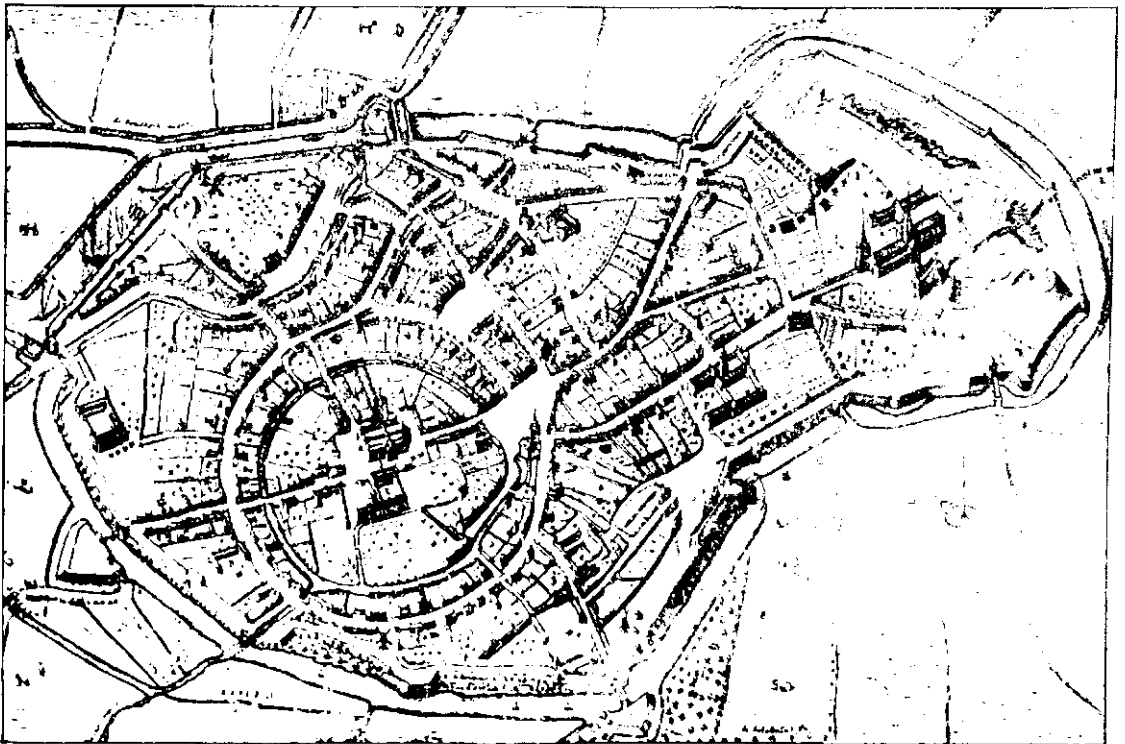
The old walled-in city of Carcassonne, one of the most interesting examples of a mediaeval city, is irregularly planned in the Gothic style and is surrounded by fortified walls. Describing the

¹ See illustrations facing pp. 81 and 82.

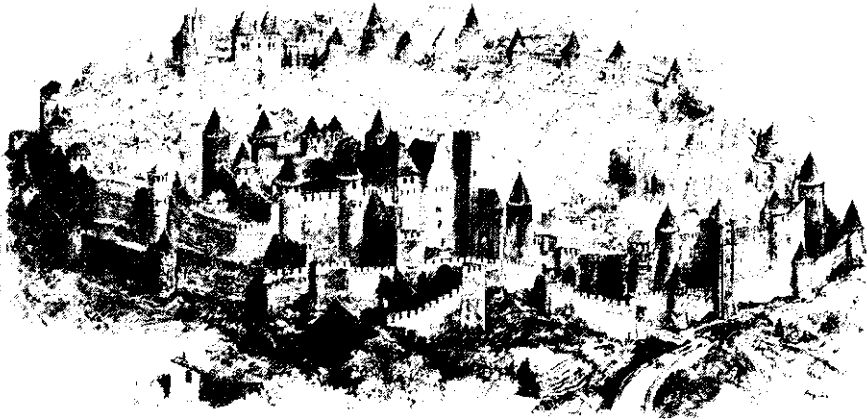
² See illustration facing p. 80.



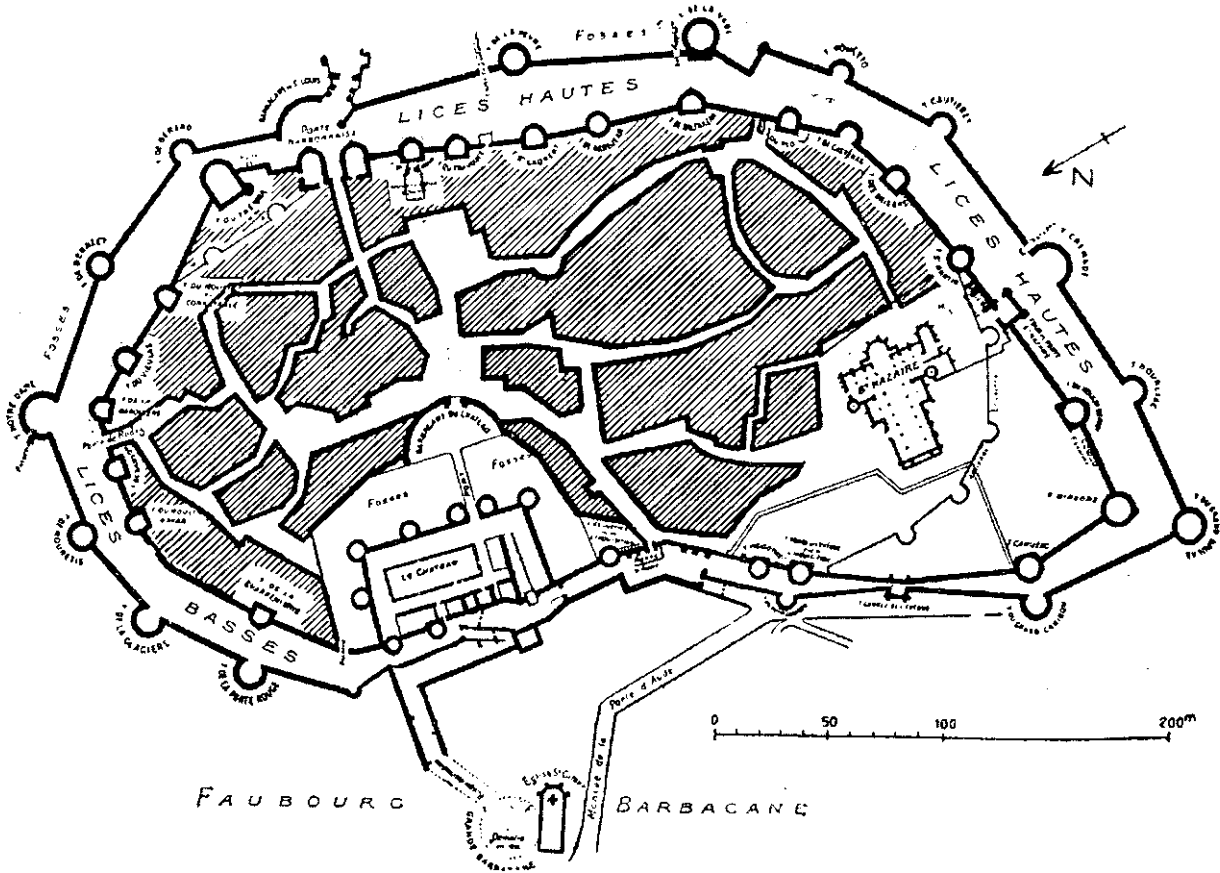
CONCENTRIC PLAN OF ANCIENT AND MEDIAEVAL PARTS OF AACHEN (AIX-LA-CHAPELLE), GERMANY



PLAN OF BERGUES, DEPARTMENT OF THE NORD, FRANCE
It shows a well-defined central feature in circular form with irregular boundaries



VIEW OF CARCASSONNE, FRANCE



PLAN OF CARCASSONNE, FRANCE

city, Dr. A. E. Brinckmann¹ says that the fifth and sixth centuries A.D. saw not only a new style in town building, but a very marked return to urban policy and a vigorous town life which were the result of new social conditions, of the development of feudalism, and of the upheaval of nations. Cities attracted the plundering Goths, Saracens, and Normans, but they seldom turned a town into a base of operations as the Visigoths did in building Carcassonne close to the Roman citadel of Carcaso. The town was surrounded by a double belt of walls protected by towers, with large gates on the east and west, and small entrances on the north and south. Against the wall stood the castle, and farther on the Church of St. Nazaire. This fortress city was thoroughly restored by Napoleon III after plans by the French architect, Viollet-le-Duc.

While the foundations of the towers of Carcassonne are mostly Roman or Visigothic, the buildings, including the castle, belong to the eleventh or twelfth century. The outer circuit was erected in the thirteenth, and the Church of St. Nazaire between the eleventh and fourteenth centuries. The plan is irregular, in keeping with the Gothic style of the buildings.

Other towns with plans of unusual interest in southern France are Avignon on the Rhone and Villeneuve-les-Avignon on the opposite bank of the river. The plan of Avignon is an excellent example of a mediaeval town pattern, with a convenient and picturesque arrangement of streets, open places, and buildings.² Villeneuve was constructed as a royal outpost of Provence, between 1293 and 1307. Sketches of the reconstruction of the town as it appeared in 1387, following the completion of the fortifications of Fort St. André show its highly artistic qualities.³

Mont St. Michel, off the coast of Normandy, although not a town, is worthy of note as an example of buildings grouped on a rocky islet. An oratory was established on this island in the eighth century, but its principal buildings were erected between the thirteenth and fifteenth centuries.⁴

¹ Transactions of the Town Planning Conference, London, 1910, pp. 166-176.

² See further reference to Avignon, pp. 91-92.

³ See illustrations facing p. 86 and p. 89.

⁴ See illustration facing p. 89.

OUTLINE OF TOWN AND CITY PLANNING

Although in France, as elsewhere, the mediaeval towns show considerable irregularity in the alignment of their streets and the disposition of their buildings, their main outline indicates some conformity to the earlier Roman plans. In general, their form was a parallelogram, with main streets crossing each other near the center and connecting with the gates.

In southern France during the twelfth and thirteenth centuries, a great deal more symmetry was introduced into the planning of new towns. Some of the best examples of city planning in the Middle Ages were the *villes-neuves* and *villes-franches* ("new towns" and "free towns") or the *bastides* (from *bastida*, building or fortress) of southern France. These towns were established by the abbeys, the nobles, and the crown. The motive for their foundation was primarily military and they were placed on frontiers or in the neighborhood of an old town likely to cause trouble.

A site was first acquired and a name chosen, a rectangular or square site being selected whenever possible; then the founder marked the central point of the new settlement. The new town was always protected by a wall and ditch, but rarely by a citadel or castle in addition.

The internal disposition of the bastide was determined on definite principles. It was divided into squares or oblongs by straight streets crossing each other at right angles, main thoroughfares leading directly from the chief gates to the center of the town. Here there was a central square, the streets themselves often flanking each side of it under arcades formed by a projection of the first floors of the surrounding houses. In the square was placed the town hall, open at the sides, the ground floor being used as a covered market-place.

Round about the square were the houses of the principal inhabitants, and nearby was a second square containing the principal church. Each settler received a plot of land on which to erect his dwelling at his own expense. It was rectilinear in shape and contained ample room for a garden at the back. Important people received more than one plot, although there was little social disparity. It was stipulated that the settlers' houses should be completed within a reasonable period. In addition to his garden, each settler was given a grant of arable land and some pasture, some-



FACADE GÉNÉRALE DE VILLENEUVE-LEZ-AVIGNON EN 1387 - LE PONT ET LA TOUR AU 17250^e LE FORT AU 1750^e

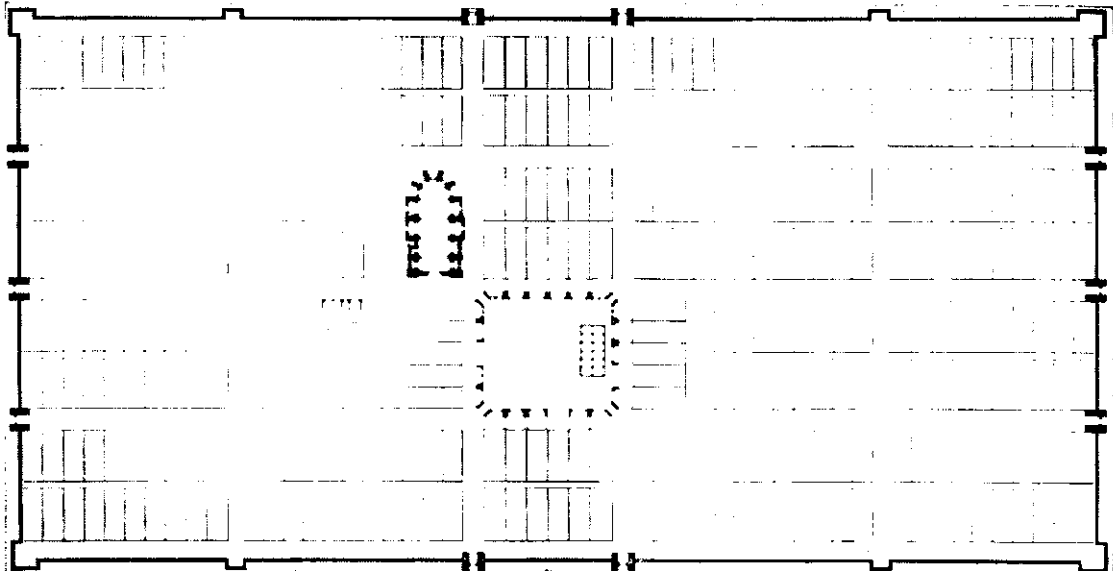
Drawing by Laurence Anderson, 1933

PERSPECTIVE OF VILLENEUVE-LES-AVIGNON, SHOWING BRIDGE AS IN 1387
Four arches now remain



Drawing by Laurence Anderson, 1933

RECONSTRUCTION OF VILLENEUVE-LES-AVIGNON AS IN 1387



PLAN OF MONTPAZIER, FRANCE

(Reproduced from *Some Account of Domestic Architecture in England* published by John H. Parker)

This plan shows the position of the central square, market place, and cathedral; the rectangular arrangement of streets and blocks; and the entrance gates



COVERED WAY AROUND THE MARKET PLACE, MONTPAZIER, FRANCE

(Reproduced from *Some Account of Domestic Architecture in England* published by John H. Parker)

times even a vineyard or orchard; and to prevent the cutting down of woods, timber for building was granted from the lord's land.

The whole scheme of the bastides was on a small scale. The roads appear narrow to modern eyes, but as carts were seldom used there was no problem of congestion. Narrow streets gave shade from the sun and protection from icy winds. With a very few exceptions, these towns never grew to a large size, and have remained small.

One of the most perfect of the bastides, Montpazier in southern France, on the Dordogne River, was founded in 1284. The plan of this town shows the strictly formal pattern on which it was laid out and the central market-place with the position of the surrounding arcades, where shopping was concentrated and could be done with comfort in all kinds of weather. The principal streets and arcades were 24 feet wide and provided sufficient space for two carts to pass each other. The minor streets or lanes were 16 feet wide, and passages leading to the courtyards of the houses 6 feet wide. The town was divided by the streets so as to secure a uniform size and shape of blocks and lots. The principal three streets did not pass through, but along the sides of, the squares. The church was in a separate square but it adjoined and was connected with the market-place.

The other important towns built on the same regular plan, and with arcaded market-places, were Montségur, Montauban, Libourne (on the River Dordogne), Sauveterre-de-Guienne, Molières, La Linde, and Sainte-Foy la Grande. Aigues-Mortes, another example, was originally a port town of the Mediterranean, but with the receding of that sea is now several miles distant. Bazas, an earlier town, is more irregular. An interesting architectural feature in some of these towns resulted from the erecting of the town hall over one of the gateways. Houses were mostly two stories high, rarely more than three—the lower story being used as a shop. The overhang of the upper story gave a sense of great narrowness to the streets, and in the alleys, windows were occasionally within handshaking distance of the opposite buildings.

The town of Cordes by reason of its situation on a hill is irregular in layout but well organized in relation to its site. A view of the

town in rising terraces of houses on the hill slopes recalls the pyramidal arrangement of Mont St. Michel.¹

About 30 new towns in France were laid out under Edward, the French-speaking prince of England, later to become Edward I of England, who married Eleanor of Gascony and controlled the province of Aquitaine. The wisdom of this monarch was shown to no better effect than in the leadership he gave to the planning of cities. The new towns he had designed in France came to be known as *villes anglaises* and were more perfect and regular than the purely French ones. But as French civilization at this period was more advanced than English it seems probable that French architects were the inventors of the system of planning and that the English perfected it and put it to practical uses.

That English architects were employed is made evident from a message sent by Edward from Bordeaux to London in 1298. He asked the authorities to send him four persons competent to lay out new towns. His appreciation of what was required to make a good plan is shown in his demand for: "the most clever and able, and those who best know how to divide, order and arrange a new town in the manner that will be most beneficial for us and for the merchants; and who shall be ready and willing to go for that purpose, wherever we may send them."²

The building of these towns was a definite policy of Edward I. He endowed them with special privileges of freedom of trade and made the inhabitants "free men, exempt from the power and jurisdiction of the neighbouring barons or bishops." As presently will be seen, the city planning policies of Edward I were pursued in England also, and were followed by Edward II and Edward III.

In some mediaeval cities new quarters were planned, such as the *quartieres des carreaux* in Boulogne-sur-Mer and the new quarter

¹ A plan and view of Cordes is shown on pages 170 and 172 of the Transactions of the Town Planning Conference, London, 1910.

² Parker, John Henry, *Some Account of Domestic Architecture in England from Edward I to Richard II*. London, 1853, vol. 2, pp. 156-157. This book also contains the following original quotation:

"En 1298 Edward I écrivait en effect à la commune de Londres, de lui envoyer quatre prodeshommes des plus sachantz et plus suffizant qui meux sacheut diviser, ordonner et arayer *une novele ville* au plus de profit de nous et des Marchantz . . . pretz et appareilles d'aller ontre pour cete besoigne la ou nous leur enjoindrons." (Documens Français inédits, tom i, p. ccxxi.)



VIEW OF CHARTRES, FRANCE

Cliche Aero-photo

It shows how the cathedral dominates the city. The modern aerodrome is seen in the background.

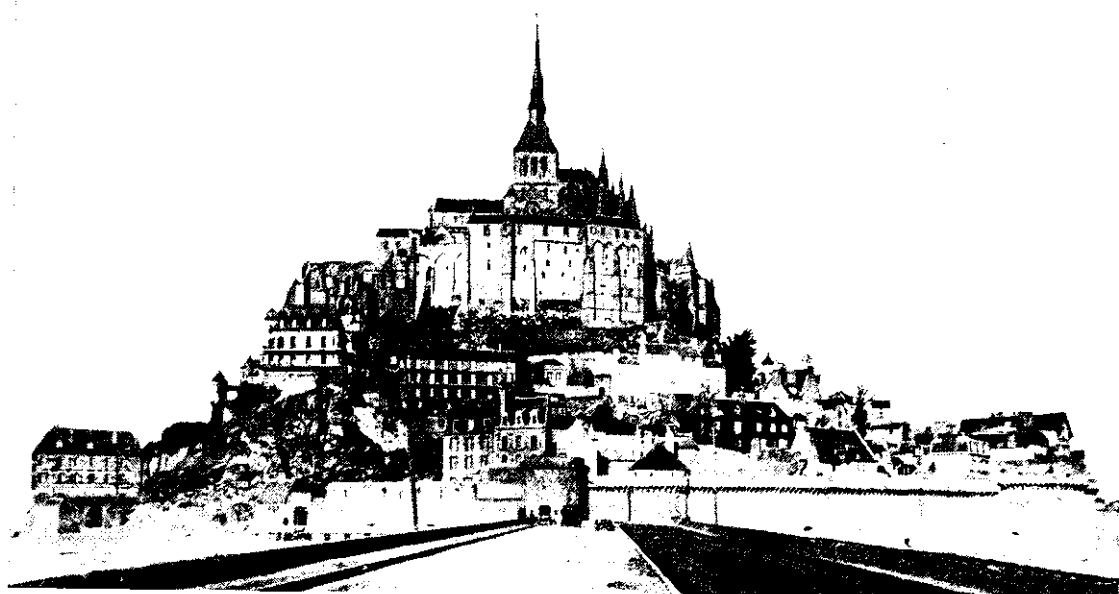
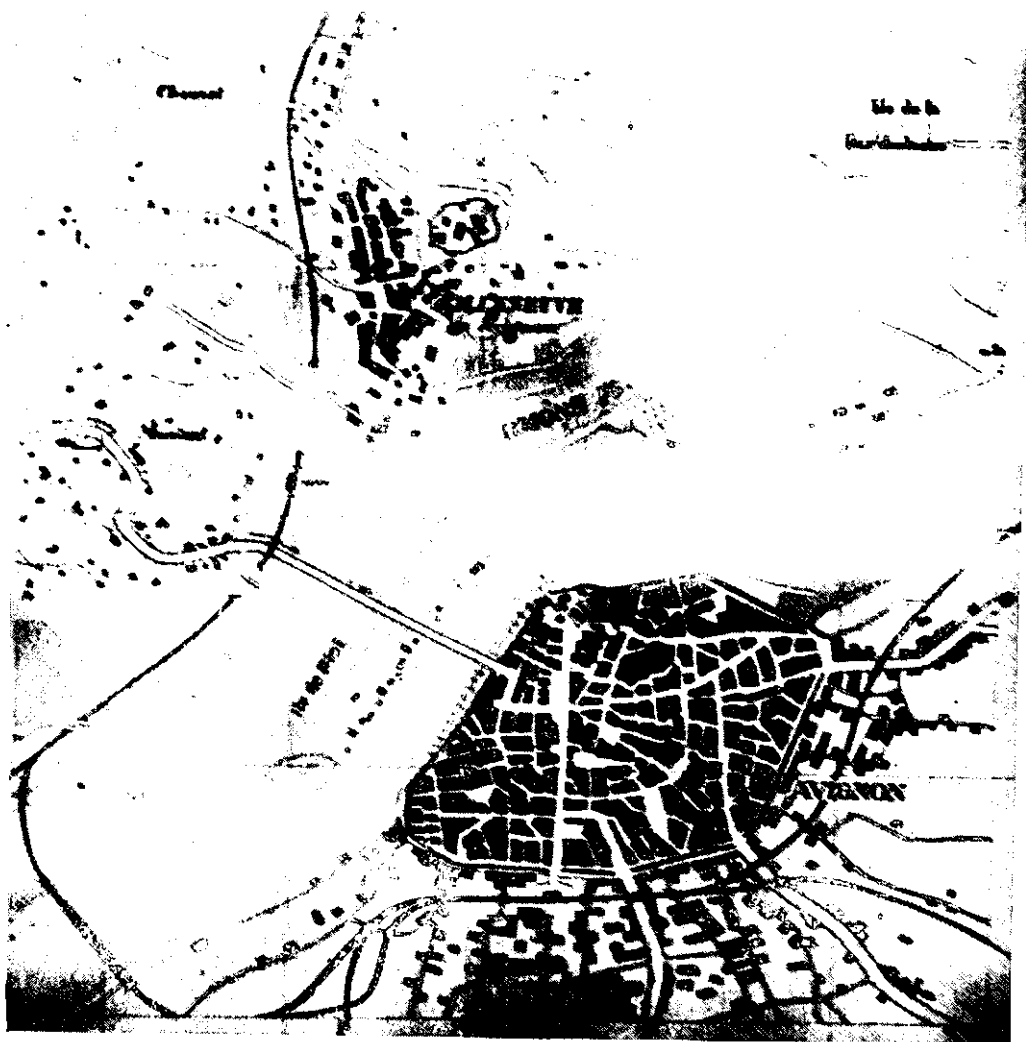


Photo by Ewing Galloway, Inc.

MONT ST. MICHEL, FRANCE



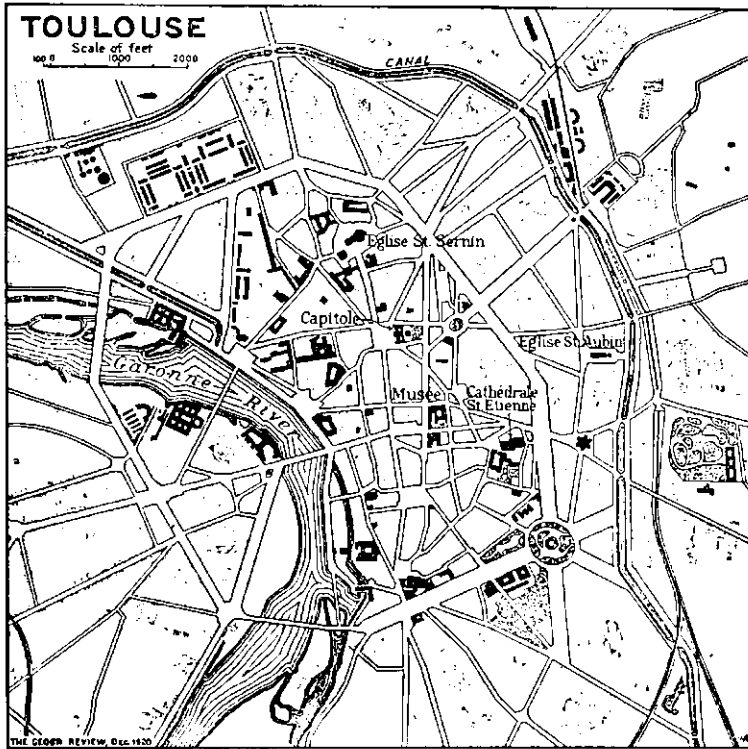
Drawing by Laurence Anderson, 1933

PLAN OF AVIGNON AND VILLENEUVE-LES-AVIGNON, FRANCE

EUROPEAN PLANNING IN MIDDLE AGES

of the city of Amiens. To this day the old chief thoroughfare remains the main traffic artery in Amiens, and with the neighboring streets affords substantial traces of the city planning activity of the fifteenth century.

Professor H. J. Fleure of the University of Wales, in an article in the *Geographical Review*¹ for December, 1920, describes the contrast between towns of Roman tradition in southern France and typical towns of the Paris basin. He takes Toulouse as an example



Courtesy of American Geographical Society of New York

PLAN OF TOULOUSE, FRANCE

of a city that shows some continuity of form and life from Gallo-Roman days, and compares it with Chartres and Beaune in the Paris basin; with Nuremberg, Wurzburg, and Ghent, and with the eastern cities of Moscow and Prague.

From a city planning point of view it is interesting to note the difference between the plans of Toulouse and Avignon, both

¹ Published by the American Geographical Society, New York.

OUTLINE OF TOWN AND CITY PLANNING

towns being in southern France and of Roman origin. Toulouse is spread across a bend of the Garonne River and has a group of three bridges, two of which form excellent links in a circular highway. The Garonne flows through the city and, because of the well-composed street system, forms a unifying feature rather than a boundary. In Avignon, which lies on only one side of the Rhone, the river forms a definite boundary with only one bridge connection across it. Professor Fleure draws attention to the analogy of Avignon, with its Palace of the Popes, to Moscow with the Kremlin as the dominating feature. He recalls the fact that in French cities, like Chartres, the cathedral was the center of civic life,¹ while in Germanic towns the castle was more dominant than the church.

BELGIAN CITIES

Few cities have a more picturesque aspect than the city of Bruges. It was a thriving city in the Middle Ages and has famous buildings. The alignment of the Rue des Pierres has the slight curvature that distinguished the main streets of mediaeval towns. The arrangement of its ramparts and promenade, its canals and many interesting bridges, and its architecture all suggest that skilful craftsmen must have been engaged in the early planning of Bruges.

Perhaps Brussels would be more appropriately referred to as an example of Renaissance planning, but its more modern plan has been developed around the mediaeval city with its narrow streets, closed-in places, and picturesquely handsome buildings. Its vanished walls are now replaced by tree-lined boulevards.

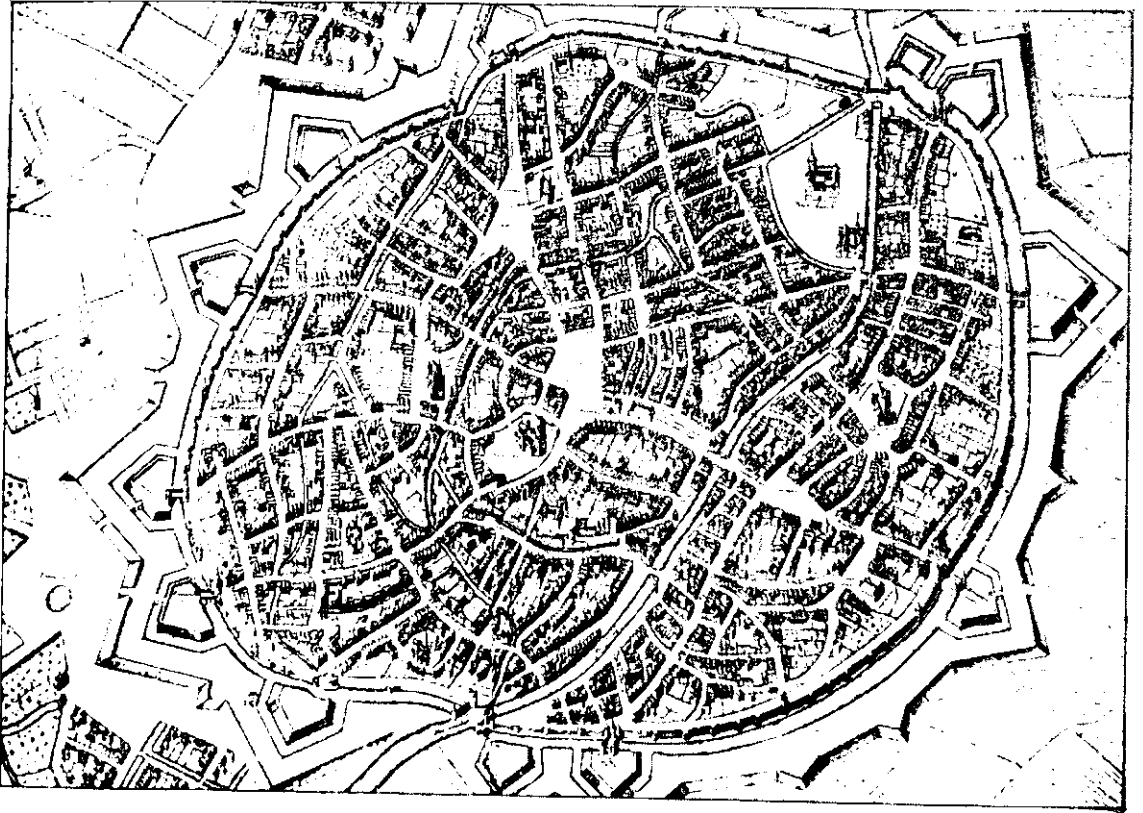
Malines has fine buildings, squares, and streets planned and built for the most part in the fifteenth century.

THE ALHAMBRA OF THE MOORS IN SPAIN

It is of peculiar interest that one of the civilized colonies of the world during the later Middle Ages was that established by the Moors at Granada, in Spain. The remains of the famous palace and citadel known as the Alhambra,² which includes within its walls the

¹ See illustration facing p. 88.

² See illustration facing p. 91.



EARLY PLAN OF MALINES, BELGIUM

An irregular street system combined with fine buildings (partly destroyed in the World War) makes this a city of interesting street pictures

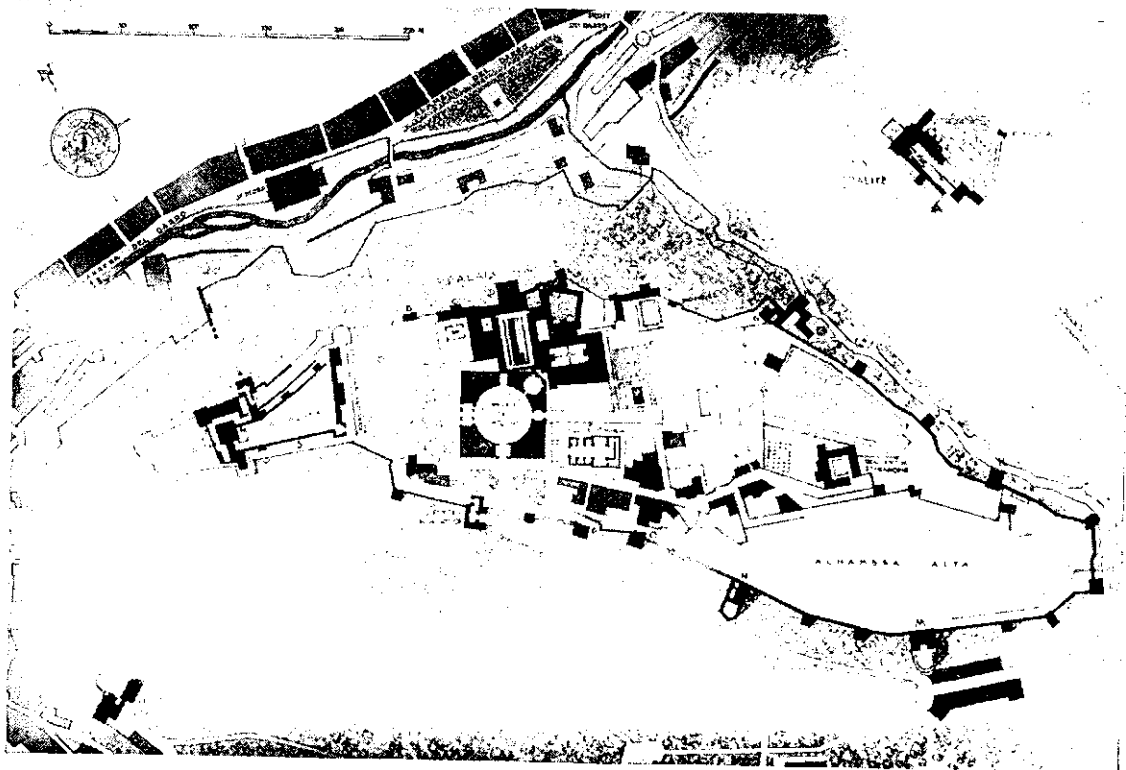


Photo by A. Vincent et Cie, Paris, 1926

PLAN OF THE ALHAMBRA, GRANADA, SPAIN



Photo by A. Vincent et Cie, Paris, 1926

PERSPECTIVE VIEW OF THE ALHAMBRA, SPAIN

celebrated Court of the Lions, bear testimony to the high standard of culture this people once attained.

Built by the Moorish kings between the thirteenth and fifteenth centuries, and ruled by Al Ahmar and his successors from 1246 until its capture by the Spanish in 1492, Granada was a great center of art, literature, and science. The choice of the site and the layout of the buildings give evidence of great intelligence in the planning of this imposing monument.

ENGLISH CITIES

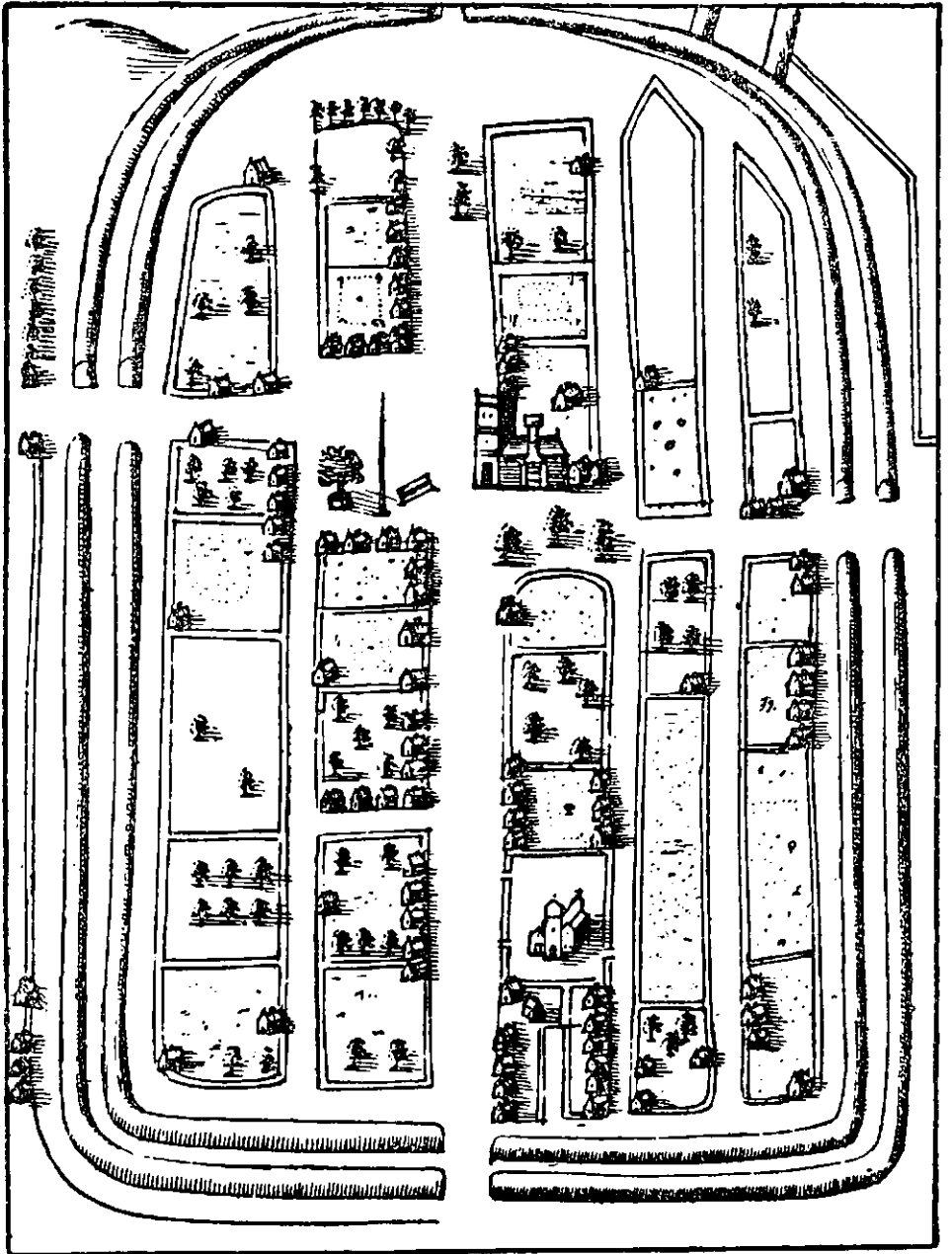
After the conquest of England by the Normans in 1066, the king and his barons set up numerous small towns and attracted settlers by promises of liberties. Such towns were most numerous in Wales and the ancient province of Cumbria. Few of the Norman foundations of this type attained much success, and none shows any indication of proper planning. It was probably not till after the twelfth century that serious attempts were made in England to plan complete towns.

The reign of law was real enough to make it unnecessary for the cultivator to have a home within the walls of a privileged borough, and there were contracts requiring new towns to protect the farmers. There were no frontiers to defend or invaders to drive out. There were no strong towns to be kept down by the building of new towns. Villages received modest privileges from time to time, but these did not involve much founding or town planning. In the thirteenth century the traces of the Roman walls with their four gates—Ludgate, Aldersgate, Cripplegate, and Moorgate—still existed in London, but there was no evidence of planning. Liverpool, which received a charter from King John in 1207, exhibits no evidence of good design in its early arrangement. The best early examples in Britain are the fortress towns of Flint, Conway, and Carnarvon in Wales, and Salisbury, Hull, and (New) Winchelsea in England.

The new towns of North Wales corresponded to the bastides in southern France. The military motive was supreme, the economic secondary. Englishmen were attracted to the new towns by grants of land and by economic and social privileges, and there was always a castle with a permanent garrison nearby. In Flint, fronting on

OUTLINE OF TOWN AND CITY PLANNING

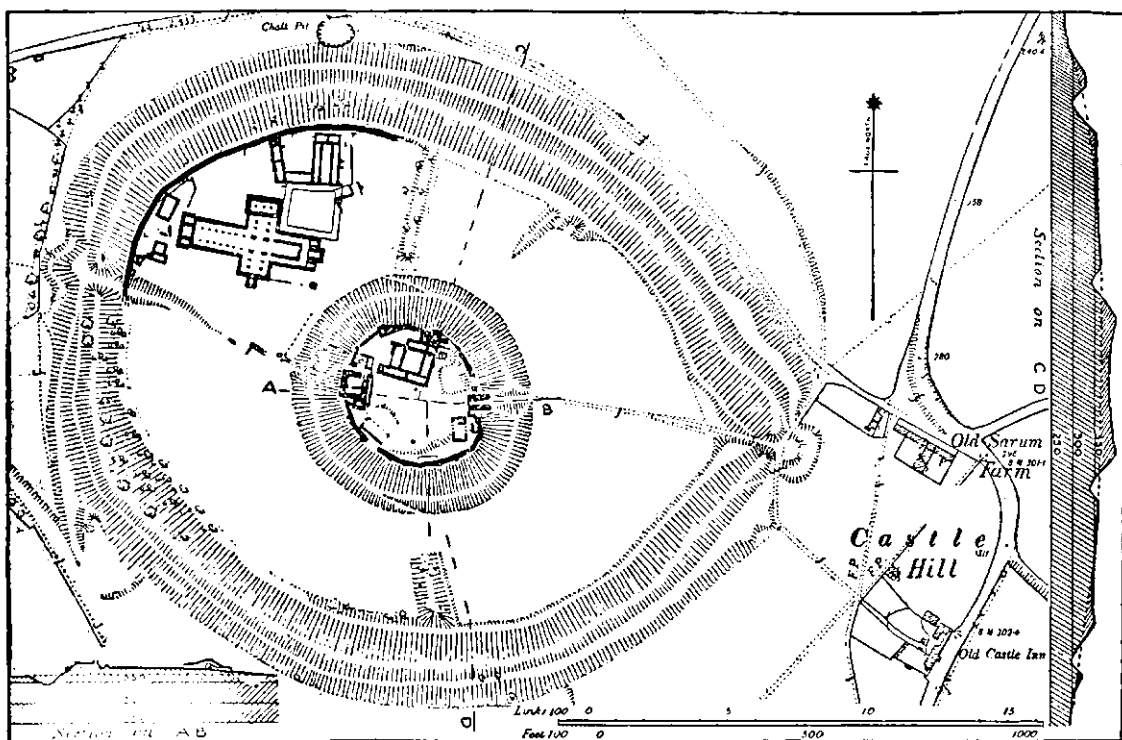
an estuary of the Dee, in spite of modern industrial development the lines of the original chessboard street pattern can still be traced, with the main highways leading toward the castle. Conway is triangular in form, with a geometrical planning of streets and



BASTIDE TOWN OF FLINT, WALES

plots in rectilinear lines. The original bastide plan is plainly evident at Carnarvon. In southern and western Wales the barons continued the policy of attracting settlers by liberal promises which had been begun in the Norman days. Great similarity existed between these new Welsh towns and the Gascony bastides, not only in general outline of plan but in the detailed plots assigned to individuals.

Old Sarum, near Salisbury, was a typical hill town with castle,



OLD SARUM (SALISBURY), ENGLAND

cathedral, and houses, but it became too cramped for its inhabitants. Two miles south lay a rich stretch of meadow land watered by the Avon, and in 1220 Bishop Richard le Poer resolved to transfer his cathedral to these fields. Ample space was left round the new edifice and great gardens adjoined the bishop's palace to the south. To the north the bishop planned a new city, to attract the men of Old Sarum and take away the trade of the nearby town of Wilton. The new city was laid out on an ample scale, with straight-cut roads and a chessboard plan of allotments, and the streets were

wider than in most ancient or mediaeval towns. It contained a central market-place with town hall and church, but there was no need for fortifications.

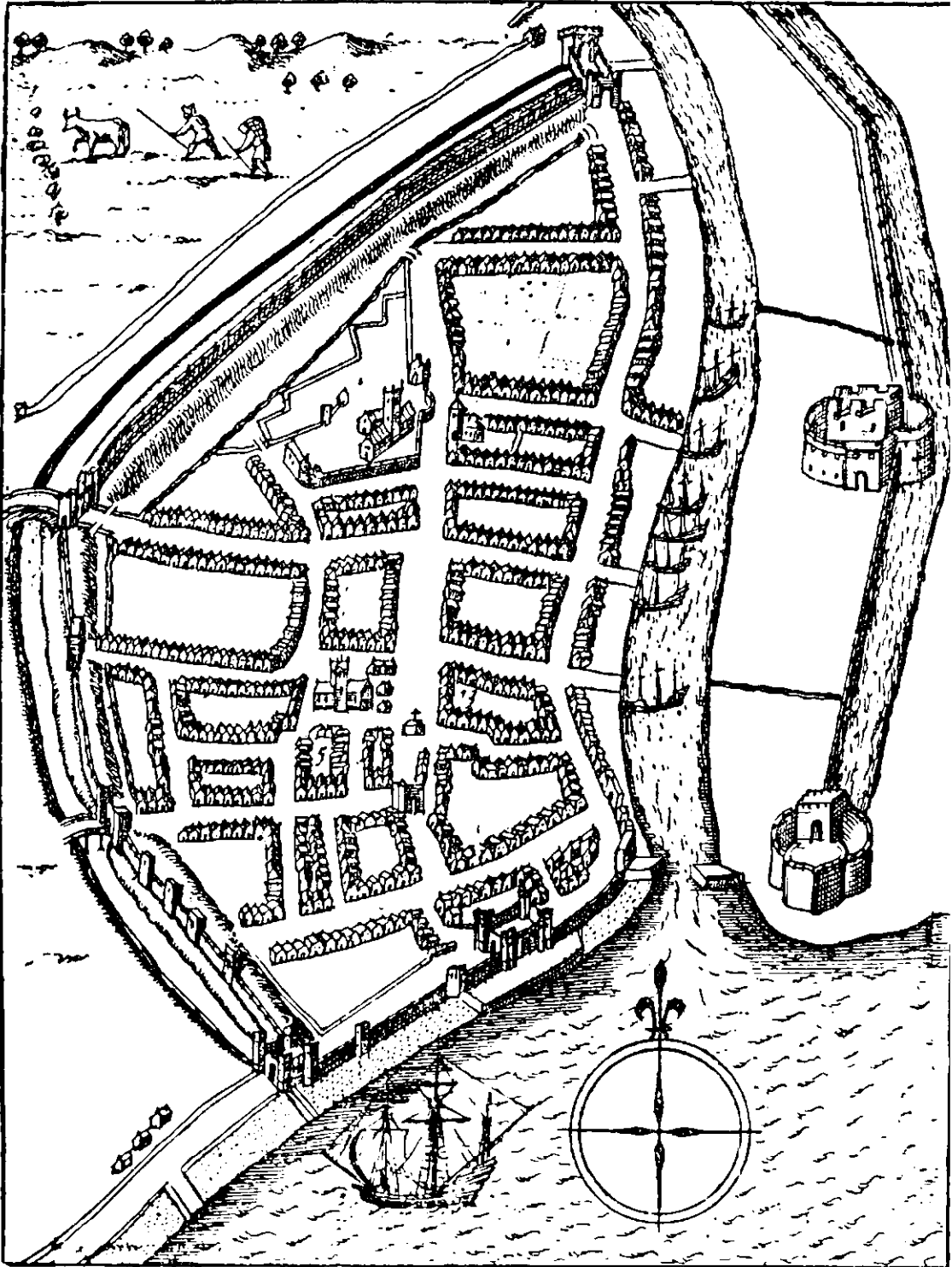
Before the reign of Edward I, English towns had been neglected and the finely constructed Roman roads had fallen into decay. As has been noted, Edward came to the throne in 1272 after much contact with the higher civilization of the French people, and with considerable experience in the planning of new towns. Like Alexander the Great, he had an instinct for choosing the right kind of site.

Edward found the old town of Winchelsea crumbling into the sea, so he replaced it by a new town on an eminence overlooking the broad estuary then formed by the River Brede, which made it accessible to sea-going craft and easily defensible. The occupants of old Winchelsea were loath to leave and it was only because of inundations that they were induced to do so. They were given the same privileges in the new town as in the old and took a share in the planning.

It was in 1277 that Edward sent John Kirkeby, Bishop of Ely and Treasurer of England, to view the site for this new town. The plan contemplated a much larger town than was eventually developed. It was laid out in broad streets with 39 squares, after the fashion of the French bastides. Certain deviations from the French plan may have been due to the irregularity of the site, the prejudices of the burgesses, and the King's desire to make the new town as much as possible like the old. A magnificent church, the principal buildings, and the gates were erected, remnants of which still remain.

Winchelsea was sacked twice in the early part of the fourteenth century. What degree of recovery it afterward made was offset by the silting up of the harbor, when its importance as a town declined.

Edward also founded the town of Kingston-upon-Hull. Owing to the Scottish wars he was much at York, and turned his attention to providing Ravenspur, the port on the Humber which was gradually disappearing, with a successor. He chose a site where the rivers Humber and Hull join and where, under the name of Wyke, a small trading post had already been established. Kingston was laid out in chessboard pattern upon the lines of the normal bastide,



EARLY PLAN OF KINGSTON-UPON-HULL, ENGLAND

OUTLINE OF TOWN AND CITY PLANNING

with a central market square and a church. It was the first English town in which brick was the chief building material. Edward also diverted and constructed highways to give access to the port. He personally arranged for the exchanges of land necessary to acquire the site, and employed the methods he had used in France to attract settlers by giving them special privileges. The town and harbor were completed in 1299 A.D., but paving of the streets was not begun until 1319.

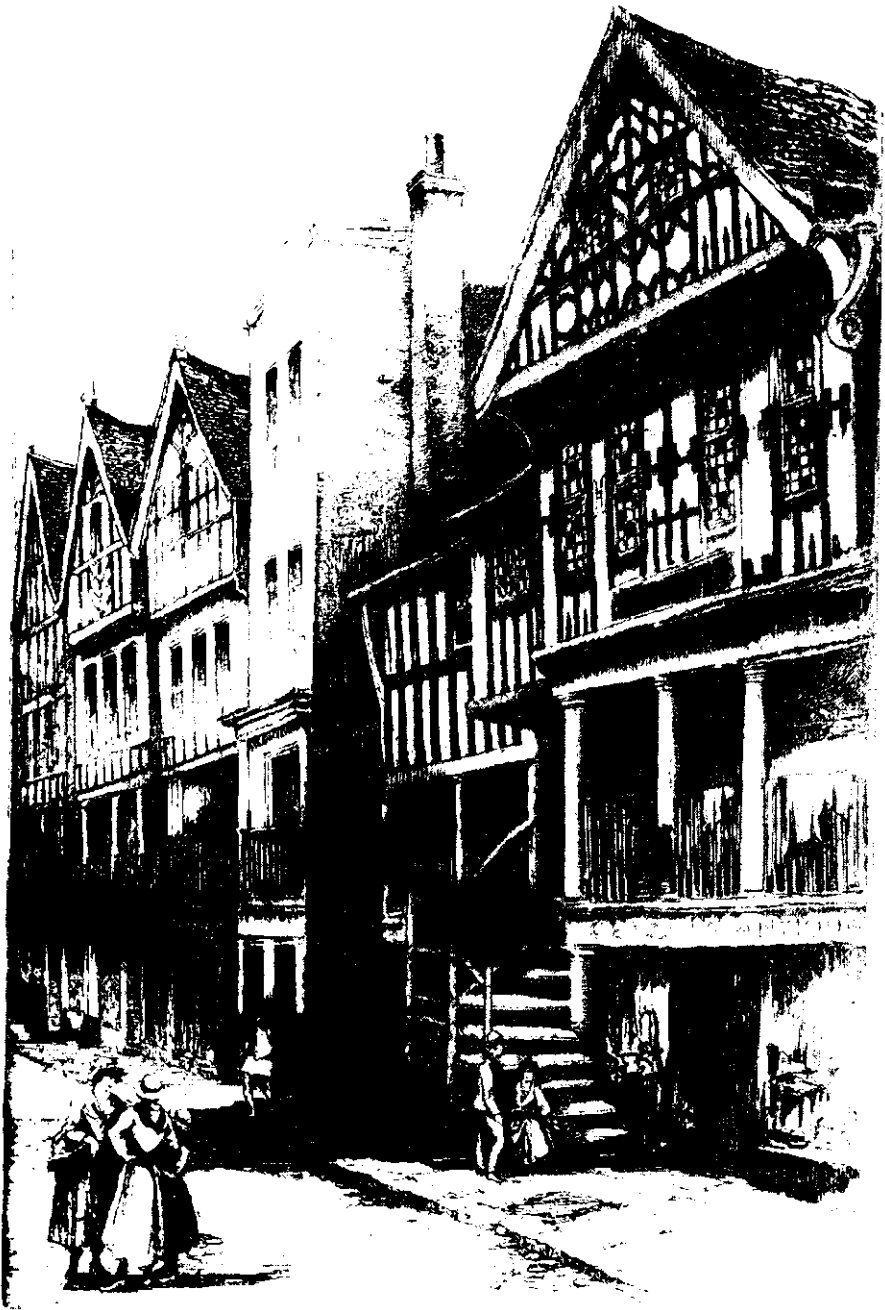
When Berwick-on-Tweed was taken from Scotland, Edward conferred with various groups of architects with regard to its improvement; but very little organized planning was attempted.

The city of Chester shows the influence of its early Roman occupation (48 A.D.) and is of special interest to students of city planning. It still has its circuit of mediaeval walls, part of which stand on Roman foundations, and the original mediaeval gateways, though much restored, are still in existence.

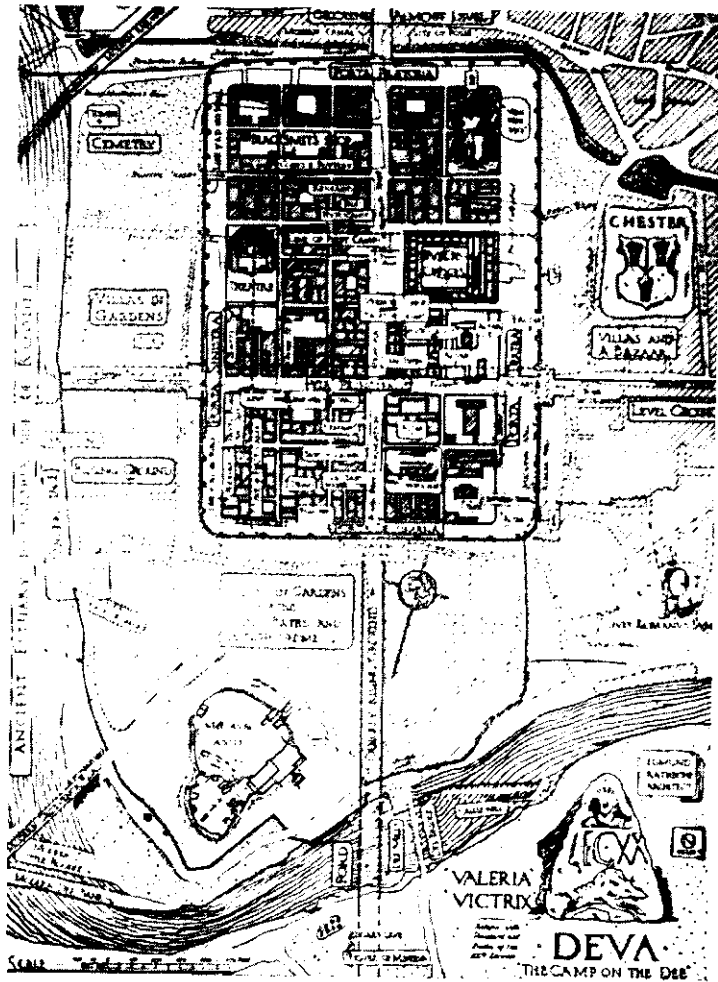
The plan of the old city¹ follows the rectangular arrangement introduced by the Romans. The town was divided into four units by means of four principal streets, each named to show its relation to the entrances of the city—Northgate, Eastgate, Bridge Street, Watergate. The rows of double-decked and partly arcaded shops make the maximum use of business frontage and have a picturesque character. They illustrate what might be done in these days of crowded and fast vehicular traffic on narrow streets, to provide shopping facilities served by arcaded foot-paths within buildings.

While the mediaeval city is well preserved, extensive modern developments have taken place outside the old walls. Here in a single community are represented features of ancient, mediaeval, and modern developments, of which the modern gives least evidence of having been well planned.

¹ See illustration facing p. 97.



ARCADED BUILDINGS SHOWING TWO-STORY SHOPS,
CHESTER, ENGLAND



PLAN OF ROMAN CHESTER, ENGLAND



PLAN OF MEDIAEVAL AND MODERN CITY OF MILAN, ITALY
 Developed in polygon shape around rectangular nucleus of Roman city

CHAPTER III

CITY PLANNING DURING AND AFTER THE RENAISSANCE PERIOD

THE FIFTEENTH CENTURY REVIVAL

IT IS convenient, and for many reasons appropriate, to regard the phase of civilization which is known as the Renaissance as having begun in the fifteenth century. That century saw the invention of printing and the successful manufacture of paper; the writings of Dante, Petrarch, and Boccaccio had resulted in a revival of classic art and learning which spread through the whole of Italy and later into France; and the landing in America of Columbus, among other important events, brought to a close a century during which the whole social structure of Europe had undergone profound changes.

While there was a gradual evolution of the spirit of the Renaissance throughout the thirteenth and fourteenth centuries, at the same time a leaven of some of the spirit which animated the Middle Ages was present in the most advanced countries throughout the Renaissance. Indeed, it has never really lost its hold as a factor in political and social life; and moreover it is as improper to regard the Middle Ages as lacking in the elements of progress as it is to regard the Renaissance period as entirely one of enlightenment.

Apparently no great distinction can be drawn between the fifteenth and the two previous centuries in the matter of the planning and building of new towns. With the exception of the "free towns" established by Edward I, there was little opportunity for the founding of new communities; fortifications were still required, and the tendency was to provide for the increase of population by crowding people within the walls instead of permitting expansion into suburbs.

Undoubtedly, however, the fifteenth century may be considered as a transitional phase in European civilization, of which the revival of learning, the striving after spiritual freedom, and man's endeavor to reconstitute himself and inquire more deeply into the why and wherefore of things were important symptoms.

Whether or not the Italian Renaissance had the same origin as the German Reformation, they were parallel movements. It is to Italy, however, that one must turn to find evidences of the growing domination of classical feeling and tradition in architecture and city building. This feeling and tradition maintained its hold during the sixteenth century, and, in alliance with the birth of modern science, grew to further strength in the seventeenth century, spreading more widely in the field of civic art in the eighteenth and early nineteenth centuries.

The origins of this growth are to be found largely in the genius of a few great architects. The advance was scientific as well as artistic in its foundations, for, while delighting in beauty and harmony for their own sakes, early artists developed scientific methods of interrogation and analysis of facts. This is borne out by the extent to which buildings of the Renaissance period were fitted in design to current conditions, notwithstanding adherence in their structural and decorative elements to classic architecture of the Roman Empire.

In planning churches and palaces a great deal of emphasis was placed by Renaissance architects on a monumental orderliness of arrangement and on the organic relationship of the several parts to one another and to the whole. This led to employment of the same qualities in the planning of civic groups and in the replanning of streets and places.

Prominent among those responsible for such work in this period were Leonardo da Vinci, Bramante, Michelangelo, Sanmicheli, Palladio, Vignola, and Bernini in Italy; François Mansart, Louis de Val, Jules Hardouin-Mansart, and André Le Nôtre in France; and Inigo Jones, Christopher Wren, John Nash, William Chambers, and Robert and James Adam in England.

From a social and democratic point of view, civic design and city building during the Renaissance were woefully deficient. Mainly inspired by sovereign princes, the building of cities was

conditioned by desire to improve the surroundings of palaces and to create grandiose towns as a means of expressing and consolidating their power. However, in doing so they hastened the development of artistic taste and were wise enough to employ able artists to carry out their ideas. As a result, the Renaissance is most notable for its monumental planning of palaces, churches and fortifications, and for street systems that served the purposes of such structures. Considerable advance was made too—particularly in the eighteenth century—in matters of street paving and sanitation, although this was not always greatest in those countries or places where Renaissance architecture reached its highest standards.

In addition to the making of practical plans, architects evolved theoretical conceptions of model cities. In the sixteenth century Bernard Palissy and Perret de Chambéry put forward two such conceptions: one for a ville fortresse on the model of a shell of a mollusc, called the purple fish; and the other an ideal plan in the manner of the Italian Renaissance.¹

Camillo Sitte has suggested that the architects of the Renaissance endeavored to combine the closed-in effects of the earlier period with great perspective effects. To quote Hegemann and Peets:

The most important contribution (to civic art) of the Renaissance period, as Camillo Sitte recognizes, is the plaza closed on three sides only, the perfect prototype of which was achieved in the Piazza del Campidoglio in Rome.²

Such illustrations of the employment of art in the grouping and arrangement of buildings during the early Renaissance are known to every architect.

CIVIC ART IN EUROPEAN COUNTRIES

In considering origins of city planning efforts in the Middle Ages it was found to be desirable to refer to cities in Teutonic countries

¹ Chambéry's plan is shown on page 152 of the Transactions of the Town Planning Conference, London, 1910.

² Hegemann, Werner, and Peets, Elbert, *The American Vitruvius: An Architect's Handbook of Civic Art*. The Architectural Book Publishing Company, New York, 1922.

as of primary importance. When, however, we come to the Renaissance period we must turn first to Italy and then to France to discover the seeds of the reformation of architecture and city planning.

ITALY

In this period the greatest concentration of individual genius in the field of architecture was found in Italy. The power behind the throne of architecture was ecclesiastical rather than monarchical; and a wonderful versatility enabled men to be leaders in the arts of architecture and civic design, as well as great painters or sculptors.

Da Vinci applied his scientific mind to the building of streets on two levels. Bramante laid down the general lines for the Cathedral of St. Peter at Rome, being succeeded by Sangallo, Fra Giocondo, and Raphael; and, after Raphael's death in 1520, by Peruzzi. Michelangelo finished St. Peter's, designed the Piazza del Campidoglio in Rome, and planned fortifications and streets in Florence.

Carlo Fontana took a leading part in promoting geometrical forms of planning. He was consulted about the enlargement of the Piazza della Signoria in Florence, although this was not carried out. Sanmicheli, who combined the professions of architect and military engineer, built fortifications and palaces in Verona. Palladio created in Venice his great composition of S. Giorgio Maggiore, with the church, campanile, monastery, harbor, and lighthouses in one scheme facing the town across the lagoon; while through his writings, his influence spread abroad and inspired the work of Inigo Jones and his followers in London. Vignola, working in Rome, exerted the strongest influence on French architecture. Bernini dictated the artistic taste of the papacy for fifty years and was consulted by Louis XIV of France. His executed design for the Piazza di San Pietro, Rome, enclosed by a quadruple colonnade, is of world-wide fame.

Rome, after having dwindled to a small city in the Middle Ages, underwent considerable extension and improvement in the fifteenth and later centuries. Plans for improving the city were made between 1447 and 1455 by Pope Nicholas V, while the enterprising Julius II, who reigned from 1503 to 1513, sought to enlarge the

city on both sides of the Tiber. Between 1585 and 1590 Sixtus V, friend and patron of Bramante and Michelangelo, laid out the Via Sistina from the S. Trinità de' Monti to S. Maria Maggiore and Porta S. Giovanni. Much later, in the seventies of the nineteenth century, during the reign of Pope Pius IX, a plan of street improvements was made under the direction of Mgr. de Mérode. This plan has served as the basis for many subsequent improvements.

These planning efforts of the fifteenth to the nineteenth century were hampered in Rome, as they have been in so many cities, by the speculative operations of owners of private property. When streets were widened and new bridges were constructed they resulted in great increases of land values in the vicinity of the improvements. Private owners took advantage of these increases and much haphazard building took place on their estates.

Venice, one of the most fascinating and the greatest of water cities, attained a considerable size before the Renaissance, and its development during the later Renaissance was characterized by the erection of many distinguished buildings, in addition to works of Palladio.

The western portion of the busy seaport of Leghorn recalls Venice by reason of its intersection by numerous canals. It was first laid out in the sixteenth century under the Medici ministry. Its rectangular square surrounded by arcades and its seventeenth century cathedral designed by Inigo Jones, are striking architectural features.

Milan¹ has been subject to much planning in the environs of the rectangular city of mediaeval times. The relation between the early Roman, the mediaeval, and the modern are well exemplified in this city. Its fine Piazza del Duomo, from which a number of streets radiate in different directions, is a splendid example of a local development.

FRANCE

In an article on French civic architecture of the Renaissance, Professor Paul P. Cret of the University of Pennsylvania points out that city plans of the period did not vary so much as did architec-

¹ See illustration facing p. 97.

tural design itself, and that both were developed in harmony with classic design.¹

In the fifteenth and sixteenth centuries, architectural design was transitional. The great period in France was the two succeeding centuries, especially between 1610 and 1715, a period which coincided with the reigns of Louis XIII and Louis XIV and extended into the Regency period of the infant Louis XV. But before those reigns, Henry IV (1589 to 1610) had made an outstanding contribution to architecture in remodeling the city of Paris. Professor Cret refers to this contribution as:

the king's great undertaking to remodel the city, which had grown up haphazardly—an undertaking such as had not been attempted since the days of imperial Rome. To achieve this end, he made laws regulating the heights of buildings and the paving and widening of streets, and prohibiting the overhanging upper stories of the middle ages.

In 1607 Paris was first brought under an edict to deal with the major street system (La Grande Voirie).

Henry IV was the first ruler to have a definite town planning policy for Paris. He wanted to make the city more healthful for the inhabitants and to add to its dignity as the capital of France. He laid out the Place Royale (now the Place des Vosges) and the Place Dauphine. François Mansart (1598 to 1666) was the greatest architect of the period. During it were developed the Palace of Fontainebleau, the Chateau St. Germain, portions of the Louvre, the palace of Richelieu, and the town of Richelieu in southeastern France which had been the birthplace of the Cardinal.

In 1615 Louis XIII revolutionized the fortifications of Paris in accordance with a plan made by Mathieu Mérian. A plan, prepared in 1672 by Jouvin de Rochefort, was the first to show the main avenue of the Champs Elysées.

Under the reigns of Louis XIII and XIV, Jules Hardouin-Mansart (1645 to 1708), nephew of the great François, was architect of the Grand Trianon, Place Vendôme, Place des Victoires, and of all the work at Versailles after 1676. In the same reigns Le

¹ Encyclopaedia Britannica, 14th ed., vol. 19, p. 139. See also *A History of French Architecture* by Reginald Blomfield, G. Bell & Sons, Ltd., London, 1911, vol. 2, pp. 41-45.

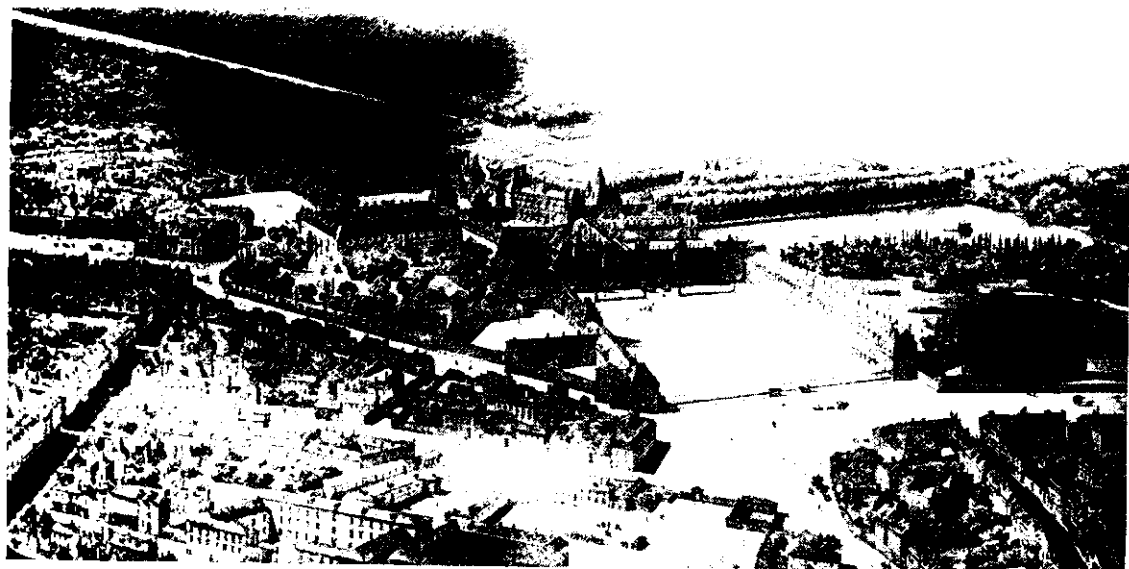


Photo by Sydney W. Newberry

VIEW OF PALACE OF FONTAINEBLEAU, FRANCE

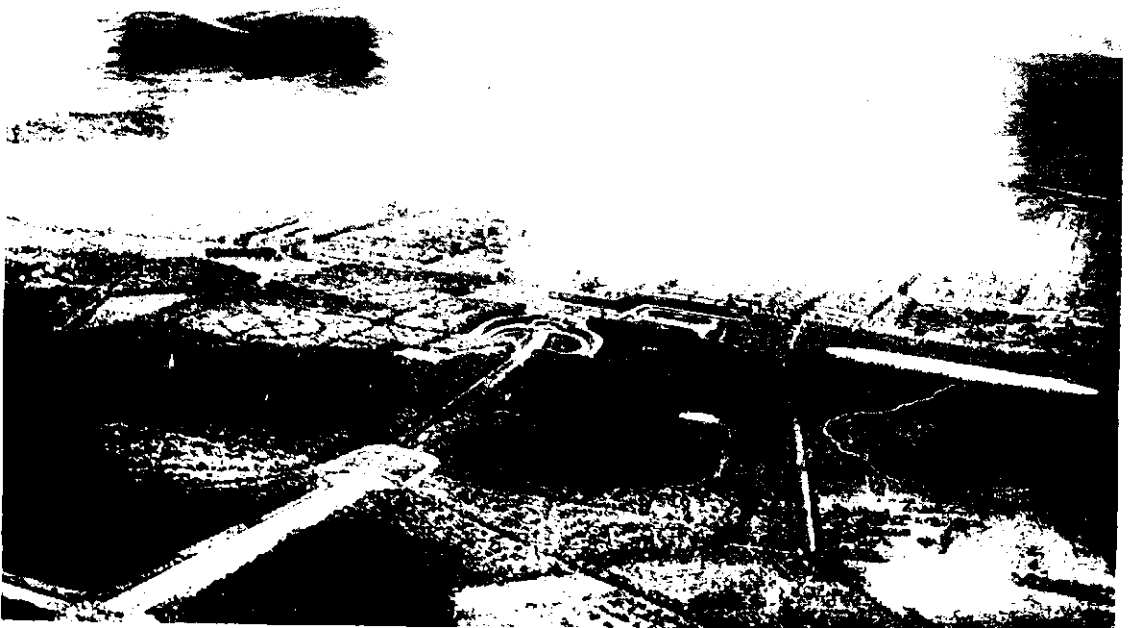
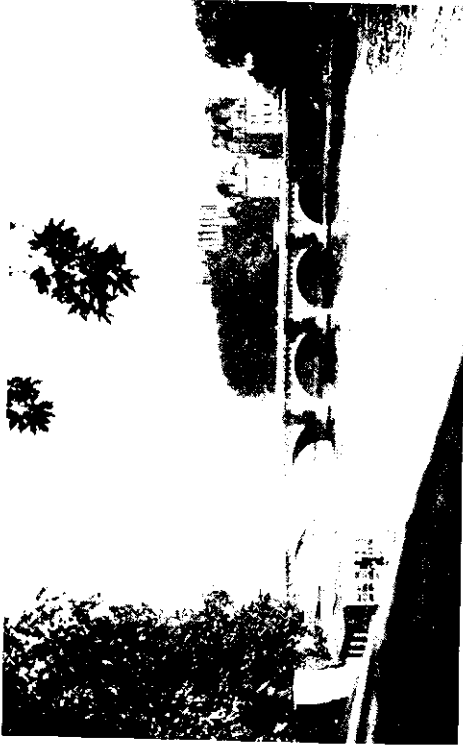
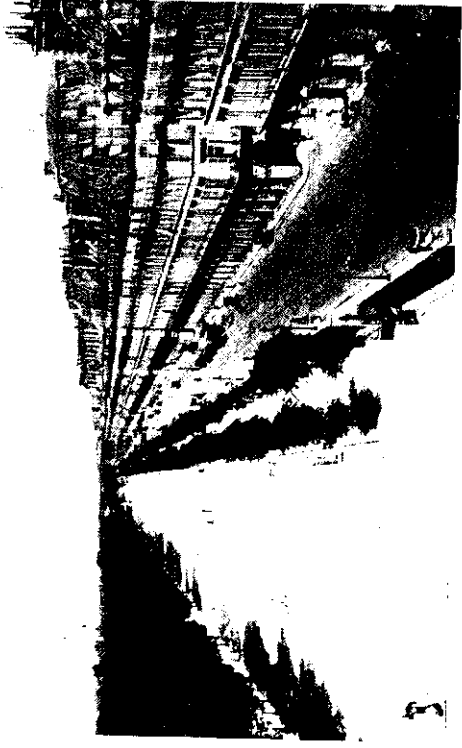


Photo by Sydney W. Newberry

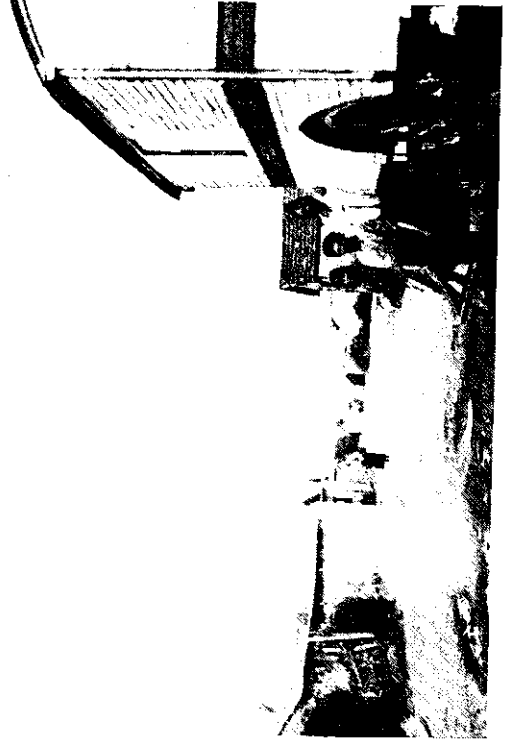
VIEW OF PALACE OF VERSAILLES, FRANCE



THE BEAUTY OF THE SEINE RIVER BRIDGES



RUE DE RIVOLI, PARIS



VIEWS OUTSIDE RAMPARTS OF PARIS



Nôtre brought his genius to bear on the development of the formal garden and park, and united landscape architecture with architecture. He had a great influence on city planning for a long period. A saying of his time was that he who was able to design a park could easily draw a plan for a city. A view of the layout of the gardens of Versailles is shown facing page 102.

Louis XIV officially recognized artists and promoted education in the arts. In his reign a comprehensive plan was made for Paris by the architects, Pierre Bullet and François Blondel, showing proposals to encircle the city with boulevards. A revised edition of this plan was published in 1710. Between 1666 and 1671 the Academy of Architecture and the French School of Fine Arts in Rome were founded.

The grand manner of planning in Paris continued in the reign of Louis XV. This king issued a decree deploring the neglect of buildings in the interior of Paris while new ones were being erected outside the city limits, and stated that the center of the city was becoming "like the edge of a desert." Eighteenth century development included the Petit Trianon, the École Militaire, and the Place de la Concorde, the last being planned by Jacques Ange Gabriel in 1752 and 1753. The most complete and scientific plan was prepared by Edme Verniquet, son of the architect of the Châtillon-Sur-Seine, between 1783 and 1791. The preparation of this plan followed the declaration of the King (Louis XVI) of April 10, 1783, fixing the alignment of the avenues. The plan of Verniquet, published in 1798, is said to be the finest map of a city prepared before the nineteenth century, and showed a series of avenues planned to follow the outer ring walls of the city.¹ In 1789, after the great revolution, a committee of artists was appointed which developed a plan for the reconstruction of Paris; this plan became the basis for subsequent replanning operations. In the reign of Napoleon Bonaparte many new streets were planned and laid out, including the Rue de la Paix and the western portion of the Rue de Rivoli.

Thus, Paris was subject to continuous planning before 1853 when, under Napoleon III, Georges Eugène Haussmann began to

¹ Smith, Edward R., "The Topographical Evolution of the City of Paris." In *House and Garden*, December, 1904.

direct the elaborate replanning of the boulevards of the city. During his administration as prefect of the Seine, between 1853 and 1870, Haussmann, with the aid of Eugène Deschamps, whom he appointed as Conservateur du Plan de Paris, revolutionized the plan of the city at tremendous cost.¹

Probably such extensive replanning operations could not have been carried out without the stimulating fervor that followed the second revolution. The plan is mainly notable for its results in giving spacious dignity to Paris by the construction of great wide



MAP OF PARIS AND ENVIRONS

The fortifications, clearly shown here, separate the city and its surroundings

avenues. Haussmann and Deschamps drove these through a tangle of slum areas and narrow lanes, linked them together at many focal points, and arranged them to provide vistas to great buildings and monuments.

As a main starting point, they had the axial lines of the Tuileries, the Place de la Concorde, the École Militaire, the Jardin du Luxembourg, and the Hôtel des Invalides. Before them, as an example of design, they had the grand manner of the landscape architecture of Le Nôtre, as seen at Versailles. They laid out the Boulevards de

¹ See accompanying map of Paris and Haussmann's plan facing p. 108.

Sébastopol and de Strasbourg—connecting the center of the city with the Gare de l'Est, the Place de la République and the Rue Voltaire, and the Boulevards St. Michel, St. Germain, Malesherbes, and Haussmann. The last was only completed in 1929, seventy years after it was mapped.

The Boulevard Henri IV was planned so that it centered on the Panthéon at one end, and on the Colonne de Juillet, in the Place de la Bastille, at the other end. Perhaps the most ambitious part of the plan that was carried out was the great Place de L'Étoile. Another feature was the planning of the Parc Monceau, so as to avoid the blocking of traffic by an arrangement of the streets that surrounded and led through the park.

It has been said that Haussmann spent \$20,000,000 a year during fifteen years, and, in consequence, added greatly to the indebtedness of the city, and that the débacle of the Commune during 1870 and 1871 was not disconnected with the extravagance of spending and land speculation that had taken place during the preceding fifteen years.

The plan was not without its critics. Charles Garnier, the architect of the Paris Opera House, was a severe critic of the street design from the point of view of providing settings for buildings, and raised objections to the triangular form given to blocks of buildings by the combination of rectangular and radial planning.

Notwithstanding the great arteries created as a result of the plan, modifications have now had to be made to meet the needs of traffic. The focal points, with many converging avenues, are points of congestion—at the Place de l'Opéra, for instance, and in front of the Gare St. Lazare.

Such a great reconstruction scheme is not a model of much practical value for imitation in a modern city, because of the extensive demolition of existing buildings which it involves. Moreover, it failed to consider the social condition of the mass of the people.

In the control of the architectural embellishment of its central areas Paris has adhered to the principles of its early planners, but in recent years has failed to apply proper control to new developments in its environs.

Returning to eighteenth century efforts in France, outside of Paris the most important example was the layout of the govern-

OUTLINE OF TOWN AND CITY PLANNING

ment center of Nancy, the capital of the Department of Meurthe-et-Moselle. This was carried out under the leadership of Stanislaus Leszczyński, who, as Duke of Lorraine, resided in the city from 1735 to 1766.

The magnificent development of the Places Stanislas and de la Carrière was designed by Boffrand and Héré de Corny. Adjoining them were erected the Palais du Gouvernement, the Hôtel de Ville, the Episcopal Palace, and the Théâtre. A triumphal arch between the two palaces was erected in honor of Louis XV.

In 1768 a city plan was prepared for the city of Strasbourg, which while under French dominion still retained the characteristics of a German city.

The planning and development of the modern French city of Algiers was carried out contemporaneously with Haussmann's remodeling of Paris. Between 1860 and 1866 Sir Morton Peto built the magnificent Boulevard de la République with its supporting walls and handsome terraces connecting the marginal way and quays with the upper levels that give to Algiers one of the finest faces toward the sea that is possessed by any maritime city. Algiers has no superior in the matter of dignified and well-organized architectural treatment of its waterfront areas.

ENGLAND AND SCOTLAND

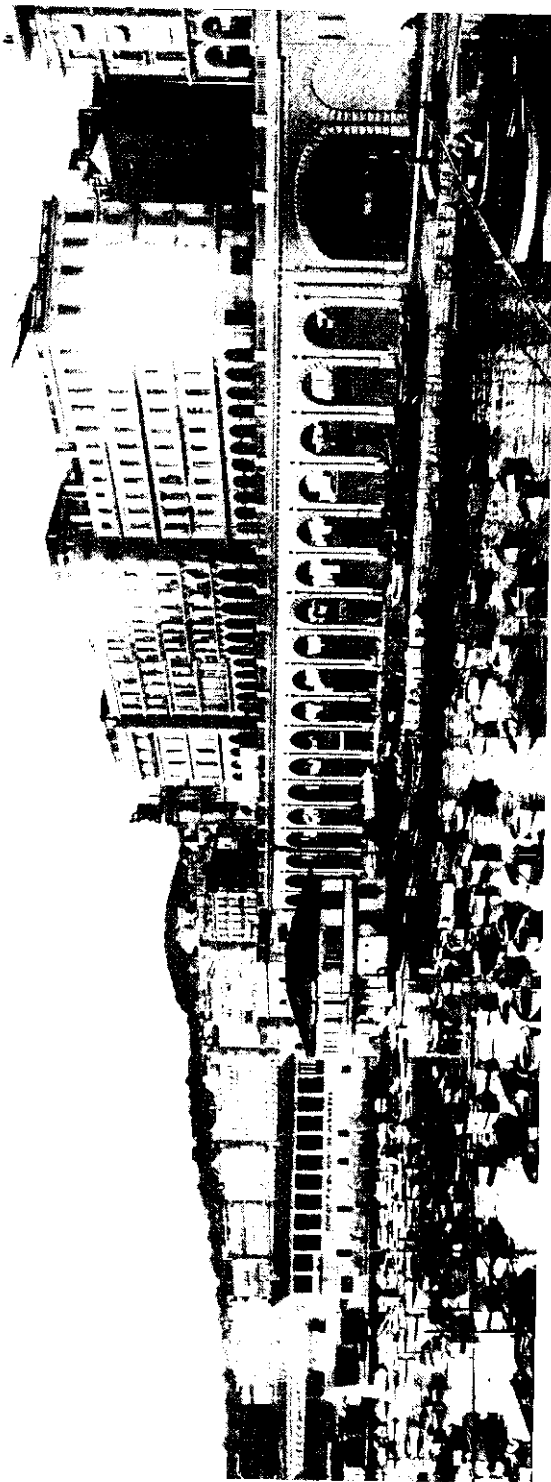
England received the Renaissance and the Reformation simultaneously. It was later than France in being influenced by the Italian revival. No important evidence of the planning of towns in the fifteenth and sixteenth centuries appears, but there was a keen interest on the part of kings and landowners in the general problem of urban growth and its effect in upsetting the balance between town and country.

Resistance of landowners to the migration of laborers from rural districts to the towns was seen in the peasants' revolt of the fourteenth century, and this resistance continued in succeeding centuries. In his *Utopia*, published in 1516, Sir Thomas More protested against the deficiency of labor available for farming and its consequence in causing the replacement of arable by pastoral land. More was one of the first to recognize that the question of over-



Publishers Photo Service

WATERFRONT OF THE CITY OF ALGIERS, COMBINING QUAY DEVELOPMENT
WITH A RAISED BOULEVARD OVER WAREHOUSES



Publishers Photo Service

FRONT VIEW OF THE CITY OF ALGIERS

population was not one of quantity but of locality. He did not deprecate the increase of population, but the absence of measures for securing its proper distribution between city and country. This has remained a problem of national importance up to the present day.

In 1580 Queen Elizabeth showed her interest in the distribution of population by a proclamation that no more buildings be erected in London, as it was growing too large. This arbitrary method met with no success, and London continued to become more congested. Considering the sanitary conditions, it was not surprising that its rulers became alarmed. There were difficulties in finding employment, of securing food, and in preventing disease. With a large percentage of the population living in wooden houses, conflagration was a constant menace. An act passed to stop immigration to London, that made it illegal to build within three miles of the city, was in force for the short period of seven years. A later act under Cromwell (about 1656) prohibited new buildings within ten miles of London or Westminster. Even at this early time, complaint was made of the tendency to use large residences for housing two or more families.

In the field of architectural design, real evidence of the Renaissance does not appear in England until the seventeenth century. At first it was imitative. Inigo Jones (1573 to 1651), followed by Christopher Wren (1632 to 1723), introduced classic design based on the contemporary Italian work. As noted, Jones came under the influence of Palladio, whom he visited in Venice.

Wren has been described as a blend of a scientific engineer and a practical architect. He was a great admirer of Bernini and André Le Nôtre. In designing St. Paul's Cathedral, London, after the Great Fire in 1666, he proposed as an external feature a large piazza, enclosed by colonnades surrounding the cathedral. It was never executed because of the cost of acquiring the necessary ground, but the scheme was eminently practicable and would have been of great value in preventing traffic congestion of later times.

Wren's greatest opportunity occurred after the Great Fire had destroyed most of the "square mile" enclosed within the walls of the old town.

OUTLINE OF TOWN AND CITY PLANNING

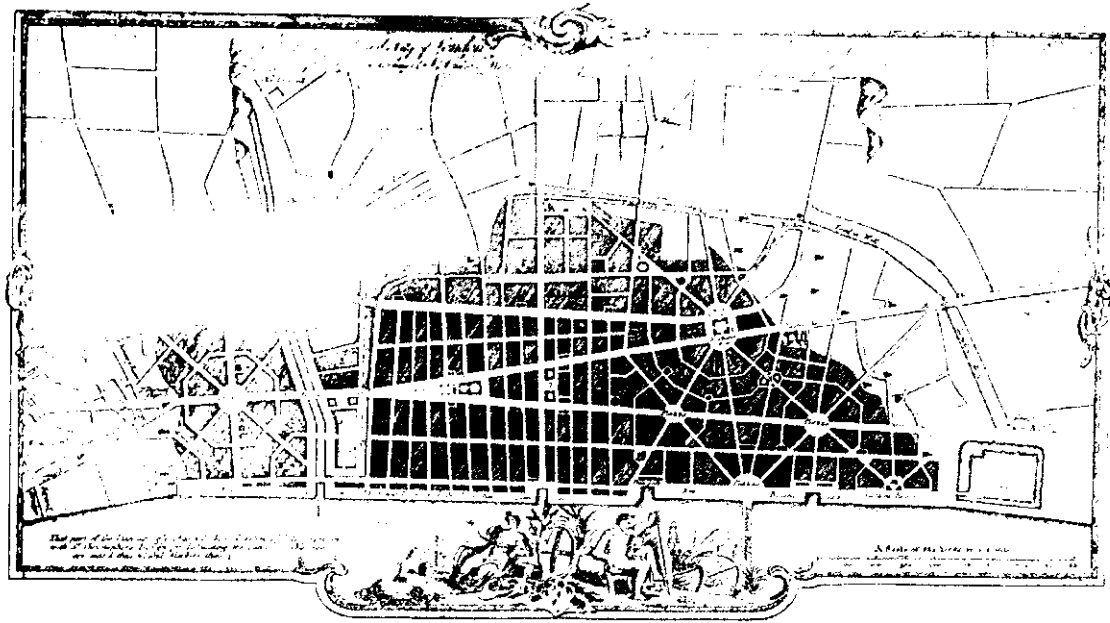
The plan he made for rebuilding the city and its extensions has deservedly been regarded as a fine proposal. It showed the influence of French and Italian artists. Leaving that portion of the city which had not been destroyed, he created a civic center somewhere near the present site of the Royal Exchange. Here the Excise Office, Post Office, Insurance, Mint and Goldsmiths' establishments occupied positions facing the Exchange, grouped in the form of an oval or circus. In spider-web fashion, radial streets emerged from this center and led to three other circuses.¹

The chief feature of Wren's design was to be the construction of three principal roads, running the whole length of the city, the northerly and middle converging from the east on St. Paul's and the middle and southerly from the west on the Royal Exchange. Outside the city to the west, in the portion of Fleet Street that had been destroyed, he planned another great octagonal feature with four crossings of the Fleet River. A generous number of north and south streets, 60 feet wide, crossed the main roads, subdividing a large area of the city into rectangular blocks. Lanes were laid out 30 feet wide, and dark alleys and courts were excluded.

Wren suggested that streets of the first and second magnitude be carried through as straight as possible and converge on large places; that buildings of the 12 chief city companies be grouped together; and that all churchyards, gardens, and "unnecessary vacuities," and all trades that used great fires or yielded smells, be placed outside the town. Notwithstanding the excellence of the whole plan, the obstinacy of owners against the alteration of their old properties prevented its being carried into effect.

Alternative plans were prepared by Sir John Evelyn and others. The plan of Evelyn corresponded in its general pattern to William Penn's plan for Philadelphia. One of Evelyn's proposals, also made by Wren, was to fill in the shore of the Thames to the low-water mark in a straight line from the Tower to the Temple in order to form an ample quay. This was adopted and the quay is said to have been shown on every old map of London up to 1820. It has gradually disappeared, and only a short length remains—greatly to London's loss. He also recommended that no suburbs

¹ See plan facing p. 108.

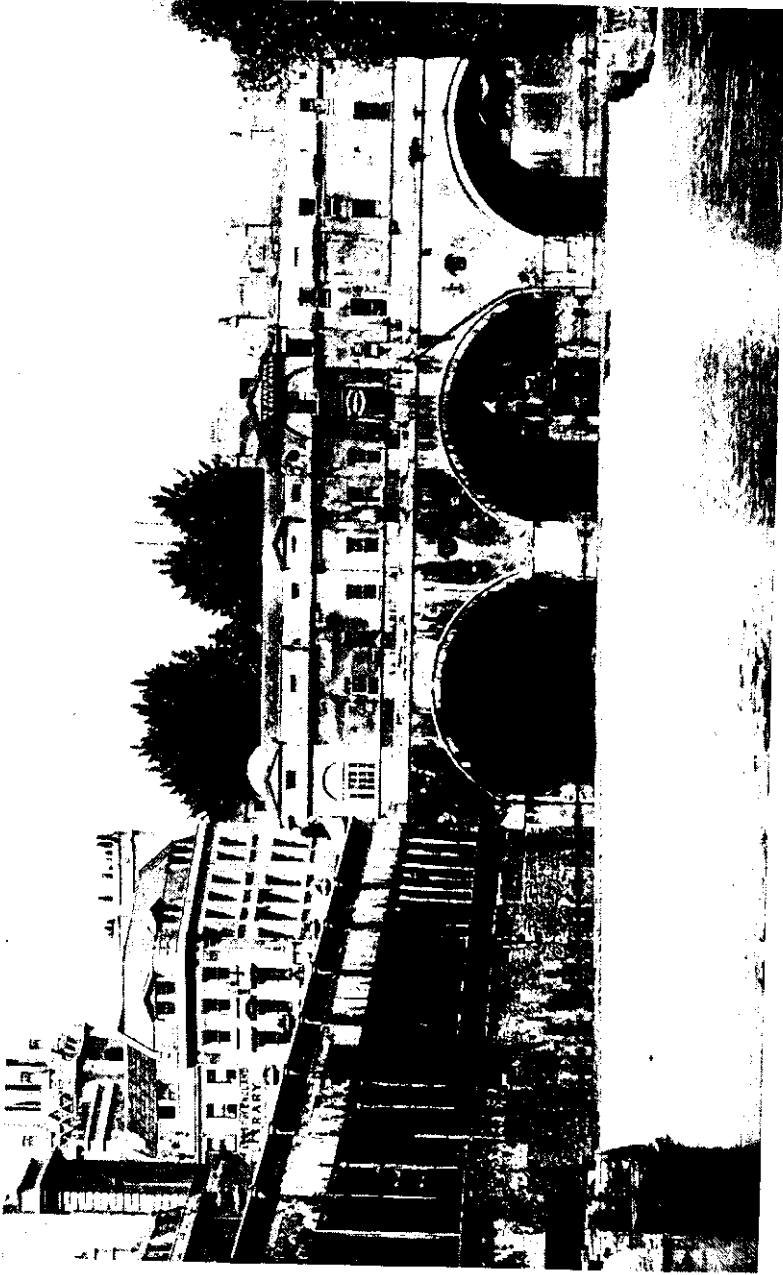


WREN'S PLAN OF LONDON (1666)

PARIS - 1854-1859



HAUSSMANN'S RECONSTRUCTION PLAN OF PARIS



RIVER AND BRIDGE, BATH, ENGLAND

be built within a radius of 10 or 12 miles in order to preserve the existing city.

These projects, after being considered, were rejected by the King and his Council owing to the technical, commercial, and financial difficulties which the leaseholders put forward against it. London was rebuilt practically as before, and on its old foundations.¹

Mention should also be made of an "Exact Surveigh" that was made by J. Leek and others after the Fire, accompanied by another proposal to widen the quay from the Tower to the Temple. This desired improvement also was never carried out.

Ogilby's large and accurate map of London, dated 1677, shows that by that year considerable extensions had already been made to the east, north, and west of the city, to which parts inhabitants had fled after the Great Fire; this map testifies to the beginning of the new movement to extend the city.

The general process by which London was thus extended can be seen from the historical maps. First ribbons were run out on the highways. In another half century another set of ribbons projected from the periphery, and again the back and intervening land was filled in. Within the more central areas, Crown estates were acquired partly for replanning and partly for planning *de novo*. The greater portion of West London belonged to large landowners, who appear to have followed the spirit of the times and observed a common wisdom in developing their property. They employed good architects to make site plans of their estates, and secured without any difficulty acts of Parliament for these developments.

The chief defect was the absence of a supervising authority to consider the welfare of London as a whole. The system of main roads was, as it were, nobody's business. Among other things, insufficient attention was given to providing arterial roads. Although the population was increasing, and migrants from the country were settling in London, little care was taken for the housing of the poorer people who from time to time settled in the narrow segments that lay between and beyond the great residential estates.

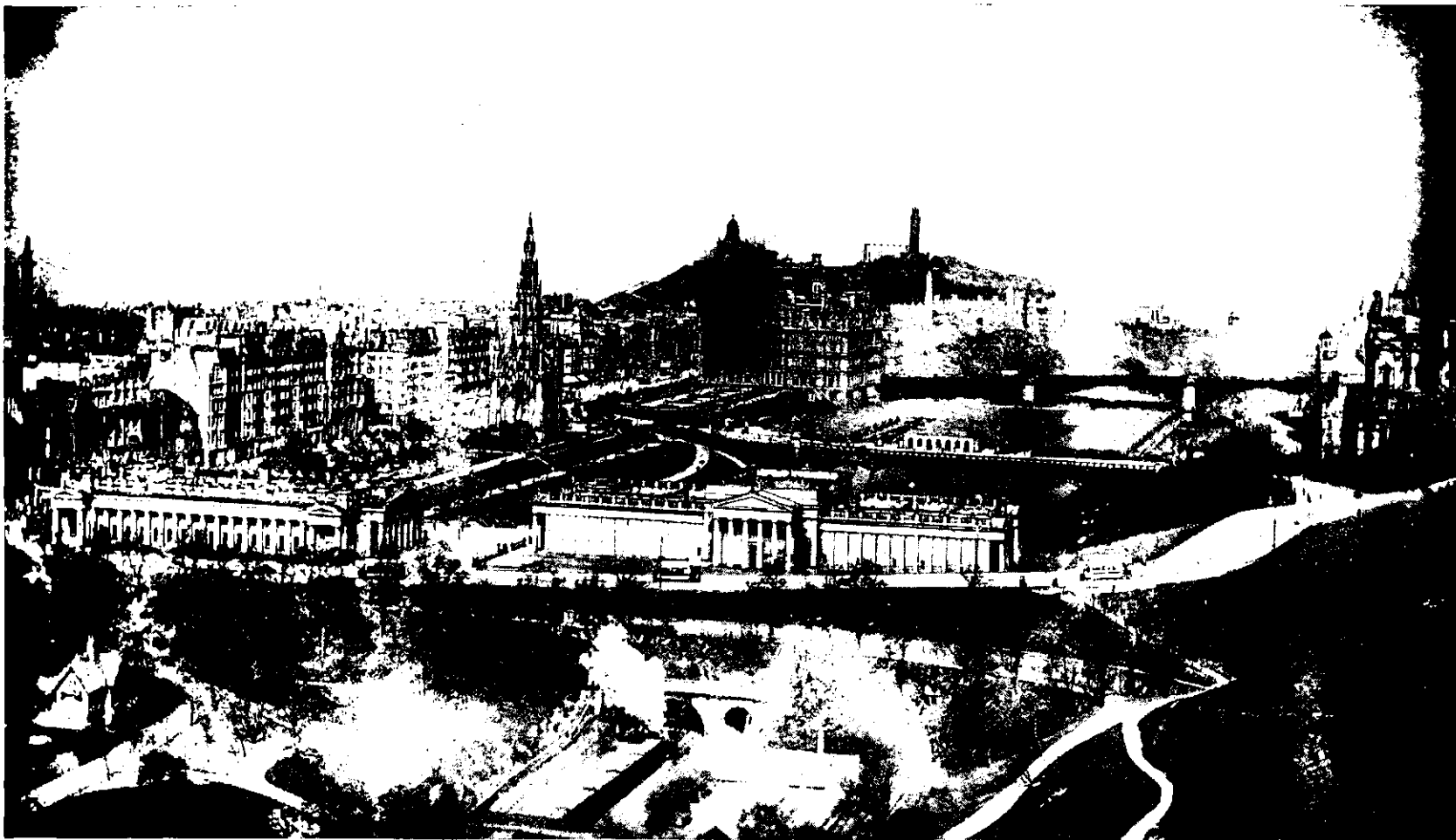
¹ A full account of the plans for rebuilding after the Fire is given in *Essays on Old London*, by Sidney Perks, Cambridge University Press, 1927.

About 1766 John Gwynn made a comprehensive study and plan for London and Westminster. This plan visualized many of the best improvements in the layout of streets that have since been carried out: the Thames Embankment, Holborn, Regent Street, a great square adjoining what is now Trafalgar Square, and bridges over the Thames. Gwynn's sense of architectural quality led him to deplore the depravity of taste of the builders of his day.

Many of the famous London squares were laid out in the seventeenth and eighteenth centuries by great landowners in the developing of their estates. Very few of the early houses had back gardens. Landowners considered it advantageous to omit these and to provide a large common garden to the front. It gave a higher value to the houses and lengthened the period of their desirability as residences. An element of zoning control was established by means of private restrictions. On some estates to make commercial use of houses fronting the squares was, and still is, forbidden. These areas for a considerable period resisted commercial development, though some of the largest and most expensive houses are now unsuitable for habitation and are being used as offices for institutions and business purposes.

In the "square" London hit upon an element which was not quite the bare forum, piazza, place, platz, or market. Spacially it was like these, but functionally it was a garden. Simple, homelike, visible, sunny and eventually beautiful, it made for community instead of individualistic privacy. It reduced, and generally abolished, the back gardens of earlier and later days; and in place of service lanes for the houses that faced the squares it provided mews.

Toward the end of the eighteenth and in the beginning of the nineteenth century notable contributions to civic art were made in London by William Chambers and Robert and James Adam. Partly contemporary, but somewhat later, came the work of John Nash, land agent and architect, who brought a considerable genius to bear upon town planning developments in London. Nash was successful in street planning and landscape as well as in architectural design. His chief work was done between 1813 and 1826, but its spirit and character belong to the traditions of the eighteenth century. He laid out the Crown land in the northwestern portion of the city, and in his combined arrangements of open spaces,



PRINCES STREET AND GARDENS, EDINBURGH

Showing submerged railway under artificial mound used as site for public buildings

PLAN

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² See illustrati

streets, and parks succeeded in giving London some of its best examples of civic architecture.

Another noteworthy planning project for a part of London was submitted to a Select Committee of the House of Commons by George Dance¹ the younger in 1796. It took the form of a double bridge across the Thames, both connecting a large plaza on the north bank with a similar plaza on the south bank of the river.

The city of Bath was largely planned in the eighteenth century. From 1735, and onward to 1795, large additions were made to what had been a small town within walls.

Considering that Bath² was not planned *de novo* or at one time, but gradually and by a succession of architects, including Robert Wood and his son of the same name, the result must be pronounced successful for the period. Its satisfactory development was possible owing to the wisdom of a hierarchy of architects, and to the wealth, luxury and general function of the city itself. Little or no industrial development took place, and the whole town, as it grew, had one character and maintained an architectural and cultural consistency.

Another spa city in England that received some attention in the architectural treatment of its civic features was Tunbridge Wells. As early as 1664 it was noted for its fine avenue of trees and its unique rows of shops.

In the same period some planning was also done in the city of Exeter. Exeter was a rhomboid town standing on high ground to the north and to the south resting on river channels. It was cruciform in shape, with four main gates, an additional gate being located at the south corner. Three ribbon roads spread out from the north gate fanwise, and ribbons ran out from the other gates. John Rocque's map of 1774 reveals good irregular planning, mediæval following the Roman original.

The records of the eighteenth century in England are not without examples of vandalism in planning. For instance, the ancient city of Winchester, at one time capital of England, suffered by the loss of some of its architectural quality during this period. On the

¹ See copy of Dance's scheme by William Daniell in the *Journal of the Royal Institute of British Architects*, March, 1933, p. 442.

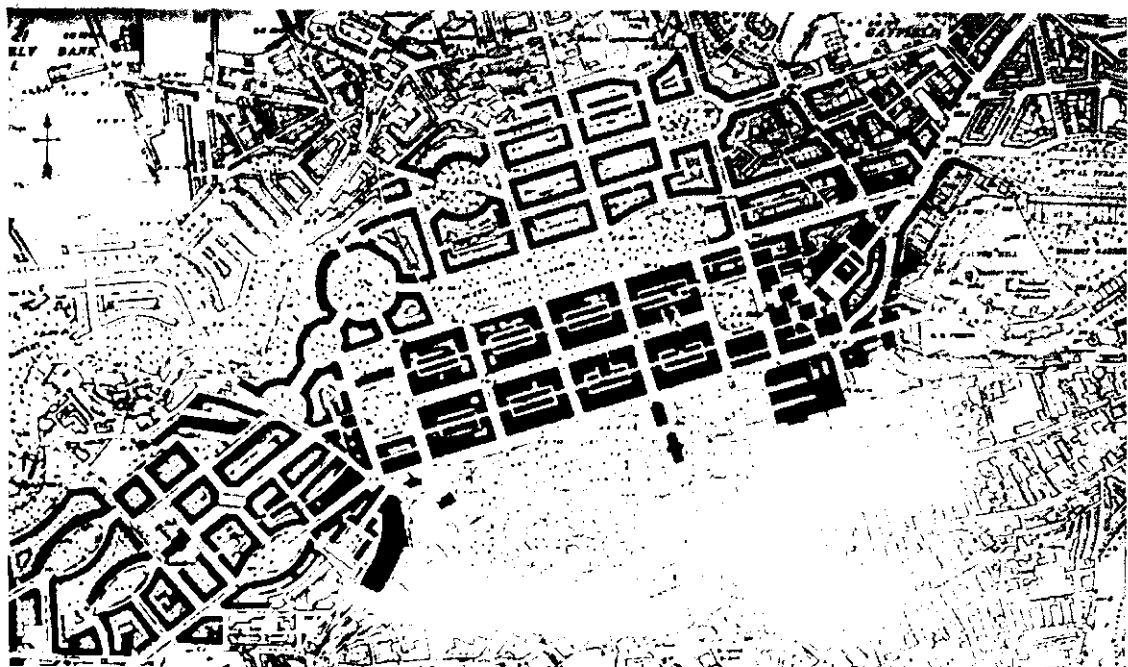
² See illustration facing p. 109.

other hand it was in the eighteenth century that the first scientific efforts were made by the English people to carry out much needed improvements of their roads and streets, under the guidance of the famous road engineers Thomas Telford and John W. McAdam.

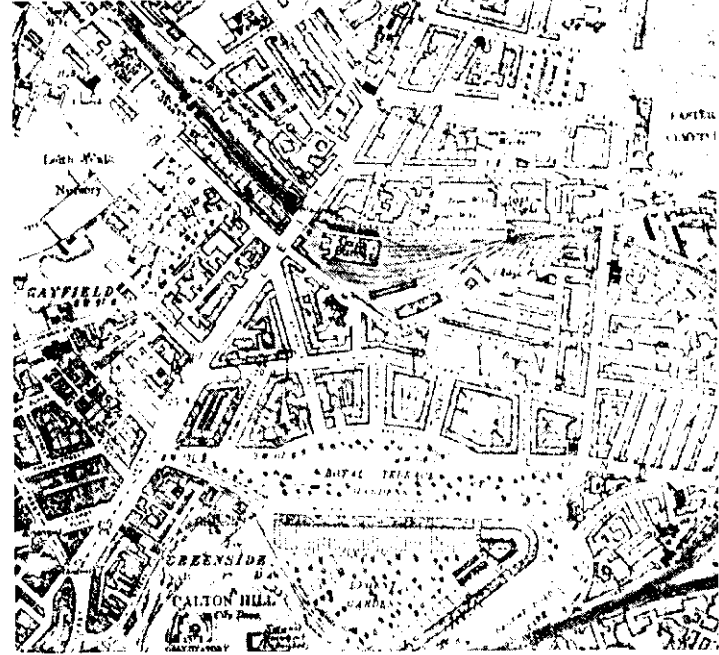
The city of Edinburgh before 1765 consisted mainly of the old mediaeval town on the south of the valley between its famous new Princes Street and the Castle Hill, then a loch (lake), and now occupied by large public gardens and railroad lines. The old city was begun with a group of houses nestling under the protection of the castle on the rock, and a road led due west to Holyrood on the summit of a long hill sloping steeply on both sides. It grew to the east and west of the road known as the "Royal Mile" between the Castle and the Royal Palace. The broad High Street which constitutes part of the Royal Mile is irregular in width and its frontages are still occupied by the law courts, municipal buildings, and St. Giles Cathedral. The best of the Gothic and Scottish baronial buildings that remain were erected in the sixteenth and seventeenth centuries. Of these, a building called the Tolbooth is the most picturesque. In the numerous alleys of the old city were its residences for rich and poor, crowded together in high tenement buildings. Some were higher in proportion to the width of the alleys than New York skyscrapers are in proportion to the width of that city's avenues. A 14-story building facing an alley 10 feet wide corresponds to a building 140 stories high facing an avenue 100 feet wide. It is interesting to compare the picturesque informality of the old town plan with the classic formality of the new.

It was in the third quarter of the eighteenth century that the city made preparations to plan and develop its great extension. It acquired the land on the north bank of what used to be known as North Loch, through the site of which now runs the railway. Competitive plans were invited from architects, and as a result, the plan by James Craig was accepted in 1767. Craig adopted a rectangular layout, and departed entirely from the form and tradition established by Old Edinburgh. He laid out three broad parallel roads, with six streets intersecting them at right angles. An open space was reserved where the North Loch lay,¹ and on the opposite side

¹ See illustration facing p. 110.



MEDIAEVAL AND MODERN EDINBURGH, SHOWING CRAIG'S
RECTANGULAR PLAN IN THE CENTER



THE BREAKDOWN OF THE EDINBURGH PLAN

On the left, the plan of 1816 and on the right, the actual development following the introduction of the railroad

of his great development. St. Andrews and Charlotte Squares were formed at either end, on the axis of George Street. At a later period, reaching well into the nineteenth century, a great portion of the town resting on Heriot Row and Abercromby Place, and to the east of Calton Hill, was laid out by architects in the form of circuses, crescents, and squares.

The planning of the city street system was accompanied by the highest art in city building. Robert and James Adam, W. H. Playfair, Robert Reid, and other eminent architects designed the principal groups of public and private buildings. The most notable were those erected on the four sides of Charlotte Square, now preserved and protected by a recent town planning scheme. The fact that the city owned much of the land on which the new town was developed made possible the effective control that was obtained over its architecture.

Edinburgh is one of the classic examples where good city planning and good architecture combine to create a high standard of civic design. The quality of its architecture is greatly enhanced by the landscape features of its site. The view of the old city, with its castle on the great exposed rock and its silhouette of buildings following the "hog's back," as seen across a deep valley, is part of the charm of the new city. This combination of mediaeval picturesqueness with the orderly dignity of classical forms is a feature both of Paris and of Edinburgh.

After the coming of the railways, civic art in Edinburgh was neglected. The map of the city shows where architectural plans partly carried out were stopped by railway developments. Since 1830, and until quite recently, Edinburgh, in common with most modern cities, has suffered from an absence of aesthetic appreciation and from a parallel decay in the art of building. Haphazard rebuilding of the city's center, the development of suburban tenements in the late nineteenth century, and, more recently, the construction of monotonous bungalow neighborhoods with no architectural quality, have impaired its beauty. But enough now remains, and is being hesitatingly preserved, to make Edinburgh still one of the finest of cities and one of the best examples of the value of employing the art of planning.

GERMANY AND AUSTRIA

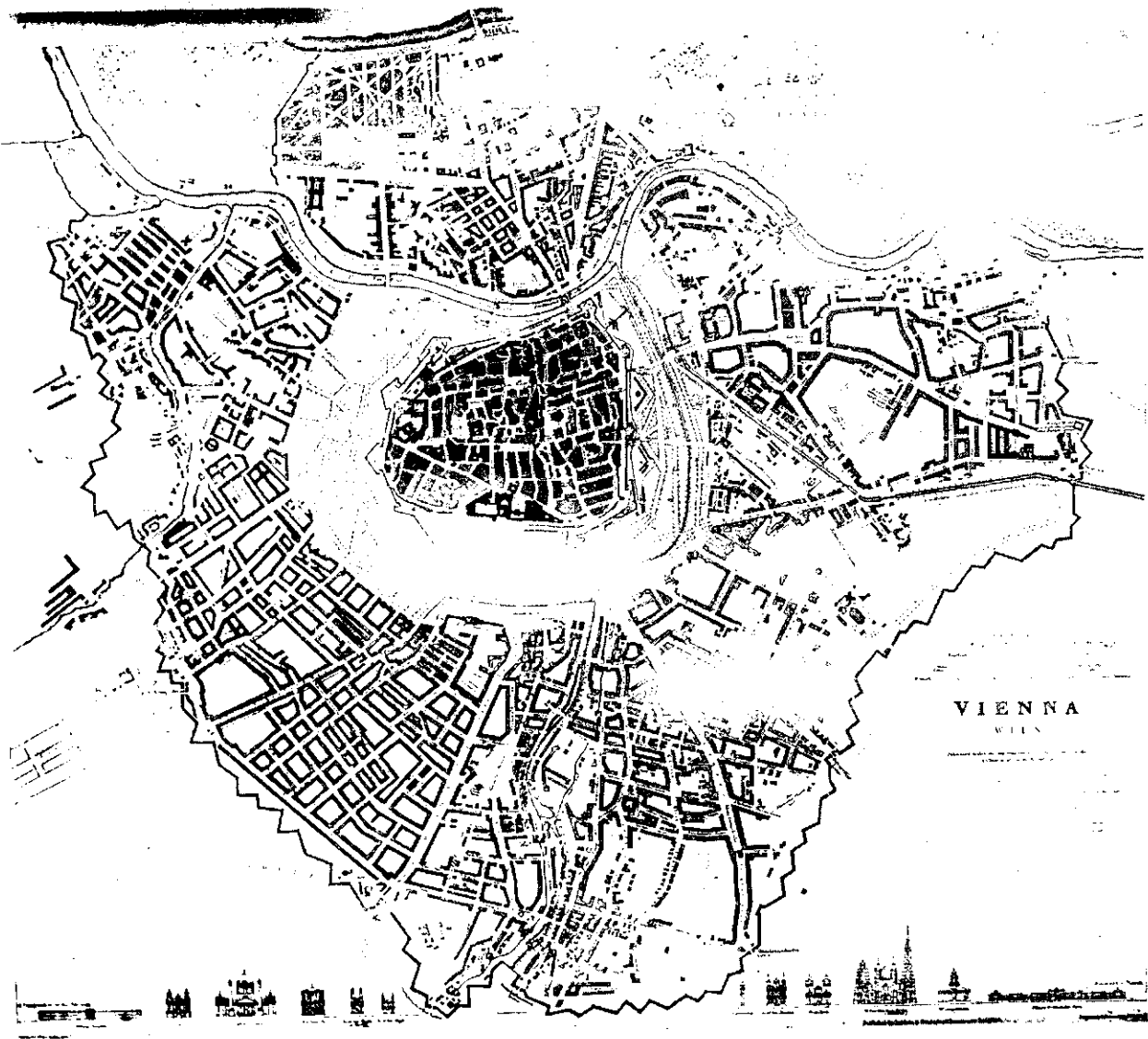
The development of towns in Germany was greatly influenced by the Reformation. Guilds of handicraftsmen exercised a varying but often strong influence over government and city planning. The efforts of these guilds, combined with the reforming spirit, led in the beginning of the sixteenth century to the freeing of cities from ecclesiastical domination. Italian and French influences over architectural forms began to operate after the Thirty Years' War, which ended in 1648. Salzburg, in Austria-Hungary, one of the finest of the Baroque towns, was developed under these influences.

The city of Berlin, which shows much French influence in its planning, was enlarged and improved in 1646 by the "Great Elector," Frederick William (1640 to 1688), who united the adjacent towns of old Berlin and Kölln and established the new towns of Friedrichswerder, Dorotheenstadt, and Friedrichstadt. The four towns were afterward amalgamated and provided with extensive fortifications. Frederick the Great (1712 to 1786) extended the city, reserved the Tiergarten as an open space, and with the aid of the architect and sculptor, Andreas Schlüter, carried out a series of great building projects.

The Unter-den-Linden, 160 feet wide and planted with its double avenue of limes, is one of the finest streets in Europe. It extends for a mile from the monumental entrance to the Tiergarten at the Brandenburg Gate to the Opera House Platz adjoining the River Spree. Dr. A. E. Brinckmann has referred to the charming effect obtained in this Platz by grouping and proportioning the buildings around two squares, merged into one.¹

The city of Mannheim, founded at the beginning of the seventeenth century on an island in the Rhine, was laid out on a rectangular pattern corresponding to the plans of the "free towns" in France. After being destroyed by the French in 1688, it was rebuilt in 1699. It will be noted that its two main cross-streets are important elements in the design, one of these having the Schloss on its axis. At a later period its fortified ring was developed as a boulevard, and outside the ring, extension of the city was planned

¹ Transactions of the Town Planning Conference, London, 1910, pp. 159 and 165.



PLAN OF VIENNA (1833), SHOWING RINGSTRASSE



FAN-SHAPED PLAN OF KARLSRUHE, GERMANY

with well-arranged diagonals in the style that Wren and L'Enfant used in London and Washington respectively.

German and Austrian cities afford many interesting examples of ring parks, developed by the wise policy of utilizing the sites of fortifications after their abandonment for military purposes, a development of the eighteenth and early nineteenth centuries. Coblenz, Cologne, Strasbourg, and Vienna are notable for such ring parks. Freiburg in Baden has a unique arrangement of promenades and vineyards on the site of its old surrounding walls and ditches. Karlsruhe, the capital of Baden, is noted for a well-arranged fan-shaped plan. It was founded in 1715 around a hunting lodge of Karl Wilhelm, Margrave of Baden. The Schloss, built in the middle of the eighteenth century, dominates the town, and this dominance is recognized in the planning of the streets, over 15 of which radiate from it. The diagonal streets are crossed by the Lange (now the Kaiser) -Strasse. The extension of Karlsruhe has not been well planned, and shows a mixed irregular and rectangular treatment. French influence is seen in the early layout and architecture.

The city of Augsburg in Bavaria has been described by a German writer as the Pompeii of the Renaissance. It was founded as a military colony by Emperor Augustus about 14 B.C. and has a Gothic cathedral and other buildings erected between the tenth and fifteenth centuries. But its finest street (the Maximilian-Strasse) and buildings including the Renaissance Rathaus were constructed in the sixteenth and seventeenth centuries.

Vienna¹ in some respects is one of the best planned cities in Europe although there does not appear to be any record of comprehensive planning in any period. It is really a modern city although its development has been characteristic of the Renaissance. With the removal of the fortifications which surrounded the inner city during 1858 to 1860, the glacis beyond them was devoted to broad parkland encircling the whole of the original city on the south of the Danube. From the outer edge of this parkland, broad roads were constructed, buildings being well distributed between them. The inner city forms an irregular hexagon, but for the most part Vienna is radial in its structural arrangement. The Ring-

¹ See illustration facing p. 114.

strasse, consisting of splendid boulevards 165 feet wide, surrounds the old city on five sides. It gives fine display to the public buildings with which the city is richly endowed and at the same time provides an excellent area for circulation of traffic.

SPECIAL EXAMPLES IN OTHER COUNTRIES

The cities of Amsterdam and St. Petersburg (now Leningrad) are of special interest because of their combined systems of waterways and streets. The mediaeval town of Amsterdam, lying within the innermost canal, has irregular and narrow streets. What would normally be a road in Amsterdam is called a "graght," a waterway on both sides of which are sidewalks, in many cases lined with fine trees. More regularity in planning is shown in the outer zone, which was developed after the seventeenth century.¹

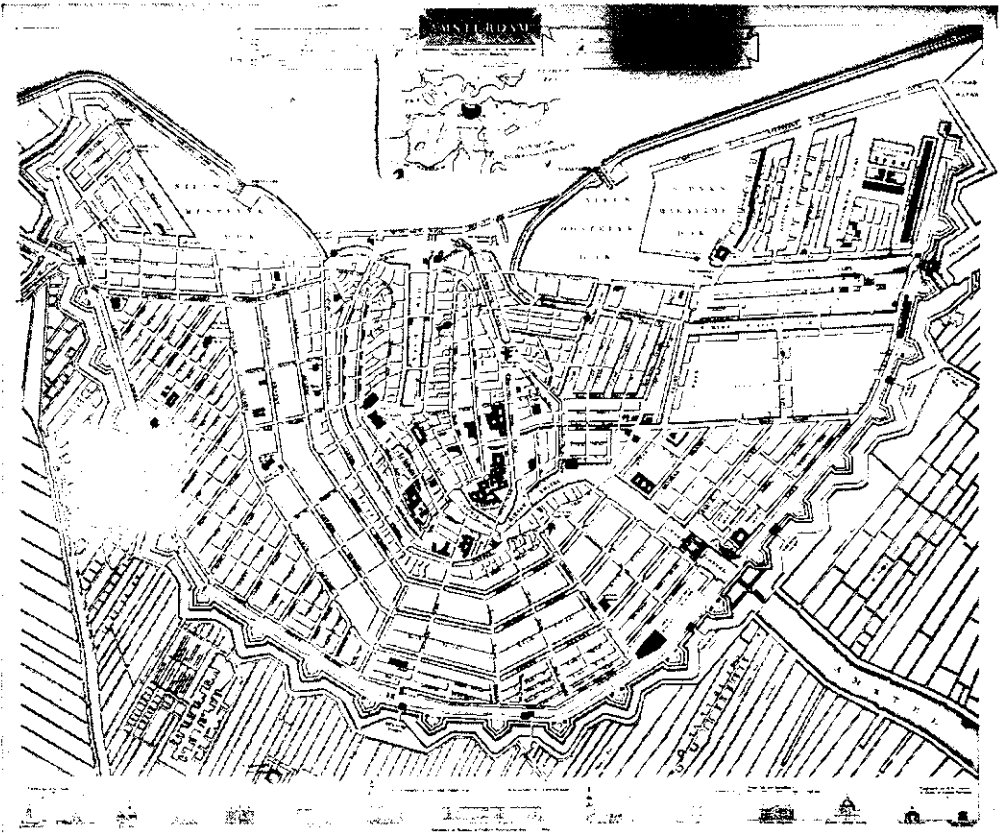
Leningrad is a comparatively new city, having been founded by Peter the Great in 1703. It was planned in geometrical form, three main streets with three great canals intersecting the city and radiating from the Admiralty Buildings. The greatest architectural development in this city was carried out in the time of Alexander I between 1801 and 1825. The landscape treatment of the whole city was considered and related to architectural features, the designs being prepared by Thomon, Zakharov, Voronikhin, and Rossi. A later Russian plan geometrically arranged in spider-web form was made for the city of Dalny (Dairen), in southern Manchuria.

In general, the major street plan of Moscow is well designed. It includes a system of radial roads and concentric boulevards. It is probably an old plan, but most of the city has been rebuilt.

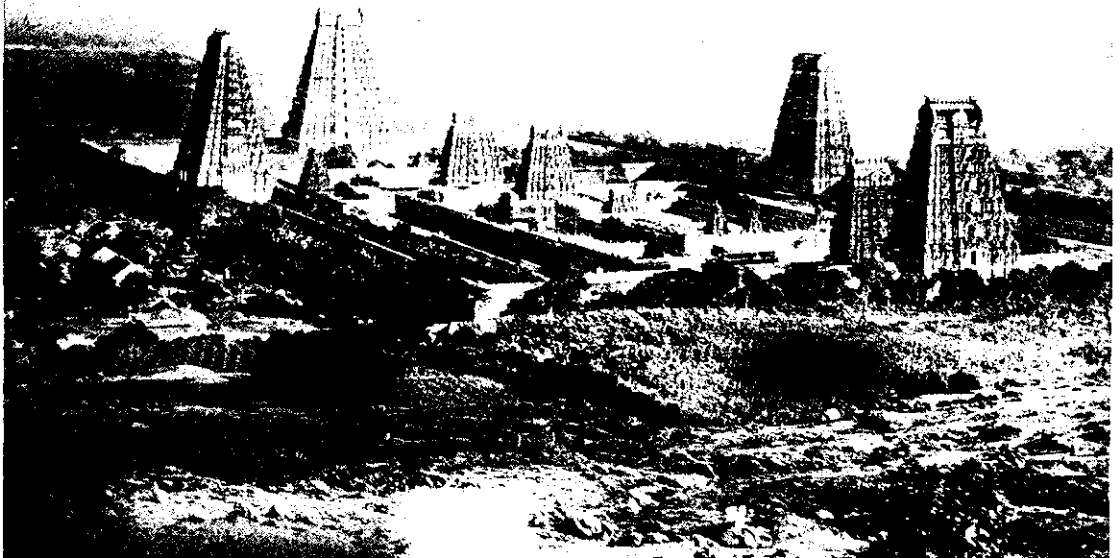
Parts of the city of Copenhagen are formally planned and agreeably developed with good buildings. The Amalienberg Platz has a unique charm, with well-proportioned classic types of buildings surrounding its six sides. It is the principal feature in an area that is well designed in rectangular form. The city of Antwerp is notable for the quay development of its harbor, perhaps the finest in Europe.

Another city of special interest to the town planner is Budapest, the capital of Hungary. It enjoyed the influence of French civili-

¹ See illustration facing p. 117.



PLAN OF AMSTERDAM, HOLLAND



Courtesy of the India State Railways

TEMPLE OF MADURA, MADRAS, INDIA

zation in the fourteenth century, and its early buildings were designed and constructed by Italian architects and French masons. Its six bridges over the Danube, its fine embankments and imposing waterfront buildings, and its commanding site overlooking the Hungarian Plain and the sweep of the Danube with its hilly banks combine to make it one of the most impressive cities of Europe. Its central shopping district is encircled by a wide boulevard on the site of the old walls. Outside of the boulevard the radial streets are intersected by two concentric boulevards, beginning and ending at the Danube. Its finest thoroughfare runs in a straight line from the center of the city to the city park of 240 acres. Although the planning of the city is of an earlier period, its greatest building development has been mainly carried out in the nineteenth century—its growth since 1867 having been phenomenal.

The modern city of Brussels shows much evidence of city planning during the Renaissance period. It has a fine main artery in the Bois de la Cambre and the Avenue Louise, extending in changing scenes of wide boulevards, squares, and parks from the center to the circumference of the city.

Geneva,¹ in Switzerland, has interesting features from a city planning point of view. It was almost entirely rebuilt in 1847. Its old ramparts were removed, streets widened, and new quays constructed on the shores of the lake and river. The grouping and restrained skyline of its buildings on the lake front give it special distinction.

Examples of early modern planning are to be found in India. H. V. Lanchester in his book² tells us of the rectangular plan of Rangoon, Burma, with its alignment determined by the river, the sixteenth century Bombay and Madras, and the seventeenth century Calcutta and Karachi. These cities, however, seem to be more distinguished for the problems of reorganization than for the example of planning which they present.

One striking example of city planning applied to the layout and building of a great temple can be seen at Madura in India. The temple is situated in the city of the same name, which was the

¹ See illustration facing p. 118.

✓ ² *The Art of Town Planning*. Chapman and Hall, London, 1925, pp. 200-205.

capital of the Pandyan dynasty from the fifth century B.C. to the end of the eleventh century A.D. It is a well-preserved example of orderly design on a large scale carried out in the seventeenth century by Tirumala Nayak. In perspective it appears to have the dimensions of a monumental town, and its architecture shows some of the characteristics of Angkor-Vat. The temple stands in an enclosed site which forms a parallelogram of about 847 feet by 729 feet. It is surrounded by nine gopuras of which the highest is 152 feet.¹

Both in Europe and Asia there are many other examples of city planning carried out between the sixteenth and the nineteenth centuries. Reference has been made only to some that have a special significance for study or reveal features worth noting in this general outline of early efforts.

EARLY PLANNING IN AMERICA

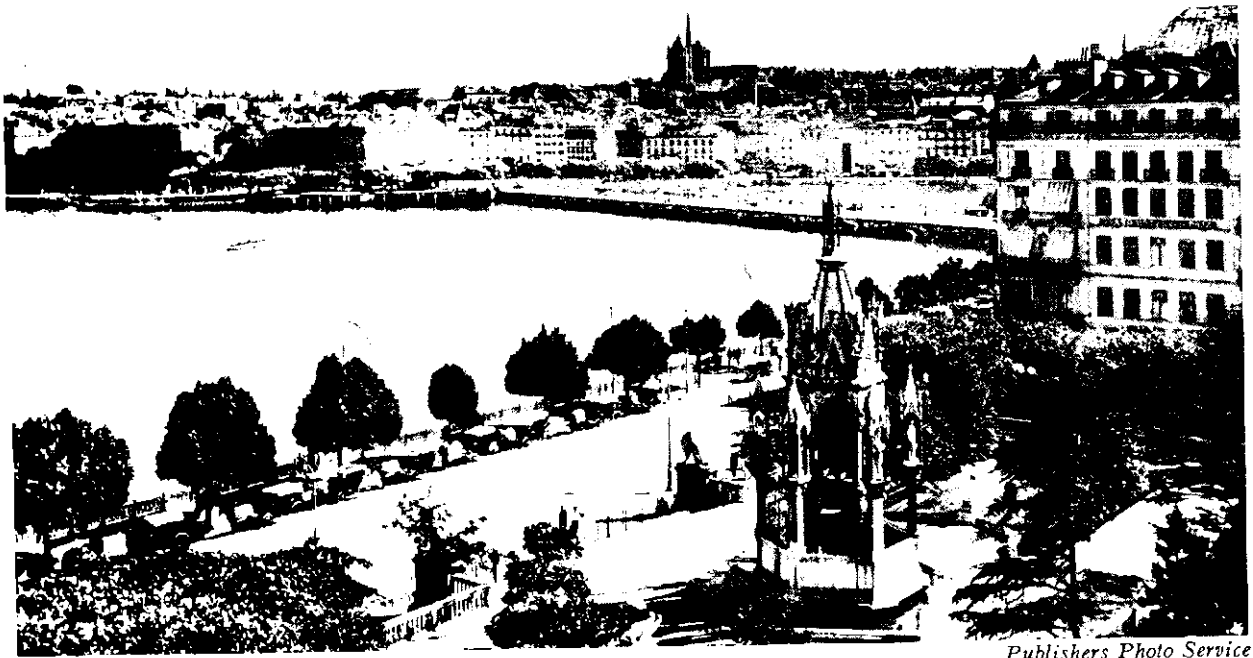
NEW ENGLAND TOWNS

Some of the best traditions in town and village planning are to be found in New England, where the streets and lots were laid out informally but with much regard to organic unity, although the method of dividing the farms into squares was followed, in a later period, by the subdivision of town settlements into chessboard or gridiron patterns.

In March, 1629, the Massachusetts Company in England engaged Thomas Graves of Kent, a skilful engineer, to go to New England in their interests and plan a town. On arriving he proceeded to model and lay out the form of the town of Charlestown with streets about the hill, providing for each inhabitant a two-acre plot to plant upon. The original settlement, however, was abandoned and the plan was not carried out.

Governors Winthrop and Dudley settled the towns of Boston, Charlestown, Dorchester, Medford, Watertown, Roxbury, and Lynn in 1630. Between 1630 and 1650 streets of these towns were laid out through thickets where the chief occupants hitherto had been wolves and bears.

¹ Murray's Handbook: India, Burma and Ceylon. John Murray, London, 1903, p. 405.



Publishers Photo Service

A VIEW OF GENEVA, SWITZERLAND, AROUND THE LAKEFRONT

Anne Bush MacLear, in *Early New England Towns*,¹ says that the early towns were settled for purposes of neighborhood and defense, while other writers state that the objectives were: first, the tillage and culture of the soil; and second, the maintenance of a civil and religious society. These objectives must have had an influence on the selection and planning of the sites, but there were also the factors of the presence of wood and water, the system of tenure under which lots were divided for separate occupation, and common lands reserved outside the town. This last factor led to a particular kind of grouping of dwellings in a village.

Boundaries of towns were fixed by the General Court and land was given to men of good repute, on condition that they should erect houses for habitation thereon and go on to make a town. In 1645 permission was given by the Court to settle a plantation at Nashaway (West Town) with the requirement that the houses be not set too far asunder. There was a constant tendency to start new towns, due to the inconveniences caused by poor means of communication as towns extended, and to the desire on the part of inhabitants to escape oppressive taxation.

Houses in the seventeenth century towns were placed within easy distance of each other, care being taken that all available locations within the town limits were occupied before settlers were allowed to scatter. The wisdom of this policy was lost sight of in the speculative land settlements of later generations.

Cambridge, Massachusetts, ordered that "Every Inhabitant in the Town should keep the Highway cleane from wood and all other things against his owne Ground and whosoever shall have anything lye in the street shall be fined."

Houses were built with some reference to the appearance of the town, and in Cambridge building lines were planned and enforced. It was required that these "Houses shall range even and stand just six feet in their owne ground from the street."

Highways within the town were the property of the town and were kept in order by the inhabitants working under the direction of a surveyor. Highways between different towns were laid out by committees from the towns concerned.

¹ Columbia University Press, New York, 1908.

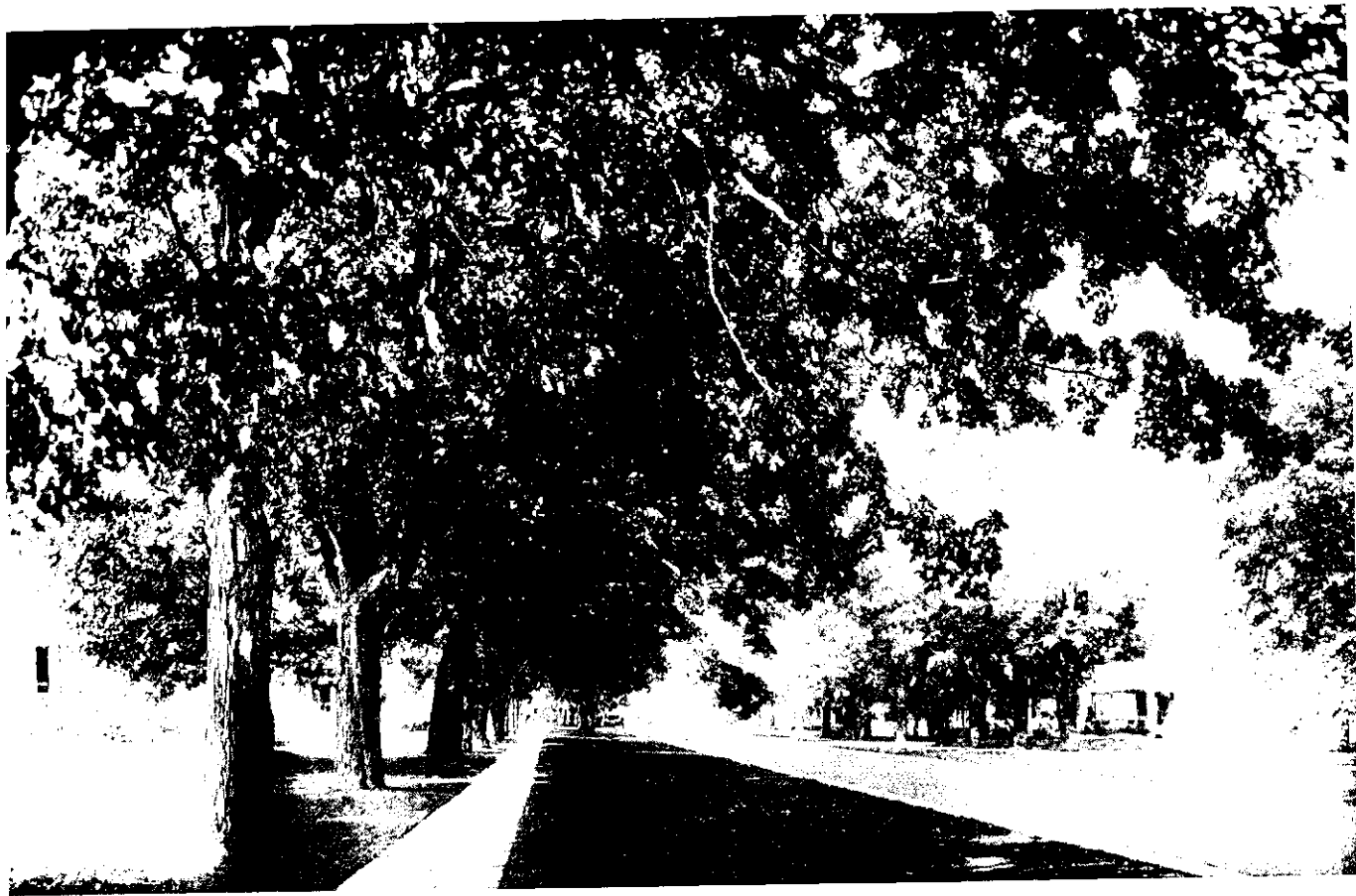
OUTLINE OF TOWN AND CITY PLANNING

In the reign of William and Mary, and in the first year of the first royal governor of the province of Massachusetts Bay Colony, a law was passed (Province Laws, 1692 to 93, c. 23, sec. 1) prohibiting certain noxious or "nuisance" industries from carrying on business in any district not specifically designated for such use by the selectmen of the town jointly with two or more justices of the peace. This law applied to the towns of Boston, Salem, and Charlestown, and to any other market town in the province. It controlled the location of slaughterhouses and distilleries, and the business premises of chandlers and curriers, potters' kilns being added to the list in 1741. In 1710 an amendment was added which gave power to the Court of General Sessions to suppress any of the above industries if, after investigation by a jury, they were found to have "become a nuisance because of offensive and ill stench proceeding from the same, or otherwise hurtful to the neighborhood." This act, which is still law, is undoubtedly the first example of "use zoning" in America.

A description of the planning of early towns is given by Warren H. Manning in his *History of Village Improvement in the United States*.¹ In 1694 Malden, Massachusetts, voted that the village common be divided, and ordered that commissioners making the division "employ an artist to lay out ye lands." That street trees were appreciated was evinced by the action of a town meeting in Watertown, Massachusetts, which passed a vote in 1627 "to mark the shade trees by the roadside with a 'W'" and "fine any person who shall fell one of the trees thus marked 18 shillings." The age of existing homesteads and roadside trees, very many of which are between 100 and 200 years old, shows that this interest was continuous. Appreciation did not, however, extend far beyond residential districts, for lumbermen and farmers very generally appropriated for their own use all valuable trees on the public ways, unless close to houses.

Mr. Manning describes how the outlying roads rambled in by graceful curves or lines of least resistance to the village common. Later, by projecting roads on straight lines regardless of hill, dale, or water, the turnpike engineer managed, at great cost, to ruin much of beauty and convenience. Such engineers, and the sur-

¹ Mason Press, Syracuse, New York, 1904.



A NEW ENGLAND AVENUE, MANCHESTER, VERMONT

veyor who made his plans of streets and lots on paper from plotted property lines and angles without levels, and with little regard to existing streets, were then, and are now, destroying great beauty at unnecessary cost.

Like those of the mediaeval period, the early New England towns were planned by a sort of instinctive process. Buildings were grouped around a town center, streets following the topography and varying in width. Differences in sizes of plots produced a certain variety in the grouping of buildings. There was an absence of unwise speculation in land, and regard was shown for the community, instead of for the individual in the laying out of land for building.

One must be fair, however, to the modern town; recognizing, first, the vital distinction that exists between the civilizations of the seventeenth and twentieth centuries. Qualities that have been admired in the early towns were obtained partly as a result of interferences with liberty and restriction of natural tendencies of growth that would not be tolerated today. Restrictions against the growth of towns in New England corresponded in aim but differed in method to those issued under Queen Elizabeth and Cromwell in England.

There are good as well as bad elements in the pride of the modern citizen regarding the freedom he possesses to promote the growth of his community; and they are bold people who proclaim that the bad outweighs the good when all factors, including the pressure of changed economic conditions, are taken into account. The writer cannot join in the unqualified enthusiasm of those who see nothing but merit in the restrictive ordinances of early towns—such as is illustrated in the methods used to warn newcomers out of towns in New England. For example, the Settlement Act of Connecticut¹ provided that the selectmen were authorized to warn a non-inhabitant of the state to depart from a town or to pay \$1.67 a week for every week he continued to remain. It also provided that after the warning was given a person who was convicted of refusing to depart and had no means to satisfy the fine then “such person shall

¹ An Act for the Admission of Inhabitants of Towns and for Preventing Charge on Account of Such as Are Not Admitted Therein (1771). *Acts and Laws of the State of Connecticut in America*. Hudson and Goodwin, Hartford, 1796, pp. 239-240.

be whipped on the naked body not exceeding ten stripes unless he or she depart the town within ten days."

It thus appears that the exclusiveness of the old New England towns was gained at a price of interference with freedom which would not be tolerated in modern communities. These measures must have had an effect in hampering growth.

However, in spite of such restrictions, early New England communities remain as examples to be followed in respect to their functional unity, their agreeable spaciousness, their simple forms of architecture, and their absence of congestion and restlessness. Some of their finer physical qualities are preserved in Concord, Massachusetts; Litchfield, Connecticut; and Manchester, Vermont.¹

It is a misfortune that the best qualities of these towns were not imitated in other parts of the country in the later periods when town growth became so extensive, and the haphazard and unintelligent checkerboard system prevailed.

THE SOUTHERN STATES

The towns of Virginia and the Carolinas contain some examples of Renaissance architecture and town planning.

Williamsburg,² the first capital of Virginia, was one of the most important southern towns of the period. Laid out in 1699, it grew rapidly until the removal of the capital to Richmond in 1779, after which it greatly declined in importance.

The main street of Williamsburg runs along the crest of a watershed, and forms the axis for a monumental composition of public buildings. At each extremity of this axis the street separates into two roads leading out to the adjoining country, forming attached V-shaped diagonals. The State Capitol and the College of William and Mary have been placed on the main axis, closing the vistas at the intersections of the diagonals with the main street. The disposition of the Governor's Palace, which occupies a site at the end of a wide mall intersecting the main axis at right angles, anticipates L'Enfant's placing of the White House in the Washington plan.

Williamsburg is of particular interest as one of the best preserved colonial towns, especially as its original character is now being

¹ See illustration facing p. 120.

² See illustration facing p. 124.

carefully restored through the efforts of Perry, Shaw, and Hepburn, architects, of Boston, as agents for John D. Rockefeller, Jr.

The cities of Charleston, Savannah, and New Orleans are other southern cities of special interest from a city planning point of view.

Charleston, South Carolina,¹ situated on a peninsula between the Ashley and Cooper Rivers, was founded in 1680. It still retains much of the charm that accompanied the well-proportioned and picturesque street planning of the colonial period.

The early plan of Savannah, Georgia, made provision for small open squares at regular intervals. Laid out by General James Oglethorpe in 1733, it has broad, straight streets and well-distributed parks.

New Orleans was founded in 1718 by Jean Baptiste de Bienville. When it became the capital of Louisiana in 1722 it was laid out in the form of a parallelogram and divided into regular squares 300 feet on a side. After its inclusion in the United States in 1803 it was greatly extended, and in seven years its population had doubled. The original streets of the old French town were narrow, but wide boulevards were constructed in the newer parts of the city. The principal thoroughfares radiate from the Mississippi River on which the city is situated and are connected with one another by circumferential roads. From its situation on a curve of the river, New Orleans is called the "Crescent City." An interesting feature in the planning was the conversion of canals into thoroughfares. St. Charles, Esplanade, and other avenues were laid out with island areas along the center—these being used for street-car tracks and lined with trees.

PHILADELPHIA

William Penn was the first to provide America with a comprehensive street plan for a large city. In his design for the layout of Philadelphia (1682) he adopted the checkerboard system that has been followed by most American cities.

The plan corresponded to the simple right-angled pattern which Evelyn at about the same time proposed for London, but it lacked the valuable qualities which Wren by his skilful arrangement of

¹See illustration facing p. 125.

OUTLINE OF TOWN AND CITY PLANNING

diagonal streets and focal centers introduced into his London plan.¹

Penn's plan included a central square at Broad and Market Streets, four subsidiary squares, and four main avenues leading from the center. The blocks were normally 396 by 400 feet, bounded by 50- and 60-foot streets. These blocks were later reduced by cutting 40-foot streets through them; one result of this being to give Philadelphia shallow building lots with narrow service passages in the rear.

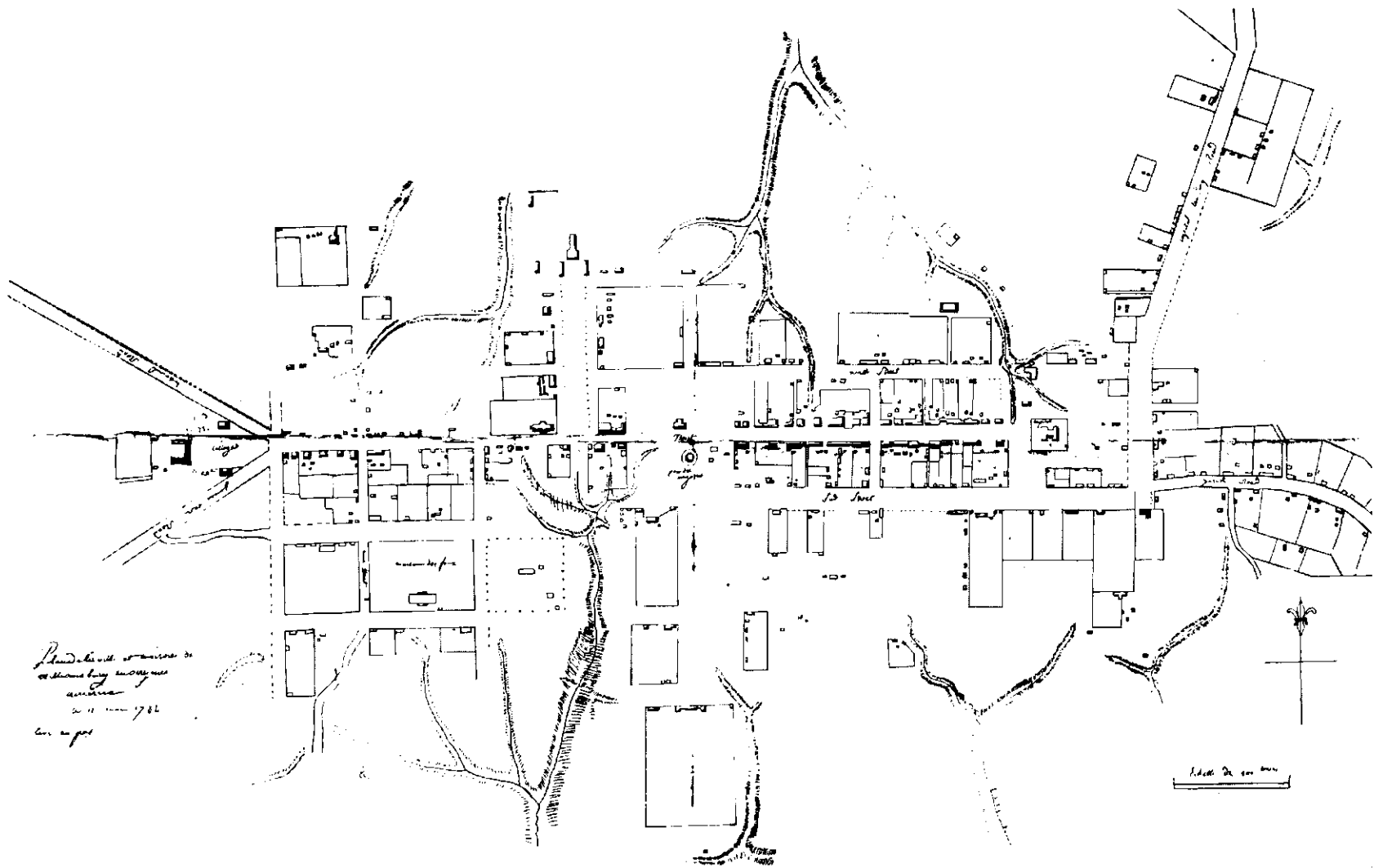
The plan has had little influence on the building development of Philadelphia, and illustrates the fact that a complete street plan by itself may have little effect on civic art. Unfortunately, the central open spaces proposed by Penn were decreased instead of increased as the city grew.

MANHATTAN ISLAND

The street plan made in 1811 for the city of New York by three commissioners followed the same lines as the Philadelphia plan. It was too rigid and too lacking in conformity with the configuration of the land on most of Manhattan Island to form a sound basis for city building. In some respects the unplanned area of the original settlement on the southern tip of the Island is better adapted to the needs of the community than the gridiron pattern imposed on the area to the north of Canal Street. The commissioners apparently did not appreciate the advantages of diagonal streets and open areas at intersections, exemplified by the Washington plan. They were deemed fanciful and extravagant, and consequently the only diagonal route introduced into the plan was Broadway, the line of which already existed as a rural highway.

Manhattan Island, in area about 13 miles long by two miles wide, at that period was primarily a shipping center, and the main direction of street traffic was consequently across town between the docks of the Hudson and the East Rivers. This fact led the commissioners to lay out the greater number of streets running from river to river, and only widely spaced avenues parallel with the axis of the Island, in the other direction. Later the predominance

¹ See p. 108, also modern plan of Philadelphia facing p. 238.



Courtesy of the College of William and Mary

ORIGINAL PLAN OF WILLIAMSBURG, VIRGINIA

The seat of the state government of Virginia until 1779. Note diagonal arrangement of approaching streets at one end of the main thoroughfare



From an 1

O'Neill Verner

CHURCH STREET, CHARLESTON, SOUTH CAROLINA

of north and south traffic showed that more north and south streets and a system of diagonals should have been provided. In recent years, however, with the development of Brooklyn, Queens, and the New Jersey cities as industrial and residential areas, heavy east-west traffic has proved that it would have been unwise to have had fewer streets connecting the docks on either side of the Island.

The blocks were made 200 feet wide, north and south, separated by 60-foot streets, except that roughly every tenth street was made 100 feet wide. The north and south avenues were also laid out 100 feet wide, separated by blocks varying from 650 to 920 feet in length. There are approximately 20 blocks to the mile north and south, and six blocks east and west. The plan was not extended beyond 155th Street because it was believed that it would be centuries before the city developed even that far north, and to lay out the rest of the Island as well would have called forth only ridicule and opposition to the whole plan. The northern tip of the Island itself is marked by 220th Street, and the city's limits have now been pushed several miles beyond the Harlem River, its northern boundary.

The rigid character of the street plan is indicated by the fact that in 1856 it was officially stated that neither the city authorities nor private owners could modify or add to the streets laid down in 1807, except by consent of the legislature.

The plan did not include adequate provision for open spaces, especially along the waterfronts; neither did it deal with the layout of the harbor or of the low-lying land adjacent to the Hudson and East Rivers. This land was controlled by the governing body of the city, which is alleged to have made serious intrusion on the property of the state. The disorderly development of the East River waterfront remains today a striking example of a lost opportunity in New York.

✓ L'ENFANT'S PLAN OF WASHINGTON, D. C.

Washington owes its beauty, primarily, to the fine qualities of the ground plan that was made for it in 1791. The spacious environment of its buildings, their setting and approaches, and their reciprocal relationships are major elements in the splendor of its


structures. The plan was a product of that combination of statesmanship and technical skill which has always distinguished great enterprise in the field of city building. The foresight and driving force of President Washington, joined with the practical idealism of Thomas Jefferson and the art of Major Pierre L'Enfant, created the groundwork on which the capital of the United States has been built.

Considering the period, it required great vision and courage to make a plan so broad in conception. The country was still struggling with the consequences of revolution, and its social organization was based largely on mediaeval lines. There were few evidences of the proposed changes which were to be brought about in the nineteenth century.

President Washington and L'Enfant could not have dreamt of the railroad train, much less of the motor car. They could not have visualized the effects of these on transportation, on industry and on civic growth, yet they made a plan which has enabled the city of Washington to meet the new needs much more effectively than has been the case in unplanned cities. This result has been mainly due to the admirable spaciousness provided, a quality which was long censured as mistaken, for example, by those who decried the capital as being a "city of magnificent distances."

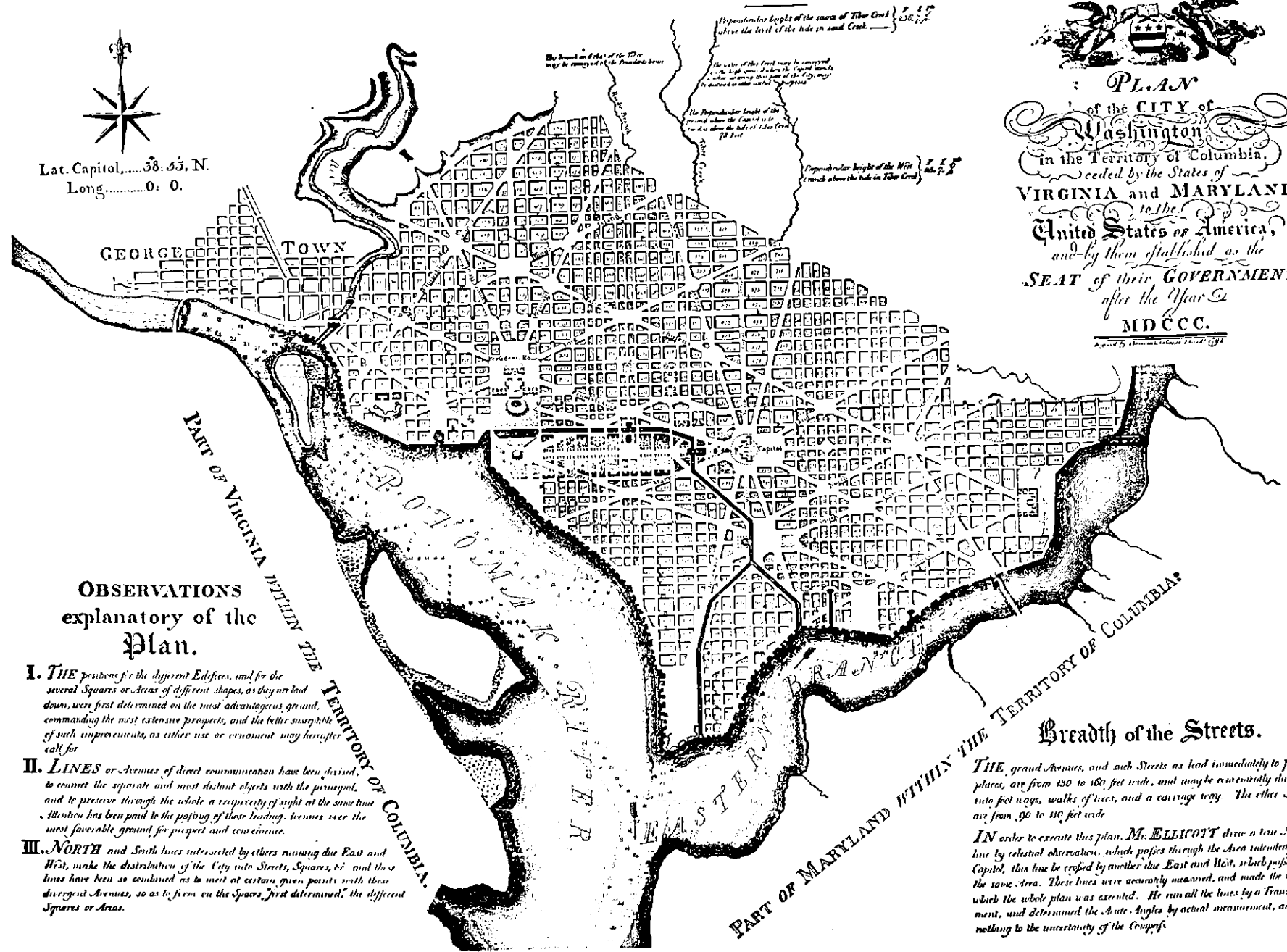
From the beginning there were scoffers who ridiculed the large conception of the planners, while in the 140 intervening years there have been vandals in high places who have made difficult the realizing of the plan. But in general its integrity has been maintained despite faults of detail in execution and failure to co-ordinate its outward extensions with the orderly design of its central areas.

Two influences lay behind the design as a composition: first, the influence of the rectangular system of planning used in laying out land in America; second, the influence of European tradition in town making, as carried out in France and other countries, with its tendencies toward radial forms. The European influence was introduced not only by L'Enfant—with his French training—but also by Jefferson, who had studied European cities and brought back to President Washington plans of Karlsruhe, Amsterdam, Strasbourg, Paris, Orleans, Bordeaux, Lyons, Montpellier, Marseilles, Turin, and Milan.



PLAN
of the CITY of
Washington
in the Territory of Columbia,
ceded by the States of
VIRGINIA and MARYLAND
to the
United States of America,
and by them established as the
SEAT of their GOVERNMENT.
after the Year
MDCCC.
Approved by the President March 3^d 1801

Lat. Capitol,.....38. 53. N.
Long.....0: 0.



OBSERVATIONS
explanatory of the
Plan.

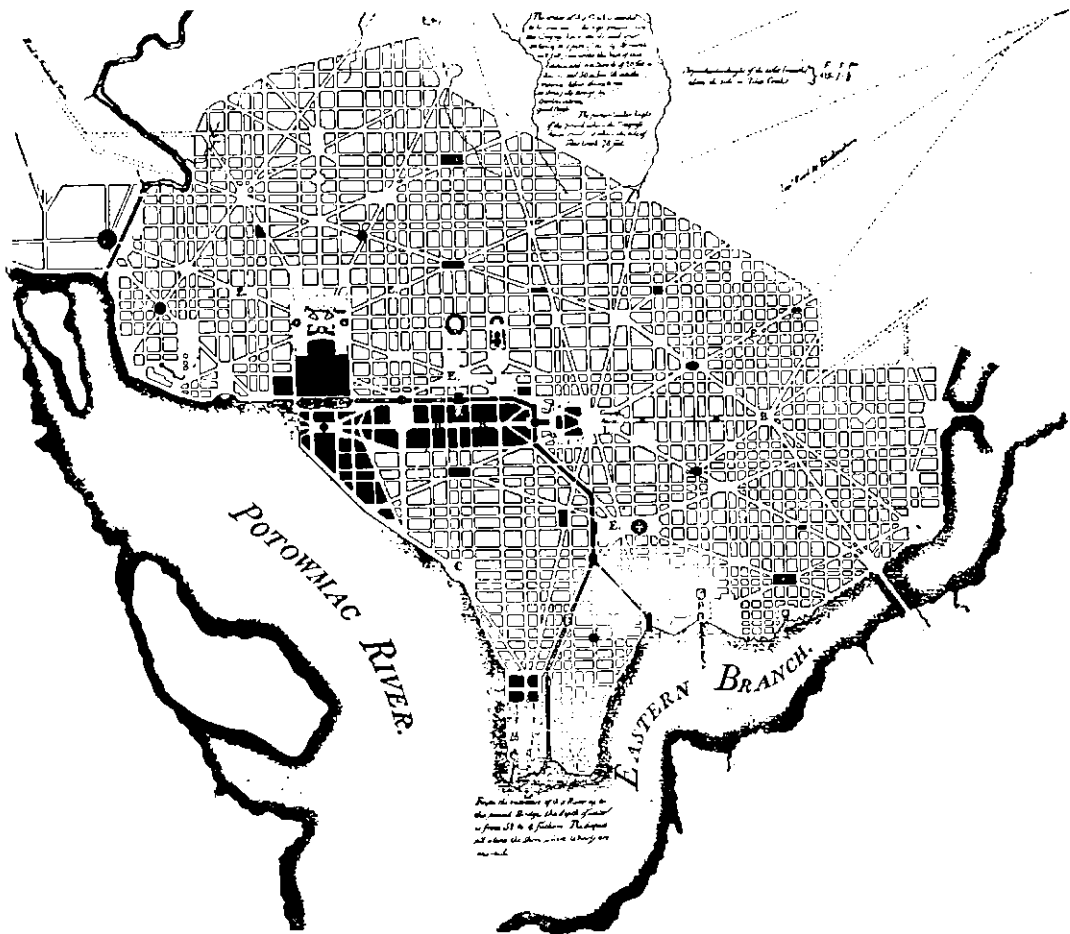
- I.** THE positions for the different Edifices, and for the several Squares or Areas of different shapes, as they are laid down, were first determined on the most advantageous ground, commanding the most extensive prospects, and the better susceptible of such improvements, as either use or ornament may hereafter call for
- II.** LINES or Avenues of direct communication have been devised, to connect the separate and most distant objects with the principal, and to preserve through the whole a regularity of sight at the same time. Attention has been paid to the passing of those leading avenues over the most favorable ground for prospect and convenience.
- III.** NORTH and South lines intersected by others running due East and West, make the distribution of the City into Streets, Squares, &c. and these lines have been so combined as to meet at certain given points with these divergent Avenues, so as to form on the Squares, first determined, the different Squares or Areas.

Breadth of the Streets.

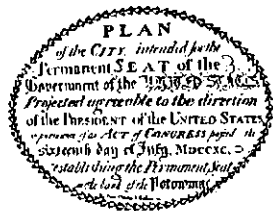
THE grand Avenues, and such Streets as lead immediately to public places, are from 150 to 160 feet wide, and may be conveniently divided into foot ways, walks of trees, and a carriage way. The other Streets are from 90 to 110 feet wide.

IN order to execute this plan, Mr. ELLICOTT drew a true Meridional line by celestial observation, which passes through the Area intended for the Capitol, this line is crossed by another due East and West, which passes through the same Area. These lines were accurately measured, and made the basis on which the whole plan was executed. He run all the lines by a Transit Instrument, and determined the Acute Angles by actual measurement, and left nothing to the uncertainty of the Compass.

ELLICOTT'S REVISED PLAN OF WASHINGTON, D. C.



L'ENFANT'S PLAN OF WASHINGTON, D. C.



OBSERVATIONS explanatory of the PLAN.

- I. The positions for the different Grand Edifices and for the several Grand Squares or Areas of different shapes as they are laid down were first determined on the most advantageous ground commanding the most extensive prospects, and the better susceptible of such improvements as the various intents of the several objects may require.
- II. Lines or Avenues of direct communication have been devised as connect the separate and most distinct objects with the principal, and to preserve through the whole a reciprocity of sight at the same time. Attention has been paid to the passing of those leading Avenues over the most favorable ground for prospect and convenience.
- III. North and South lines, intersected by others running due East and West, make the distribution of the City into Streets, Squares, etc., and those lines have been so combined as to meet at certain given points with those divergent Avenues so as to form on the spaces "first determined" the different Squares or Areas, which are all proportional in Magnitude to the number of Avenues leading to them.

Breadth of the Streets.

Every grand transverse Avenue and every principal divergent one, such as the communication from the President's house to the Congress house, etc., are 160 feet in breadth and thus divided:

10 feet of pavement on each side	20 Feet
30 feet of gravel walk planted with trees on each side	60 "
80 feet in the middle for carriage way	80
	160

The other streets are of the following dimensions, viz:
 Those leading to public buildings or markets. 130 Feet
 Others 110-80

In order to execute the above plan, Mr. Ellicott drew a true Meridional line by celestial observation which passes through the Area intended for the Congress house; this line he crossed by another due East and West, which passes through the same Area. These lines were accurately measured and made the bases on which the whole plan was executed. He ran all the lines by a Transit Instrument and determined the Acute Angles by actual measurement, and left nothing to the uncertainty of the Compass.

REFERENCES.

- A. The equestrian figure of George Washington, a Monument voted in 1783 by the late Continental Congress.
- B. An historic Column, also intended for a Mile or itinerary Column, from whose station (a mile from the Federal house), all distances of places through the Continent are to be calculated.
- C. A Naval itinerary Column proposed to be erected to celebrate the first rise of a Navy and to stand a ready Monument to consecrate its progress and Achievements.
- D. This Church is intended for National purposes, such as public prayer, thankgivings funeral Orations, etc., and assigned to the special use of no particular Sect or denomination, but equally open to all. It will be likewise a proper shelter for such monuments as were voted by the late Continental Congress for those heroes who fell in the cause of liberty and for such others as may hereafter be decreed by the voice of a grateful Nation.
- E. Five grand fountains intended with a constant spout of water. N. B. There are within the limits of the City about 25 good springs of excellent water abundantly supplied in the driest season of the year.

The Squares coloured yellow, being fifteen in number, are proposed to be divided among the several States in the Union for each of them to improve, or subscribe a sum additional to the value of the land for that purpose, and the improvements round the Squares to be completed in a limited time.

The center of each Square will admit of Statues, Columns, obelisks, or any other ornaments, such as the different States may choose to erect, to perpetuate not only the memory of such individuals whose Counsels or military achievements were conspicuous in giving liberty and independence to this Country, but also those whose usefulness hath rendered them worthy of general imitation; to invite the youth of succeeding generations to tread in the paths of those Sages or heroes whom their Country has thought proper to celebrate.

The situation of these Squares is such that they are the most advantageously and reciprocally seen from each other, and as equally distributed over the whole City district, and connected by spacious Avenues round the grand Federal improvements, and as contiguous to them, and at the same time as equally distant from each other, as circumstances would admit. The settlements round those Squares must soon become connected.

This mode of taking possession of, and improving the whole District at first must leave to posterity a grand idea of the patriotic interest which promoted it.

These figures coloured red, are intended for use of all religious denominations, on which they are to erect places of worship, and are proposed to be allotted to them in the manner as those coloured yellow to the different States in the Union; but no burying grounds will be admitted within the limits of the City, an appropriation being intended for that purpose without. N. B. Then a number of Squares or Areas unappropriated, and in situations proper for Colleges and Academies, and of which every Society whose object is national may be accommodated. Every house within the City will stand square on the Streets, and every lot, even those on the divergent Avenues, will run Square with their fronts, which on the most acute angle will not measure less than 58 feet and many will be above 110 feet.

Pine Creek, whose water, if necessary, may supply the City, being turned into James White's branch

Perpendicular height of the source of Tiber Creek, above the level of the tide in said Creek. } F. I. Pts. 236 "1"5/8

Perpendicular height of James White's Spring being part of Tiber Creek, above the level of the tide in said Creek.

This branch of the Tiber, is intended to be conveyed to the President's house.

The water of this Creek is intended to be conveyed on the high ground, where the Congress house stands, and after watering that part of the city, its overplus will fall from under the base of that Edifice, and in a Cascade of 20 feet in height, and 50 in breadth into the reservoir below; thence to run in three fills through the Garden into the grand Canal.

The perpendicular height of the ground where the Congress house stands, is above the tide of Tiber Creek, 78 feet.



Lat. Congress House, . . . 38.53. N.
 Long. 0. 0.

References.

- F. Grand Cascade, formed of the Water from the sources of the Tiber.
- G. Public walk, being a square of 1,200 feet, through which carriages may ascend to the upper Square of the Federal house.
- H. Grand Avenue, 400 feet in breadth, and about a mile in length, bordered with gardens, ending in a slope from the houses on each side. This avenue leads to the Monument A, and connects the Congress Garden with the
- I. President's park, and the
- K. Well improved field, being a part of the walk from the President's house, of about 1,800 feet in breadth, and 3/4 of a mile in length. Every lot, deep coloured red, with green plots, designates some of the situations which command the most agreeable prospects, and which are the best calculated for spacious houses and gardens, such as may accommodate foreign Ministers, etc.
- L. Around this Square, and all along the
- M. Avenue from the two bridges to the Federal house, the pavement on each side will pass under an Arched way, under whose cover Shops will be most conveniently and agreeably situated. This street is 160 feet in breadth, and a mile long.

The first foundation of the plan seems to have been the right-angled streets and blocks. On this L'Enfant superimposed his diagonals, and skilfully adjusted them to the configuration of the land. He developed them as approaches to strategic sites already selected for monumental buildings, and grouped his radials and connections so as to form a unified system. The effect was to subordinate completely the rectangular to the radial part of the plan.

Jefferson suggested regulations for limiting heights of buildings. One of the early requirements was that houses in central areas be built of brick or stone, the walls to be 30 feet high and built parallel to the line of the street.

Major Andrew Ellicott succeeded L'Enfant as adviser to the government and made some changes in the plan. For comparison the L'Enfant and Ellicott plans are here reproduced, with explanatory notes of the former. The notes make it clear that L'Enfant selected definite positions for important buildings, and designed the avenues in order to obtain good prospects and directness of route between different points. He introduced large squares and circles at important intersections. Ellicott straightened out some of L'Enfant's radial lines, e. g., the line of Massachusetts Avenue. The grand avenues were planned 160 feet wide, of which a 30-foot width was allotted for a tree-planted gravel margin. Other avenues were made 130, 110, and 90 feet wide. In his arrangement of residential neighborhoods L'Enfant provided varied widths of streets and interior lanes, although in some respects the lack of direct communication in the latter has proved to be a disadvantage. The plan remains as the one monumental example of comprehensive planning in the United States.

Criticisms that it did not provide for control over domestic building, over business uses, and over the manifold functions of the growing city, are hardly fair on a ground plan that was merely a basis for development. If it is true that the framework was excellent—even for the existing requirements of the time—then the plan was excellent; and the function of filling it in was for the succeeding governments and their architectural advisers. The omissions of L'Enfant were the omissions of all planners before the need arose for the control of domestic building and of functions

which arose under nineteenth century conditions. They might exist together with any order of architecture or planning, just as much as with the classical order of which Washington is an example.

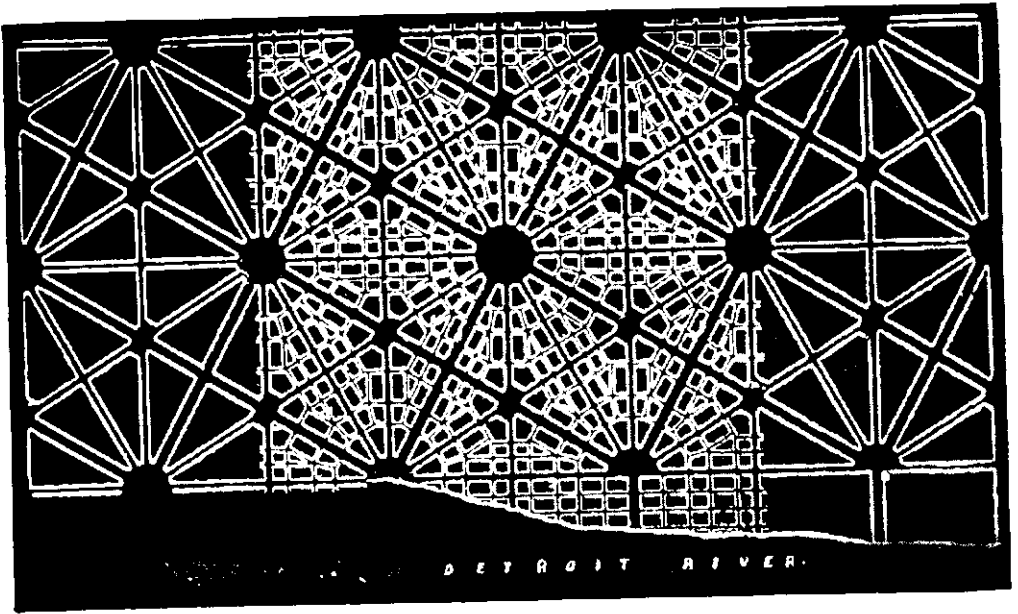
While Washington was being planned, Thomas Jefferson and Albert Gallatin were working to establish a great national university. They saw that there was need as much for a national center of culture as for a dignified national capital. Although in the former enterprise they failed to achieve their ambition, each achieved it in a partial degree in separate places. Jefferson retired to Monticello and devoted his attention to the building of the University of Virginia, where he introduced the same classical order into its buildings that had formed the chief note in the planning of Washington.¹ Gallatin devoted his later years to establishing New York University in New York City.

OTHER EARLY PLANS

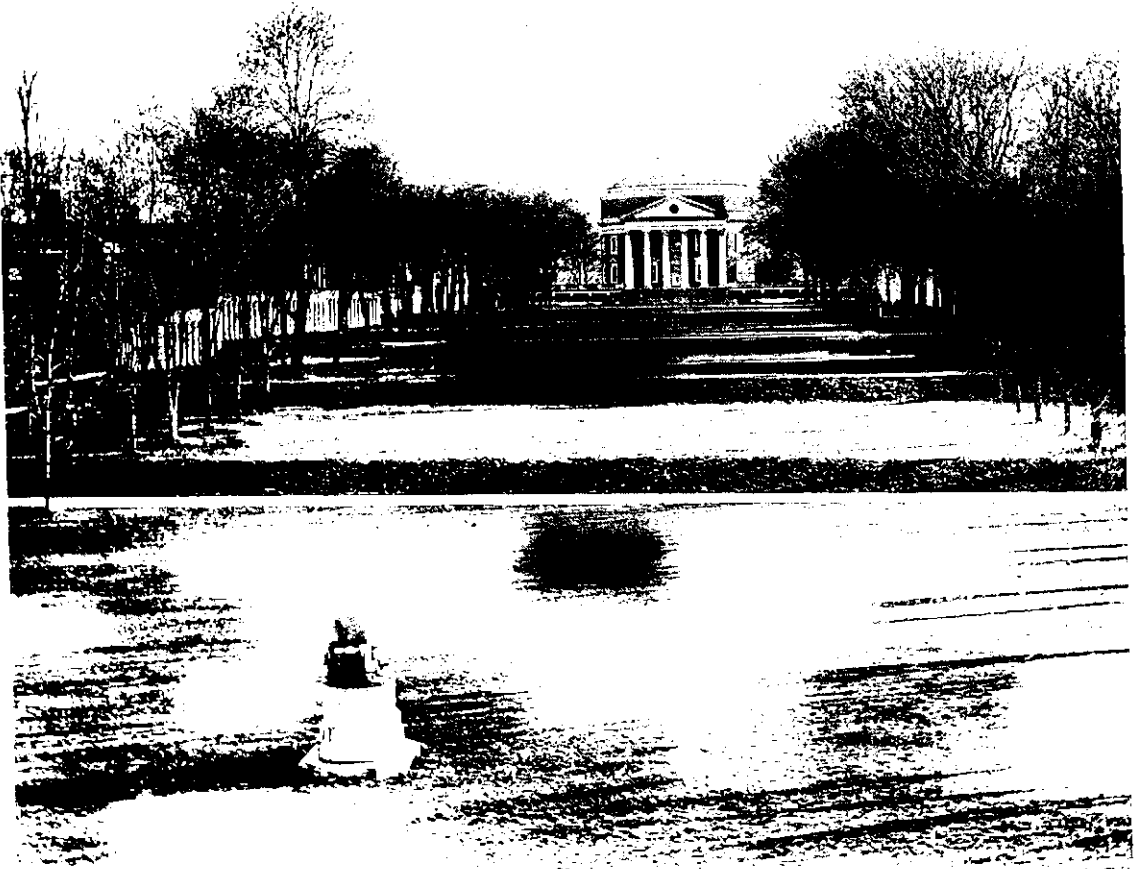
Major L'Enfant also prepared a plan for Paterson, New Jersey, where Alexander Hamilton established a community in connection with his Association of Manufacturers. The plan proved to be impracticable, but had considerable influence on the layout of the city.

In June, 1805, Detroit, settled by the French in 1701 on the Detroit River, was destroyed by fire. It was thereupon entirely replanned under Governor Hull and the judges acted as a land board. The plan was completed in 1807. It was an extremely grandiose and formal plan and presented such great difficulties in execution that it was only partly carried out. Narrow streets were replaced by wide avenues, and owners were given large lots in exchange for the original small ones. Several main avenues were planned to radiate from the civic center near the Detroit River. Squares, circuses, and other shapes of open space were laid out at junctions of the avenues. Woodward Avenue, leading north to "The Saginaws," was made 120 feet wide within the city, and was subsequently widened to 204 feet outside its limits. Other great avenues were laid out following the lines of the old territorial roads. Secondary streets were planned 60 feet in width and every lot was provided with an alley or lane at the rear.

¹ See frontispiece.



GOVERNOR'S AND JUDGES' PLAN OF DETROIT, MICHIGAN



VIEW OF CAMPUS, UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE

In 1831 a new plan for the city was prepared. This retained some of the original plan but omitted many of the proposed radial avenues and did not readily lend itself to future extension. A third plan, made in 1853, laid out a fairly rigid gridiron system for the entire area surrounding the existing built-up city, which had grown up within the confines of the pattern of 1831. Three new radial streets were introduced in the 1853 plan, but later experience has shown these to be insufficient. The main streets of the city have no dominant direction. Although there are sufficient arteries at right angles to the Detroit River, the streets parallel with the river are lacking in continuity, owing to the irregular layout of the earlier street system.

The original planned area of St. Louis was a narrow strip parallel with the Missouri River, on which it is situated, laid out with a gridiron street system. Subsequently a fan-shaped system of streets was added, and, in the third stage, a secondary gridiron was introduced breaking away from the fan in a manner similar to the plan of Detroit.

Fort Wayne, Indiana, originally an army station on the Maumee River, is an example of a city that has grown by progressive gridiron additions to the original fortified areas. It was laid out with rectangular blocks of irregular dimensions. The street system was not planned to correlate with the location and winding of the river.

Indianapolis, Indiana, was laid out in accordance with a plan that bears some resemblance to that of Washington, with wide diagonal avenues superimposed on a rigid gridiron. The extension of the original plan, however, was carried out with narrow streets that are not so impressive as the area first developed.

Buffalo, on the eastern end of Lake Erie, was planned in 1803 by Joseph Ellicott, younger brother of Andrew Ellicott who was Surveyor General of the United States. In its original outlines the street system of Buffalo resembled that of Washington, and, although the plan has been modified, the city still enjoys advantages of spacious avenues and a fine chain of parks connected by boulevards partly as a result of plans that were made before the industrial era began and the modern size and complexity of urban growth could be foreseen.

Outside of the United States special topographical interest attaches to the cities of Santiago in Chile and Montreal in Canada, both having high hills abutting on their centers. The rocky hill of Santa Lucia in Santiago, and Mount Royal in Montreal, constitute natural impediments to building development that have given beautiful open reservations to both cities.

Santiago is a well-planned city, laid out in formal straight lines, with its principal streets broad and straight and connecting several fine squares. The older part of Montreal was planned with narrow streets by early colonists, but for the most part the modern city has been developed without a comprehensive plan.

Rio de Janeiro, Brazil, and San Juan, Porto Rico, occupy sites of unusual interest and beauty. The magnificence of Rio de Janeiro is due to its natural situation rather than man-made plans. San Juan was planned in the eighteenth century as a typical walled city of the Spanish type. It was surrounded by a massive wall with moats, gates, and bridges and developed with low buildings and narrow streets.

Buenos Aires, in the Argentine, has a checkerboard plan and possesses magnificent boulevards and parks, and a high degree of uniformity of building heights that indicate conscious planning and effective building regulation.

Some of the older existing cities on the American continent present interesting elements of planning in different epochs, under influences of different types of civilization.

The city of Cuzco in Peru is specially noteworthy for the extent to which it embodies architectural features and customs of native civilization and that of other countries. It was founded in the eleventh century A.D. by Manco Capac, as the capital of the early empire of the Incas. After the conquest of Peru by Pizarro in 1533, Cuzco came under Spanish government and during the 400 years that have followed, the two civilizations have become merged, although the Indian inhabitants still maintain many of their ancient customs and worship their city. Traces of very early planning exist in massive Inca walls and narrow streets. Combined with these ancient developments are remains of picturesque Span-



Publishers Photo Service

VIEW OF RIO DE JANEIRO, BRAZIL



MAIN PLAZA IN CUZCO, PERU

Of unusual interest is Cuzco, formerly the capital of the Incas, with its remains of ancient civilization. Incan walls have frequently served as foundations for structures erected at much later periods

ish and Moorish architecture which face the streets and occasional plazas partly surrounded by arcaded buildings.¹

Generally, early city building on the American continent, especially in its architectural phases, was influenced in greatest degree by the spirit and method which inspired Renaissance architecture first in Italy and later in France. There were English influences here and Spanish influences there, but these too had roots in the ideas and principles which emanated from Rome and Paris. There is need, even more now than before the industrial age, for architects and city planners to seek inspiration from the same source.

¹ Cuzco: Fourth Century of the Founding of the Spanish City. Bulletin of the Pan American Union, 1934.

CHAPTER IV

SIGNIFICANCE OF EARLY EFFORTS

S EARCH into the history of civic art has more than academic interest to students of civics and city planning. To the degree that we can get an understanding of the realities that lie behind past efforts—the failures and successes, the transient and enduring results—we will obtain useful guidance in the modern practice of city planning. But it is more important to get a broad perspective of such efforts than knowledge of them in detail. Data regarding past methods of city planning, pursued in ages so different from our own, are significant only as they contribute to a true picture of what has been achieved by civic art in promoting human welfare.

The account of certain aspects or manifestations of early efforts in city planning contained in the three previous chapters probably leaves the reader with two general impressions. One, that modern problems and methods of solving them have had their counterpart in some form in all ages; the other, that every period of civilization, no matter what its standards in civic art, reveals the same fundamental weaknesses in failing to do the things that give endurance to the social structure of society.

Ancient, mediaeval, and renaissance cities had problems of congestion, of haphazard spreading of towns into rural environs, of excess of building bulk in relation to width of street, of blighted areas, and of defective housing of the common people. In some periods they showed extravagance in public buildings at the cost of human welfare, and in others parsimony in civic improvement in the interest of private gain.

Communities had their warnings of the consequences of economic and social blunders and left them unheeded. They had wise counselors who expounded sound principles with regard to the organization of cities and city building, which for different reasons at different times they ignored or only temporarily followed. On

SIGNIFICANCE OF EARLY EFFORTS

occasions, under strong leadership, they appreciated the virtue of comprehensive planning of cities, of zoning uses of land and buildings in the interest of public welfare, and of securing proper scale between building bulks and heights and the spaces about them.

ANCIENT CITIES

In technique early city planners seem to have been more limited by lack of opportunity to do what they knew to be best than by lack of knowledge or skill.

It is in the objectives behind city planning that we find the real differences, in any age, and causes of the universal recurrence of failures to secure enduring results in the field of social welfare. When social and economic objectives are sound, defects in art may be of little consequence, and good can be achieved even under despotic governments. A people may be advanced in its civic art and yet be the victim of customs and processes that are a cause of degeneration, for a high degree of aesthetic appreciation may exist along with low moral and political standards.

It may, however, be unjust to associate neglect of the common man too closely with the ardor for civic adornment in cities of early times. Because monumental architecture existed side by side with defective social conditions does not prove that if money had been saved in the embellishment of cities it would have been devoted to the improvement of living conditions. Nor does extravagance in civic ornamentation mean that a heavier financial burden was imposed upon cities than would have been imposed indirectly by lack of orderly planning.

In any event it is the great architectural and engineering works of a public character carried out by the Greeks and Romans that have endured and therefore have transmitted knowledge of their civilization to people of later ages.

When the inspiration to create monumental buildings and to adorn cities comes from citizens themselves, it symbolizes qualities of civic spirit, patriotism, and reverence for beauty that ennoble them. Yet real nobility has its nursery in the home, and the quality of that is dependent on its immediate environment as well as on its being related to a center of community life and culture. What-

ever may be the cause of the rise of empires, their endurance finally depends on the degree of well-being of the common people and on the maintenance of human values. In its truest form the art of city building is the art of creating the kind of environment needed to produce and maintain human values, and this means, inter alia, the balancing and harmonizing of private and public needs and interests so that the one shall not be unduly sacrificed for the other.

In no period down to the present time has the art of city building been sufficiently directed to raise the quality and environment of the habitations of the body of the citizens. The decay of the ancient Greek and Roman Empires probably was hastened by reason of indifference shown toward home life. Probably, also, decay would have been more rapid but for the civic ardor of both peoples and their skill in preserving public health. They had a great respect for good hygiene and sanitation. Indian and Assyrian cities also held public sanitation in high regard. In excavations of the city of Kish on the Euphrates, which are giving evidence of the existence of a great Sassanian predecessor of Babylon, a swimming pool has been discovered which was constantly supplied with fresh water by an elaborate hydraulic system. Drains were built of cemented tiles, and an adjoining open area suggests the likelihood of the pool's having been located in a city park. Reference is made on page 42 to the probable existence of private baths in the houses of buried cities of the Indus. Even if their use were confined to the wealthy, they show that ancient peoples cared more for sanitary welfare than did those of any subsequent civilization up to and including the Renaissance.

One of the great virtues of the Greeks and Romans was their love of their cities and their consequent happiness in serving city and state. Rich men showed this love by private endowments of public enterprises. In this connection, H. V. Lanchester, in his book, *The Art of Town Planning*, says that Pliny followed the example of his father in contributing over \$45,000 to found a public library in Como, his native town. Mr. Lanchester quotes the following from Samuel Dill, an authority on Roman history:

The cities did much for themselves out of the public revenues. . . . Nevertheless a large number of public buildings of Pompeii were the gifts of private citizens. . . . It has been calculated that Pliny must have

altogether given to his early home and fatherland, as he calls it, a sum of more than £80,000 [\$400,000]; and the gifts were of a thoroughly practical kind—a library, a school endowment, a foundation for the nurture of poor children, and a temple of Ceres, with spacious colonnades to shelter the traders who came for the great fair. . . .

But the prince of public benefactors in the Antonine age was the great sophist Herodes Atticus, the tutor of M. Aurelius. . . . The objects of this liberality are as various as the needs of the community—temples, theatres, bridges, markets, a portico or a colonnade, the relaying of a road or pavement from the forum to the port, the repair of an aqueduct, above all the erection of new baths or their restoration.¹

In the above respect the United States closely resembles Ancient Greece and Rome. While Americans do not cultivate the love of their cities with the spiritual enthusiasm of the Athenians and the Romans, there is no modern country where wealthy citizens show greater beneficence and initiative than do those of the United States in the endowing of cultural institutions and the erection of monumental buildings.

That the Romans were not indifferent to the value of promoting public works as a means of diverting attention from warfare on the part of conquered people is shown by the following quotation from Tacitus, who wrote about 98 A.D.:

For, to accustom to rest and repose through the charms of luxury a population scattered and barbarous and therefore inclined to war, Agricola gave private encouragement and public aid to the building of temples, courts of justice and dwelling-houses, praising the energetic, and reproofing the indolent. . . . Step by step they were led to things which dispose to vice, the lounge, the bath, the elegant banquet. All this in their ignorance, they called civilization, when it was but a part of their servitude.²

Tacitus also describes the differences which existed in the arrangement of dwellings and village settlements in ancient Germany as compared with the more compact building of the Roman cities. Writing about the arrangement of the German towns he said:

It is well known that the nations of Germany have no cities, and that they do not even tolerate closely contiguous dwellings. They live scattered

¹ The Art of Town Planning, pp. 23-24.

² Tacitus, *The Agricola and Germany* (Translated into English by Alfred John Church and William Jackson Brodribb, London). Macmillan and Company, London, 1885, chap. 21, pp. 21-22.

and apart, just as a spring, a meadow, or a wood has attracted them. Their villages they do not arrange in our fashion, with the buildings connected and joined together, but every person surrounds his dwelling with an open space, either as a precaution against the disasters of fire, or because they do not know how to build. No use is made by them of stone or tile; they employ timber for all purposes, rude masses without ornament or attractiveness.¹

MEDIAEVAL CITIES

Turning to the mediaeval period, the picture changes in some respects but not in others. There is no evidence of such civic ardor as existed among the Greeks and Romans and much evidence of decay of standards of sanitation. In matters of neglect of housing conditions of the common people and in the erection of cities primarily from the point of view of defense, there was no change.

In their origins, however, there was a fundamental difference between the cities of the Middle Ages and those of the Roman world. This difference is explained by Guizot in his *History of Civilization*² where he points out that towns of antiquity were formed by conquest and those of the Middle Ages by servile labor and insurrection of the weak against the strong.

There was a vital distinction also between the conditions affecting industry in the two periods. In the Roman world the inhabitants cultivated and improved the land as they invaded it, and allied their agriculture with their commerce—"generally maritime commerce full of liberty and grandeur." The burghers in the Middle Ages also cultivated the land but without true liberty—in precarious conditions of tenure and with their commerce confined in narrow limits. Inhabitants of the ancient colonies, in Guizot's words, "found themselves sword in hand and with their sails spread to the winds; the boroughs of the Middle Ages arose from farms and shops."

Guizot gives this striking comparison between the origin and settlement of the ancient city and of the early towns of America:

If you would form a just idea of the origin and the first developments of the ancient cities, look at what has passed, at what is now passing in

¹ *Ibid.*, chap. 16, p. 99.

² (Translated into English by William Hazlett.) New York, D. Appleton and Company, vol. 4, p. 229.

America. How were Boston, New York, New Haven, Baltimore, all of those great maritime towns of the United States formed? Free, fierce, daring men left their country, transported themselves to a foreign soil, amidst nations far inferior in civilization and force; they conquered the territory of these nations; they worked it as conquerors, as masters. Soon they formed a great and distant commerce with their old country, with the continent which they had quitted; and their wealth was rapidly developed, like their power.

This is the history of Boston, of New York; it is also the history of Marseilles, of Agde, of the Greek, Phoenician, or even Roman colonies of the south of Gaul. There are, you see, very slight relations between this origin and that of the boroughs of the middle ages; the primitive situation of the burghers in these two cases was singularly different, and there must have resulted from thence profound and lasting differences in the municipal system and its development.

One further difference recorded by Guizot was that the superior population and the political power of the cities of the ancient world, particularly in Gaul, were resident within them; whereas in the Middle Ages the lords who were masters of the territory and political power lived in the country districts while the towns were abandoned to the inferior population. However, Hallam in his *History of the Middle Ages* qualifies the above statements. He writes that "The cities of Gaul were occupied probably by a more mingled population than the villages. In cities dwelt the more ancient and wealthy families called the senators."¹

Hallam also recalls that in Germany the cities made common cause against the nobility and that more than sixty with their ecclesiastical electors at their head formed the league of the Rhine in 1255 to repel the inferior nobility.²

However backward the towns of the Middle Ages may have been in their municipal and political life, their craftsmen appear to have been great artists in building. In the design of their streets and buildings, and in the orderly and picturesque qualities they introduced into the arrangement of structures and open places, they achieved great distinction in the domain of civic art.

¹ Hallam, Henry, *History of the Middle Ages*. John Murray, London, 1855, vol. 1, p. 286.

² *Ibid.*, vol. 2, p. 92.

Writing of mediaeval cities in *The Significance of the Fine Arts*,¹ Ralph Adams Cram says that "The great results achieved in the architecture of the Middle Ages are due to experiment and to native instinct, not to the application of those mechanical methods which are the product of the last century." Mr. Lanchester, in his *Art of Town Planning* already referred to, writes: ". . . The town planner will turn to the Middle Ages, not as an archaeologist nor with the least idea of reconstructing them as they were, but in an endeavor to recapture the spirit that dominated the communities in evoking an active co-operation towards the making out of all civic activities something fine and expressive."²

Hallam said that the civic architecture of the period was, considered in its higher departments, the principal boast of the Middle Ages. "The common buildings, especially those of a public kind, were constructed with skill and attention to durability. But the most remarkable works of this art are the religious edifices in the 12th and the three following centuries."³

RENAISSANCE CITIES

During the Renaissance there was a recurrence of the classic spirit both in civic art and in the love of cities. But beauty and order in public place and building were again emphasized more than social well-being. Most of the efforts made lie within narrow limits, if communities are thought of in their totality and in their social, economic, and aesthetic features as a unit, and not as separate elements.

Artistically, cities of the Renaissance as of ancient times revealed the spirit of the rulers rather than of the people. Examples of their civic architecture give manifestations of classical order, dignity of arrangement, correct axial treatment, and spaciousness of surroundings of buildings. But their social structure, as revealed in the housing conditions of the common people, lacked stability as much as in cities of other periods. It was the imperious spirit that dominated the developments, and the lack of respect for the social

¹ Compiled by a committee of the American Institute of Architects. Marshall Jones Company, Boston, 1923, Part I, chap. 2, p. 93.

² *The Art of Town Planning*, pp. 34-35.

³ *History of the Middle Ages*, vol. 3, pp. 355-356.

conditions of the submissive population, that can justly be criticized. Recognizing that men should be led and not driven, and that all city planning must be based on securing the best social conditions that are practicable for the greatest number, one can safely take much of the early planning, with its emphasis on beauty of architecture, for guidance in principles of design. But one must take it only for guidance. Its principles must be adapted to the new conditions of urban growth and the higher types of civilization in which men now believe.

Some of the planning efforts alluded to in the foregoing chapters as belonging to the period of the Renaissance were made during what is hereafter called the "modern" period; that is, the period that followed the emergence of the new industrial order toward the end of the first half of the nineteenth century. There was inevitable overlapping between the Renaissance and modern approaches in city planning. In succeeding chapters we will find that the development of the modern movement took place during the years when in Paris and elsewhere efforts were continued in the spirit of the past rather than in anticipation of a future which was beyond the reckoning of the planners.

The present stage of civilization has attained higher standards in home life and in education for the mass of the people than had existed in any previous age. In that respect, firm foundations have been laid for a more permanent structure of society, although serious weaknesses still exist in every modern city, as is shown by the persistence of slum areas, of obstructions to movement of traffic, of disorder in building, and of inefficiency in functional organization.

PART II

MODERN PHASES OF URBAN GROWTH AND CITY PLANNING

CHAPTER V

FORMATIVE INFLUENCES IN MODERN CIVIC GROWTH

IT WOULD be logical to follow the description of early efforts in city planning contained in Part I with a description of more modern efforts, but it seems more desirable first to present a brief discussion of the forces which operated during the nineteenth century in giving city planning a new direction.

In certain matters of technique and what might be called spiritual approach, the principles which have governed the art of city planning in the United States and other countries have been little altered in sympathy with the revolutionary change that has taken place in the foundations and structures of urban communities. However, it has been necessary to modify these principles and to extend their application to new problems of unprecedented complexity.

In matters of social custom and outlook there have also been tendencies to hold fast to old traditions in the new environment of the industrial age. New forms of urban growth have continued to be influenced by habits of thought transmitted from earlier times.

TRAILS OF INVENTION

The chief cause of change in urban growth in the nineteenth century was the development of technology in relation to the production of power. This development enabled society to utilize the enormous potentialities that lay in such raw materials as coal, iron, oil, and water for purposes of transportation and manufacture. It brought into being, in successive decades, the steam and electric train, the motor vehicle and, finally, the airplane. In its earliest stages, with which we are here concerned, this development resulted in increasing traffic, but at the same time lessened the proportion of it that used the highways; in its later stages it

continued to add to the amount of traffic, but restored and magnified the importance of the highways largely at the expense of railroads. In the field of manufacture, small workshops were replaced by large factories, which naturally became concentrated about the centers of transportation.

Restriction of size of cities for purposes of defense was no longer a governing factor. In countries where walled-in cities had been a necessity, the invention of new instruments of war rendered defensive walls useless. On the other hand, in all civilized countries improved methods of water supply, disposal of wastes, and protection from fire enabled people to live in cities of any size under healthful conditions. Thus, economic forces became favorable to expansion and certain military and social reasons for restricting growth were overcome.

Toward the end of the nineteenth century another set of forces came into operation as a result of invention, these being particularly evident in the United States. The introduction of the steel frame and the elevator made possible the erection of buildings of great height, and the development of electrical transport made it practicable for large numbers of people to be transported rapidly, over and under ground, between the centers and outer suburbs of large cities. Therefore, in cities that had greatly expanded over wide areas, it became possible to promote intensive aggregation of economic activities and to widen the distances between the homes of workers and their places of employment. Congestion, which had always been a disease of cities, began to take new forms and to spread over wider areas than before.

POLITICAL DEVELOPMENTS

Political changes proceeded side by side with the technological changes and were associated with them in giving new direction to city growth. Government became more democratic and, at the same time, assumed greater powers of control over the private relations of men. It became partly, but not adequately, adjusted to meet the new economic and physical conditions of growth. In the United States the control of land development was first thought of, by framers of democratic policies, in terms of the rural, semi-rural,

and small urban units of earlier days, rather than in terms of great cities. Adequate provision was not made for regulating the conditions resulting from the conversion of enormous areas of land from agriculture to building or from the extensive urban concentration that followed the industrial revolution.

In the new order of things it has become more clearly seen that local government presents different problems in the rural township from those in the city, and that national or state governments require to be aligned in their policies with the conditions that were created when industry and population changed from being predominantly rural to being predominantly urban. It was difficult, however, to adjust laws and policies to the rapidly changing economic and physical conditions; and adjustments followed but slowly after the needs created by these conditions.

With the new industrial order there came into being great corporations and trusts that were organized to regulate production of raw materials, power, and machinery. Thus arose the necessity for adopting new laws to control the activities of large corporations. In so far as democratic government has been adjusted to meet the new conditions, it has been mainly in two directions: first, in broadening the base of government by the giving of increased powers to local authorities; and, second, in powers to co-ordinate major economic activities.

Along with the extension of government control in America there has been a considerable growth of the democratic spirit. Great benefits have accrued from the expansion of public freedom, but it has had the defects of its excesses—among other defects, improprieties in the use of land and in tolerating haphazard growth of cities. These have been an expression of a spirit of license rather than of true liberty.

True liberty is as consistent with the reasonable discipline of disorderly conditions in civic growth as it is with the discipline of disorderly actions of individuals. If the public had had a sound idea of liberty, most of the harm that has come to cities in their periods of rapid development would have been prevented. Incidentally, if this idea prevailed at present there would not exist the continued toleration of slum districts and the erection of buildings that are likely to degenerate into slums; the lowering of values in residen-

tial neighborhoods as a result of the indiscriminate construction of stores and apartment buildings in wrong places; the creation of impediments to traffic circulation on streets through overbuilding on the land; and the destruction of natural beauty along the edges of public highways.

In connection with the laws relating to public property, changes were made to suit economic conditions; but these laws have been applied in accordance with a concept of the use and rights of property that more or less subordinates human to material welfare. In all countries there are people intolerant of any interference with the liberty to use their property as they will, and others who place undue reliance on the benefits to be obtained by remedial or restrictive legislation.

In dealing with the layout and use of land, what has been chiefly lacking has been the prevention of abuses of property rights in the initial stages of development. Overemphasis of these rights has been especially injurious to society in connection with the development of land for housing the great majority of wage-earners. In England it was deplored by Charles Kingsley, who declared that: "Property was made for man, not man for property." Emerson suggested that New England, in his day, believed in this principle. He said:

. . . There is an instinctive sense, however obscure and yet inarticulate, that the whole constitution of property, on its present tenures, is injurious, and its influence on persons deteriorating and degrading; that truly the only interest for the consideration of the State is persons; that property will always follow persons; that the highest end of government is the culture of men; and that if men can be educated, the institutions will share their improvement and the moral sentiment will write the law of the land.¹

This belief has been growing and has been reflected in desirable changes of public policy, but it is still a common practice to subordinate personal welfare of the masses to financial considerations of the few.

When city planning has failed, as it has on occasion, it has been because of a too general acceptance of false economic standards in

¹ Politics. Essays, Second Series. Houghton Mifflin Company, Boston, p. 204.

regard to the use of property in land. To be successful, the planning of communities must be rooted in the principle that land should be developed for healthful use and in the interest of the community as a whole, not for the purpose of speculation and in the financial interest of a few.

SOCIAL TENDENCIES AFFECTING LAND DEVELOPMENT

GENERAL TRENDS

Certain social traits of nineteenth century civilization in connection with housing, with movements of population, and with development of land show that mediaeval standards and ideas had persisted through the period of the Renaissance into the community life of what we call the machine age. For example, in the industrial organizations and communities that grew up in England during the nineteenth century, manufacturers retained as much of the feudal methods as was beneficial to their interests, but gave more freedom to their workers—which, incidentally, helped to liberate them, as employers, from the responsibilities of feudal lords.

It is doubtful if any period in history has created worse housing conditions than those that obtained in the earliest of the industrial communities in England and America. In the ancient and mediaeval city the inhabitant might be crowded into a small dwelling in a narrow street without proper facilities for disposing of wastes; but at least he did not suffer from the impurities of the air nor the drab ugliness of the average industrial town of modern times; and he lived within easy access of open fields and unspoiled nature. No conflict existed between the sentiment for the preservation of natural beauty in the environs of towns, and self-interest of the kind that has permitted whole districts where people live, and are reared, to be despoiled by the waste of mines and the ugliness and air pollution caused by crowded and disorderly factories.

Perhaps no words could give a truer and more poignant picture of the nineteenth century industrial town and of its successors in the twentieth century than Charles Dickens' description of Coketown in *Hard Times*. It is significant and revealing enough to be worthy of a lengthy quotation.

Coketown, to which Messrs. Bounderby and Gradgrind now walked, was a triumph of fact; it had no greater taint of fancy in it than Mrs. Gradgrind herself. Let us strike the key-note, Coketown, before pursuing our tune.

It was a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it; but as matters stood it was a town of unnatural red and black like the painted face of a savage. It was 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, and many small streets still more 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.

These attributes of Coketown were in the main inseparable from the work by which it was sustained; against them were to be set off, comforts of life which found their way all over the world, and elegancies of life which made, we will not ask how much of the fine lady, who could scarcely bear to hear the place mentioned. The rest of its features were voluntary, and they were these.

You saw nothing in Coketown but what was severely workful. If the members of a religious persuasion built a chapel there—as the members of eighteen religions had done—they made it a pious warehouse of red brick, with sometimes (but this is only in highly ornamental examples) a bell in a birdcage on the top of it. The solitary exception was the New Church; a stuccoed edifice with a square steeple over the door, terminating in four short pinnacles like florid wooden legs. All the public inscriptions in the town were painted alike, in severe characters of black and white. The jail might have been the infirmary, the infirmary might have been the jail, the town-hall might have been either, or both, or anything else, for anything that appeared to the contrary in the graces of their construction. Fact, fact, fact, everywhere in the material aspect of the town; fact, fact, fact, everywhere in the immaterial. The M'Choakumchild school was all fact, and the school of design was all fact, and the relations between master and man were all fact, and everything was fact between the lying-in hospital and the cemetery, and what you couldn't state in figures,

INFLUENCES IN MODERN CIVIC GROWTH

or show to be purchaseable in the cheapest market and saleable in the dearest, was not, and never should be, world without end, Amen.¹

In some of its earlier manifestations, replacement of the feudal landowners by industrial leaders as the employers of labor—and, to some extent, dictators of the living conditions of the workers—resulted in lowering the standards of life.

Under the feudal system the worker was practically dependent on his master, but the master usually exercised a beneficent control over the housing conditions and family life of each of his employes. In Europe there was a close intimacy in the relationship of squire and peasant, and the former took pride in the appearance of buildings and environment of workers on his great estates and showed some concern, however patronizing, in their social welfare. This paternal interest qualified to some extent the condition of servitude of laborers and tenants.

With the emergence of the machine age workers found the semblance but not the reality of a new freedom. They became less dominated in their home life, but one result of this was to make the new type of employer indifferent to the living conditions of his employes. Having paid their wages he left them to themselves. At first the lowness of wages was a major cause of bad housing and the physical deterioration of the workers and their children. Early industrialism, as represented by the Manchester school, was especially brutal in its exploitation of human life.

The growth of education and a more enlightened policy on the part of industrial leaders have led to wages being increased, but in a few instances only has this been accompanied by any feeling of responsibility for housing conditions. The methods of the European industrialist spread to America, where the evils of bad housing were no less evident in the factory towns notwithstanding the introduction of higher wages. Many believe that the payment of high wages is the chief means of giving prosperity to workers and communities, but, taken alone, this is a fatal philosophy in times of stress and unemployment. It could succeed only in a society where the high wage scale is adequate to provide healthful housing

¹ Dickens, Charles, *Hard Times*. Charles Scribner's Sons, New York, 1905, pp. 18-19.

conditions and where it can be maintained along with continuous employment.

Industrial leaders cannot entirely relieve themselves of responsibility for housing conditions, social welfare, and the physical environment in which their employes live, merely by paying high wages when work is plentiful. To do so will mean facing the disintegration and ultimate decay of the industrial organization; and yet the general view has been that it is inconsistent with the interests of freedom of the workers to let the manufacturer build and own the houses in which they live, except where he does so as a work of philanthropy.

While it has not been found desirable, as a rule, for manufacturers to build houses and develop a community organization for their employes, there have been many examples of their having done so with beneficial results; some notable because, in the model villages built by them, they provided higher standards in planning and social organization than were secured under public leadership and control.

It is, however, as leaders in planning and in the organization of facilities for social intercourse that captains of industry can give most valuable service. They should share with public authorities the task of preventing badly built houses and overcrowding of the land.

MIGRATORY TENDENCIES OF LABOR

Among the social evils connected with nineteenth century industry that weakened the civic structure as it grew in size, was increase in the migratory tendencies of labor. Thomas Carlyle referred to this tendency in England while deploring the absence of permanence in the relations between master and man. As factories grew in size and became concentrated in cities, the population began to drift from the country to the town and from one industrial region to another. At one stage the drift became a great intercontinental movement. In the United States, with its vast spaces, its large percentage of immigrants, and the restless pioneering spirit of its inhabitants, the migratory spirit became even stronger than in European countries.

Mobility of labor has not been an evil in itself, but it has led to serious evils in connection with the development of cities. Since

1880 improved facilities for local transportation have enabled workmen to live at long distances from their places of employment. This has added to the costs and discomforts of living, but it has given the worker greater command over opportunities for employment, for from his home district he has been able to reach several centers of economic activity in large urban regions.

Three unfortunate effects of this condition have been: first, the burden it has placed on society to supply facilities for local transport; second, the loss of time, money, and nervous energy caused the worker by spending so much time in travel; and, third, discouragement to the ownership of homes. In the last connection workers who have lived in fear of having to move from one district to another have been averse to the ties created by the purchasing of a house.

Nineteenth century industrialism was also responsible for widening the breach between town and country. This widening and the parallel destruction of the equilibrium between agriculture and manufacture have been among the greatest failings in modern civilization. As a cause of economic depression it has been underestimated. Overcrowding in cities and the contemporaneous depopulation of rural districts have been twin causes of unemployment and physical deterioration. Although not a new phenomenon this condition in recent generations has reached dimensions that have made it more of a menace to the stability of nations and cities than ever.

The overcrowding of cities and depopulation of country districts which have been concomitants of the industrial era have been caused largely by the failure to recognize the importance of land as the source from which the necessities of life are obtained and as a factor in primary production. Land grows food, wool, and lumber; provides brick, earth, and mortar; and yields the mineral resources from which we derive heat, power, and machinery; while the arts and manual labor of the husbandman, the lumberjack, the lime-burner, and the mechanic, harvest or use these things for the benefit of themselves and others. This connection between land and primary production is clear, but under modern conditions of society the production of raw materials from the land may be only half, or less than half, the industry of a country. The development

of transportation and manufacturing machinery and the consequent creation of large cities, have made it difficult to follow the connection between "raw" land and the manifold uses to which it is put during and after its development. While, for example, it has been easy for the average person to see the connection between land and wool or cotton, it has not been so easy to follow its continued connection with production through all the processes of manufacture and distribution of clothing. Yet the efficiency of these processes largely depends on the proper location and cost of the site of the manufacturing plant, on the character of the means of communication, on the health and spirit of workers in the plant, and, therefore (among other things), on their homes and surroundings. All of which, in turn, depend on the way in which land is planned and developed, and on its being controlled in a manner which will prevent injurious speculation in the most fundamental necessity of life.

Much has been written with regard to the evils of land speculation. Yet land speculation cannot be inherently wrong so long as men buy and sell with equal chances of loss and gain. What is wrong is that speculation should be promoted, as it has been, by a system of land development primarily concerned with profit-making rather than with healthful and sound economic use. Subject to the limitation that land should not be overcrowded with dwellings to the injury to health of the inhabitants, or of the amenity of a district, there is nothing wrong in the investment of money in land for purposes of future gain.

It is in proportion as individuals profit from unwholesome conditions and speculate in the money values that such conditions produce, that speculation is wrong; and it is a sin of omission on the part of the community in not preventing improper or unhealthful use of land that is primarily responsible for the evils which result from speculation.

The failure of a community to have the right objective in the development of its land is as bad in effect as having a wrong objective. Where a community has failed to control such development in the interest of health, order, and amenity, it has left individuals free to speculate in values given to land by its unhealthful use. Thus, vested interests in slums, in congestion, in disorderly indus-

trial development, have become established, together with the power to destroy the beauty of natural features.

One of the weaknesses in community control in the past has been the absence of measures to prevent premature subdivision and sale of land for building purposes. In the United States this became a major evil coincident with the periods of heavy foreign immigration. It could have been prevented to a great extent if subdividers had been required to provide essential local improvements. When land is subdivided and marketed for the erection of buildings, the vendor should be required by the community to provide access by road in usable form and an adequate water supply and drainage system, or to guarantee that these will be provided before buildings are erected and occupied. Moreover, it is equally important that part of the land be dedicated to playground space as well as to streets. Every city is suffering from premature subdivision in the past, and few cities today have taken adequate steps to prevent its recurrence in the future.

Land overcrowded with building is both the most prevalent and the worst evil of cities. In earlier times this was the offspring of real necessity because men had to crowd themselves into walled cities for purposes of defense and they lacked efficient and rapid means of communication. In modern cities, however, where overcrowding of land has reached the greatest excesses, it has been due to avoidable causes, and congestion of traffic has been one of its concomitants. To a large extent both overbuilding and traffic congestion have been the result of failure to regulate the centralization of major facilities for transportation and the proper distribution of economic activities.

TRANSPORTATION, CENTRALIZATION, AND SUBURBAN EXPANSION

It was inevitable that development of railroad transportation during the nineteenth century would encourage concentration of industries and population and cause an increase in the size and number of cities. The railroad train, operating on fixed rails over special rights of way and in a form adaptable for carrying large loads, had to have stopping places at separated points. Sites for small stations were selected to serve an existing, or to create a new,

nucleus of population. To make railroads financially successful, main stations had to be in or near large cities and more or less excessive centralization of industry and population has occurred in the neighborhood of railroad terminals or in the areas between terminals. In general, stations were established to serve the points of highest concentration of industry and population, or areas where there was some reasonable expectation of future concentration. Between stations no facilities could be offered for carrying passengers or freight. Thus the railroad, and in a few places the harbor, also, has been a major cause of urban centralization. It added facilities for maintaining centralization and even benefited from congestion.

The introduction of electric power did not materially affect local transportation or transit until after 1900, but its influence was beginning to be felt before that year—and it had proved the feasibility of rapid transit in subways. It was several years later before the motor vehicle became the important factor in local transportation that it now is.

Well before 1900 the desirability of encouraging dispersal of population from crowded centers to suburban areas prevailed. Railroads, transit lines, and highways radiating from a common center were extended and improved to promote this dispersal but it was soon discovered that this did not have the effect of breaking down congestion in the centers. While this effort was successful in spreading the population into widely scattered suburbs and in facilitating some degree of decentralization of industry and business, its aggregate results were to create more congestion in the centers.

Naturally the very facilities that made it practicable for people to live in comparatively distant suburbs or towns and travel daily to and from their places of work, equally made it practicable for the economic activities in which they were engaged to be concentrated more and more in central areas. One consequence was that in New York and other large cities in the United States the height and bulk of building in the centers increased simultaneously with outward expansion, even before the introduction of the skyscraper.

Unfortunately the extensive areas developed as suburban neighborhoods and dormitory towns were, as a rule, poorly planned.

For the most part they stretched out from the cities in ugly tentacles with local centers of congestion. Thus many of the evils of haphazard growth in the old centers were repeated in the new developments. Scattered buildings on ill-planned subdivisions, in which inadequate provision was made for sanitary services and other local improvements, and insufficient control over methods of construction led to flimsy and uneconomic housing. While a considerable number of suburban communities were well laid out and effectively controlled, these were for comparatively wealthy residents; the great majority of residents had to be content with housing that was defective.

TRAFFIC CONGESTION AND BUILDING USES AND DENSITIES

Lack of proper regulation of the uses and bulks of buildings has resulted, among other things, in causing serious traffic congestion in suburban and central areas alike. Even in cities that have been comparatively well planned in their street systems, serious congestion of traffic has occurred because the street planning has not been accompanied by proper building and zoning regulations.

In a complete and well-conceived plan sufficient space will be provided to meet the needs of any concentration of building that is socially and economically sound; that is, the degree of concentration desirable for business efficiency, circulation of traffic, and reasonable provision for light and air and outdoor recreation.

Congestion of transit and traffic has been the result of a number of causes, including wrong distribution of buildings to serve different uses, defective arrangement of transport and transit, overbuilding on lots, and inadequate open space. Street traffic congestion has occurred in particular areas because buildings have been erected out of scale with the streets; or because the methods followed in planning the street system have resulted in over-concentration of traffic in certain streets.

Industrial, business, and housing congestion has led to economic waste in many forms, but that caused in the slowing up of traffic is more easily perceived. Hence the reason for the amount of attention that has been given to the aspect of the problem of congestion relating to street traffic.

Regulation of traffic and street widening in areas that have been overbuilt has ameliorated conditions, but has not solved the problem caused by overbuilding. Where congestion has been solely the result of the concentration of through traffic, its relief depends on replanning the street and highway system over wide areas. Where it has been caused by buildings of great height and excessive bulk and defective distribution of business use, the cost of obtaining any satisfactory remedy has invariably proved to be prohibitive. A partial remedy has to be sought in redistributing traffic either into parallel streets or into sub-streets or elevated streets.

As already indicated, there was excessive bulk, due especially to excessive coverage of lots with buildings, before skyscrapers were erected. The problems connected with the erection of skyscrapers would have been much simplified if the areas of coverage had been adequately restricted; that is, if the open space about buildings had been increased in proportion as their height was increased.

During the last century several efforts were made to obtain relief of traffic congestion by street widening, including such devices as arcading the shops and placing sidewalks within buildings. But all these aids gave little relief because they were too localized and were not supplemented by improved circulation over a wide radius, nor by adequate restrictions on building heights and densities.

In the past it has not been sufficiently realized that, when the streets are already fixed in position and width, the heights and densities of abutting buildings should be adjusted to the existing street area, having due regard to the light and traffic requirements of buildings. In many instances the mistake has been made of following expensive widening of streets for purposes of through traffic, with an increase of height and bulk of adjacent buildings, thereby making the improvement largely valueless for its primary purpose.

Owners of property responsible for increasing the heights of buildings in excess of what was reasonably desirable to maintain light and convenience of traffic movement with the existing street system should have been required to defray the cost of enlarging the street area to meet the local demands of their greater bulk of building.

Property owners in objecting to zoning regulations or to street widenings required for their own benefit have not always shown enlightened self-interest. In the long run as a class they have to bear most of the loss which results from the failure to provide adequate space about buildings.

It is more important and economical of course to prevent than to reform, and more should have been done in earlier days to restrict the area to be used for building and, therefore, to define that to be preserved as open space.

To have obtained development of land for building on sound principles, not more than 40 per cent of any area should have been covered with actual building, leaving 60 per cent of open land in parks, streets, places, and yards. The establishment of such a ratio could only have been assured if cities had acquired or dedicated not less than half of their areas for public parks, streets, and places; and enforced requirements that not more than four-fifths of the other half, consisting of private property, be built upon. The fact that it has not been practicable to obtain this ratio in the past, except in rare instances, is one of the present causes of urban congestion. That the 40 per cent would have been a reasonable and practical percentage under average conditions is indicated in data presented in the New York Regional Survey, which show, *inter alia*, that in the area of highest building density in Manhattan, namely, that south of Fulton Street, only 48.1 per cent of the land is in building lots, parts of which are open courts or yards, and 51.9 per cent comprises streets and other public open spaces.¹

If 60 per cent of the area of cities had been kept free from building in the ratios of 40 to 50 per cent in streets, parks, and other public open areas and the balance of 20 to 10 per cent of the gross area as a minimum proportion of unbuilt area in private lots, there would have been a sufficiency of land available for recreation. Districts that require the largest amount of street space are those that require the smallest space for parks, and vice versa, but the proportion reserved for open area should be about the same in all.

Prior to 1850, cities made far too little effort to preserve open spaces, and when in succeeding decades the importance of acquiring parks came to be realized the areas acquired were usually inade-

¹ Regional Survey of New York and Its Environs, vol. 6, Buildings, pp. 61 and 65.

quate. It is now evident that every city should have from 10 to 15 per cent of its area in public parks and playgrounds, or one acre to every 200 or 300 inhabitants. A ratio of 300 persons per acre of parks may be sufficient in those cities that have country parks within easy reach of their residential districts.

Most cities also suffer from failure, in the early stages of their development, to regulate the distribution of industrial, business, and residential uses of buildings. The haphazard and indiscriminate mixture of these uses has caused injury to industry and serious depreciation of property values in residential areas. Enormous capital investments have been destroyed through the deterioration of districts, largely because of their social obsolescence due to wrong distribution of uses. Coupled with increases in the densities of buildings, this destruction of values became the chief incentive to the introduction of zoning in American cities after 1909.

As a rule, land in the environs of cities has been planned for residence and little or no effort made to select in advance appropriate sites for industries—which require large plottage and a different street system from that suitable for residence. Business districts have usually grown up indiscriminately—often along the frontages of narrow streets designed for residential use.

THEORIES REGARDING LAND VALUES

There have been two opposing theories in connection with land values—one that they should be high, and the other that they should be low, in the interests of the community. Both theories have left the real issue out of account. Obviously, high values reflect prosperity. But they are unsound in proportion as they are based on unsocial uses, such as the unwholesome overcrowding of dwellings or such degree of concentration of business buildings as prevent those who work in them from obtaining satisfactory light and air.

The mistaken policies in the past have been in considering high values in themselves as a form of wealth and a measure of prosperity, no matter on what foundations of social condition they were established. It is these policies, based on erroneous assumptions, that have been responsible for much of the inaction of public authorities in preventing overcrowding of buildings and other im-

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proper uses of land. What matters is not that capital values of land be kept high or low but that they be based on its annual rental value for its best economic and social use. There has been too much concern about keeping values as high as possible and too little about preventing land from being used for purposes that are injurious to health and general welfare. One consequence from an economic point of view is a serious impairment of security of investments in land.

SANITATION AND AESTHETIC APPRECIATION

Under the new industrial order of the nineteenth century, sanitary improvement in urban areas lagged behind their expansion. People were slow at first to accept the fact that the increasing sizes of cities meant that public health demanded greatly improved systems of sanitation over those that existed when cities were smaller and a greater percentage of the population lived in villages and rural districts.

Prior to 1870 sanitary conditions in cities were deplorable in both European and American cities and it may almost be said that no American city had proper means of sewage disposal. As a perusal of the next two chapters will show, the modern city planning movement in the United States had its roots in demands for civic improvement, demands chiefly associated with the needs of proper sanitation, more parks, and a growing appreciation of aesthetic features. The demand for parks which became especially pronounced after 1880 was largely based on the desire of people to obtain and preserve natural beauty in the environs of cities.

For about fifty years before 1880 aesthetic appreciation appears to have been at a very low ebb. Both in regard to the quality of the architecture and the degree of interest shown in the preservation of natural beauty, during few periods was there less consideration of artistic values. Happily, a keener sense of what constitutes beauty of form and order in architecture grew along with the extension of education and cultural opportunity.

CONCLUSION

In this chapter brief reference has been made to certain factors and influences of urban growth during the period between 1830 and 1900 that have a bearing on the planning of cities. Allusion

has not been made to specific conditions nor to efforts or lack of efforts in city planning during that period. These aspects are reserved for consideration in succeeding chapters. The few who devoted attention to the planning of cities during the first three-quarters of the nineteenth century thought in terms of the eighteenth century cities and were unable to appreciate the extent and character of the economic revolution that was born about 1830.

Indeed, for a time, throughout Europe and the United States, after the introduction of railroads and steam power in manufacture, there was less conscious planning than before, although the need was greater. Uncertainty as to the permanent strength inherent in the new forces caused bewilderment and hampered seriously such effort as was being exerted. Attention was diverted from planning and from aesthetic objectives in the endeavor to obtain immediate results and ultra-practical achievement in the new fields of economic activity.

The middle period of the century, between 1830 and 1870, was naturally a dormant one in obtaining effective civic improvement, for society was in the throes of a new birth and of the confusion that is the concomitant of revolutionary change. Among other things, the disorder of the industrial period that followed the more controlled order of the Renaissance period did not, at first, bring with it improved living conditions to the mass of the people. Ultimately, however, the negative influences caused by the squalor, overcrowding, and disease in cities during the early decades of the industrial epoch, plus the positive influences of the greater freedom of individuals and the extension of democratic government, forced the legislative action that has brought about the substantial improvements in sanitation and housing since 1870.

Taken as a whole, the nineteenth century was not a period of decadence in the art of living, but rather one in which the intelligent part of society was preoccupied with the task of putting new technical forces at work with the hope of creating greater wealth and stability. Consequently, for a time the value of art and of order, as agencies essential to real wealth and stability, was overlooked. This was especially so in connection with the building of cities and towns.

CHAPTER VI

DEVELOPMENTS IN THE UNITED STATES BEFORE 1900

1830 TO 1840

THE total population of the United States in 1830 was 12,866,020, or only about 10 per cent more than was resident in New York City and its environs a hundred years later. In 1840 it had increased to 17,069,453, probably less than 5 per cent of which represented foreign immigration during the preceding four or five decades.

The period of the thirties witnessed the beginnings of new methods of transportation which became a dominant factor in urban expansion. In the United States in 1830 there were only 23 miles of railroads, but by 1840 the mileage had increased to 2,818. Steamship service across the Atlantic began in 1838. Much industrial growth took place simultaneously as a result of other new inventions. Between 1830 and 1840 Cyrus Hall McCormick invented his reaping machine, power came into effective use with the introduction of anthracite coal, and the manufacture of iron was begun. In 1844 Morse's telegraph line was erected and Charles Goodyear developed the use of rubber.

Referring to the period between 1830 and 1840, Professor Alexander Johnston of Princeton University says: "At its beginning the country was an overgrown type of colonial life; at its end American life had been shifted to entirely new lines, which it has since followed."¹

As railroads were constructed and manufactures developed, markets began to expand and wealth to increase. The conquest of the West had begun; and Chicago, which was to become the chief metropolis of the Middle West and the greatest railroad center of the country, had risen to the status of a city. The planning of new towns followed the methods of rectangular blocks and streets

¹ Encyclopaedia Britannica, 14th ed., vol. 22, p. 801.

which Penn had adopted in Philadelphia and which the New York City Commission had followed in laying out Manhattan Island in 1811. They were little influenced by the plan of Washington, with its radiating diagonals and organic arrangement of streets and building sites, and still less by the methods of town settlement that had been developed in New England.

Certain historians claim that the material changes that followed the industrial revolution resulted in an amelioration of social conditions; but in some important details this was not so, for the new industrial towns did not show the respect for order in their planning of the early colonial communities. There was nothing in common between the spirit of free pioneering in the new settlements and the paternalism that was a feature alike of the English manor and the Virginia estate. This was a good thing, but what was not good was that the sound utilitarian and aesthetic qualities that had entered into the order and functioning of the New England village received little or no attention from nineteenth century pioneers. Tradition, even when it was sound, had slight meaning for the makers of new towns. They believed in blazing their own trails, and conceived nature as something to be conquered rather than brought into alliance to serve their economic needs.

The rectangular arrangement that was followed in many regions was ill adapted to topography, although on the level plains of the West its utility was less questionable. One of the main reasons or justifications for its adoption was that it fitted in with the checkerboard method of laying out farms which had been inaugurated under the land ordinance passed by Congress at the suggestion of Thomas Jefferson in 1785. This system, according to Charles M. Robinson, "resulted in placing a huge checkerboard of survey lines over all the miles of country north and west of the Ohio river, a checkerboard that was regardless of contours and relentless as fate."¹

However misguided the form of the early nineteenth century planning may have been, it was the result of conscious design. Its purpose was to attract new settlers and to encourage private enterprise and investment of capital. Those who directed the policies paid comparatively little attention to the probable ultimate effects

¹ City Planning. G. P. Putnam's Sons, New York, 1916, p. 20.

of such planning and subdivision on social welfare. They were content to seek immediate results in the easiest way by dividing land into the simplest shapes which too often proved to be the most unsound for practical ends.

The mushroom growth of cities, one of the consequences of railroad development into new territory, led to extensive speculation in urban land. There had previously been much speculation in rural land. The government had led in the sale of land, its income from this source having risen from \$3,200,000 in 1831 to \$25,000,000 in 1836.¹ Great expenditures were incurred for public improvements that added stimulus to speculation. The boom that ended in the financial crisis of 1837 was accompanied by the usual increase of prices of commodities and the mismanagement of enterprises. Paper values of real estate had increased enormously. The assessed valuations of real estate in New York City increased two and a half times in four years, and those of Mobile, Alabama, twenty-seven times. But then, as in subsequent critical periods, the real causes of the evil were overlooked; and after the crisis had passed and prosperity returned, speculation and haphazard development promoted for private gain were resumed.

1840 TO 1870

From 1840 to 1870, notwithstanding the interruption of the Civil War, the population grew from about 17,000,000 to about 39,000,000; whereas the percentage of increase of the total population from 1790 had grown from 334 in 1840 to 881 in 1870.

A great influx from Europe began in 1847, and between that year through 1854 some 2,500,000 persons from abroad entered the country, settling mostly in the North and West. The total foreign immigration for the three decades ending in 1870 was about 6,300,000. The movement to the West was accelerated by annexations of new territories and the discovery of gold in California. The foundations of great new cities like San Francisco and Salt Lake City were laid. The more ignorant and poorer of the immigrants stayed in the cities of the eastern seaboard and provided the opportunity for speculative operations that eventually brought about slum conditions of the worst type. The better elements,

¹ Encyclopaedia Britannica, 14th ed., vol. 22, p. 801.

moving west, took advantage of the system which permitted them to acquire unrestricted ownership of land, laid out in squares determined in relation to east and west base lines.

The railroads began to be co-ordinated as a unified system, and before 1860 the great trunk lines to the West were in process of development. By 1852 railroad connections had been made to Chicago.

Among the influences affecting the extent and character of rural and urban planning and development in this period were the land grants made to the great railroad corporations. Between 1850 and 1871 these grants amounted to an acreage of 155,000,000, although not all were executed.

In the 1860's great expansion took place in industrial development, with its consequent promotion of urbanization. Between 1864 and 1868 more cotton spindles were put into operation, more iron furnaces erected, more iron smelted, more steel made, more lumber sawed, and more manufacturing begun than during any previous period of the same length in the history of the country.

Although many cities in the East began at this time to take on the characteristics of long-settled communities, in the West a restless and aggressive spirit dominated the methods of urban growth. The South did not share in the early rapidity of growth owing to the lack of manufactures and the presence there of social and political disturbances.

It was natural that this period of restless change should synchronize with one of inactivity in city planning. It was so in the older countries of Europe and still more to be expected in a new country like the United States, with its more rapid increase and more scattered developments.

A number of idealists, however, deplored the haphazard growth of towns and dreamed of better possibilities. In the middle of the century several efforts were made to found new communities for the purpose of promoting certain ideas of social reform. Robert Owen had tried out his ideas at New Harmony, Indiana. Horace Greeley of New York, an admirer of the socialistic doctrines of Fourier, developed a colony at Mount Vernon, New York, for the purpose of creating an object lesson in land development. Several religious organizations formed associated communities.

Emerson, in a lecture on New England Reformers delivered in 1844, referring to the founding of three rural communities in Massachusetts, said, "Following or advancing beyond the ideas of Saint-Simon, of Fourier, and of Owen, three communities have already been formed in Massachusetts on kindred plans and many more in the country at large."¹ He suggested that these reforming efforts revealed an awakening to the idea of union, but that they lacked the requirement essential to their success, namely, that "The union must be ideal in actual individualism." The Massachusetts experiments were rural in character, and they represented what Emerson called a revolt against the inveterate abuses of cities.

A concurrent movement in favor of the extension of parks in existing cities was more fruitful of city planning activity than the efforts of reformers to create new communities. In the summer of 1844 William Cullen Bryant started the movement for more park area in the city of New York.² In his writings he referred to the evils attendant on rapidity of city growth; to the importance of having facilities for recreation; to the necessity for lessening the discomforts of crowded streets, with their impure atmosphere; and to the relation which these things had to the proper laying out of a city. The evils of bad housing conditions and defective sanitation seem to have been at the back of his mind in his advocacy of adequate open spaces.

In the matter of sanitation, New York had been improving its water supply by the introduction of water from Croton, and had begun to consider the necessity for securing more effective control of disposal of wastes. These measures to improve sanitation became associated with those that were concerned with protection of valleys containing streams and large areas adjacent to reservoirs from the encroachment of building. Thus they had the effect of preserving open spaces of large extent outside of cities, although the use of the greater part of such reservations for purposes of

¹ Lecture delivered in Armory Hall, Boston, on March 3, 1844. (A description of Co-operative Communities and Societies in the United States, containing information regarding urban colonies founded by the Shakers and others, including the Oneida Community in Madison County, N. Y., founded in 1848 by John H. Noyes, is contained in *Social Service*, vol. 8, no. 4, October, 1903.)

² Olmsted, Frederick Law, Jr., and Kimball, Theodora (Editors), *Forty Years of Landscape Architecture: Being the Professional Papers of Frederick Law Olmsted, Senior*. G. P. Putnam's Sons, New York and London, 1928, vol. 2, p. 23.

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recreation naturally was strictly limited. In Westchester County, New York, the first incentive to parkway development grew out of the public desire to improve the sanitary conditions of the Bronx River Valley and of the approaches to the Croton water supply reservations.

Between 1843 and 1845, a Scotsman, Robert Fleming Gourlay, submitted proposals to the city authorities for replanning parts of Manhattan Island and subsequently offered to the city of Boston¹ an elaborate suggestion for planning and enlarging it. Previously he had offered ideas for improving the city of Edinburgh.

Gourlay presented his plan for the city of Boston to the governor of the Commonwealth in 1844 with the suggestion that a society be formed to advance the science of city building. In 1840 the population of Boston was 93,383 and most of the Back Bay district, now occupied by high-class residences, consisted of mud flats. Gourlay proposed the reclamation of 2,000 acres of land and submitted a sketch of a fan-shaped system of radial streets crossed by concentric streets called "circuits." The Back Bay area was ultimately reclaimed and laid out with rectangular streets, including the tree-lined boulevard of Commonwealth Avenue.

Among other suggestions made by Gourlay were wide approaches to Brookline and to the business center of Boston; the opening of new squares and preservation of the Old State House, demolition of which was then threatened; a great boulevard alongside the railroad and following the edge of the Charles River, with a total width of 260 feet including carriageways, planted strips, and footways. He showed prophetic vision in forecasting a system of "suburban" railways along lines that have since been followed in constructing the subways of Boston, and emphasized the need for preserving parks and parkways.

Perhaps the most significant statement made by Gourlay was the following:

What a misery it is that within the peninsula there is not space enough left for yard room for each house, where children may divert themselves in the open air and those of mature years may cultivate flowers . . .

¹ Plans for Beautifying New York and for Enlarging and Improving the City of Boston, Being Studies to Illustrate the Science of City Building. Crocker and Brewster, Boston, 1844.

now that the railroads diminish distance, such luxury can be afforded without the smallest inconvenience, for this makes it unnecessary to crowd buildings together in the least space.¹

After 1870 the vision and skill of Frederick Law Olmsted came to the front in connection with the phases of city planning that relate to parks and thoroughfares. His appointment as superintendent of Central Park in 1857 and the acceptance of the design of Mr. Olmsted and his partner, Calvert Vaux, for laying out the park, were of great significance in promoting civic improvement and landscape architecture.

In a report presented by Olmsted, Vaux and Company in 1868,² the problems of approaches to parks and incidental street improvements were discussed. The pamphlet contained a description of the historical development of street arrangements in which reference was made to the plan for London prepared by Sir Christopher Wren. It was pointed out that serious inconveniences to London were caused by the failure to realize this plan. It was also indicated that the enlargement of the population of a town was undesirable as being likely to aggravate the troubles and dangers to which those living in it were subject. This indicated a belief in decentralization for the purpose of relieving the crowding, turbulence, and inconvenient confinement of cities.

However, Mr. Olmsted presented reasons for "anticipating an accelerated enlargement of metropolitan towns" and discussed changes in the habits of citizens affecting their structural requirements. He noted the tendency which had begun, even in his day, for suburbs to be developed at great distances from central parts. The motor car had not arrived, but he drew attention to improvements of vehicles and roads that were accelerating means of travel as compared with previous times, and to the beneficial effects of parks in increasing property values and the desirability of planning parkways.

Other Olmsted plans were for the layout of Prospect Park, Brooklyn, of a parkway extending from Prospect Park to Fort

¹ *Ibid.*

² Observations on the Progress of Improvements in Street Plans with Special Reference to the Parkway Proposed to Be Laid Out in Brooklyn. I. van Anden's Print, 1868.

Hamilton, for improving the main thoroughfares in the western part of the borough of the Bronx, New York, and for a system of rapid transit railroads free from grade crossings. Incidentally it may be noted here that a legislative act in 1871 in New York State referred to the duty of planning for railroads.

Another name associated with the records of landscape architecture in relation to city planning during the period under review is that of H. W. S. Cleveland. A friend of Olmsted, he went to Chicago in 1869 and while there published a paper on "Public Grounds in Chicago."

In 1870 Chicago had purchased 1,887 acres of parks and taken to itself the name of "Garden City," which it still retains on its coat-of-arms. In his book on Landscape Architecture as Applied to the Wants of the West, Cleveland voiced appreciation of the need of planning in the new settlements to the west of the Mississippi River. After drawing attention to the fact that the foundations of new cities and towns were being laid or projected in the vast region between the Mississippi and the Pacific, with its wealth of picturesque features, he said:

But in the arrangement of towns no advance has been made from the original rectangular fashion, which even when the site is level, is on many accounts objectionable while every departure from an even surface, the advantages become apparent of adapting the arrangement of the streets to its inequalities.¹

He added that the main questions were how to divide towns so as to secure the best disposition of different sections and how to adapt streets to the ground so as to lessen cost of construction and attain ease of grade and facility of drainage.

Cleveland's plans for the park systems of Minneapolis and St. Paul, prepared between 1872 and 1883, included ambitious proposals that have been largely carried out.

Up to 1870 there was still much backwardness in regard to sanitation and street paving. For example, in 1860 the capital city of Washington, with a population of over 60,000, had unlighted streets, open sewers, and pigs roaming about its principal avenues.

¹ Cleveland, H. W. S., Landscape Architecture as Applied to the Wants of the West. Jansen, McClurg Company, Chicago, 1873, p. 33.

Moreover, in this period there was great extravagance and much dishonesty in municipal administration in the United States, a striking example of its low standards being the existence of the Tweed ring in New York City. However, in the United States, as in all civilized countries, the public conscience was being awakened to the evils caused by defective conditions of sanitation and the haphazard growth of cities.

1870 TO 1900

During the thirty years from 1870 to 1900, with varying ups and downs, a gradual improvement took place in the public attitude toward urban developments. They were years of realization of the existing evils and of the folly of permitting these to continue, rather than of achievement in applying ameliorative or preventive measures.

In this period the population increased by about 100 per cent, and the 80,000,000 mark was being approached—the number including well over 10,300,000 immigrants. The percentage of increase from 1790 to 1880 was 1,176, and by 1900 it was 1,834.

The expansion of industry in the West after the close of the Civil War in 1865, and its reorganization in the East, was accompanied by a great and rapid development in mining and, in consequence, of mining communities.

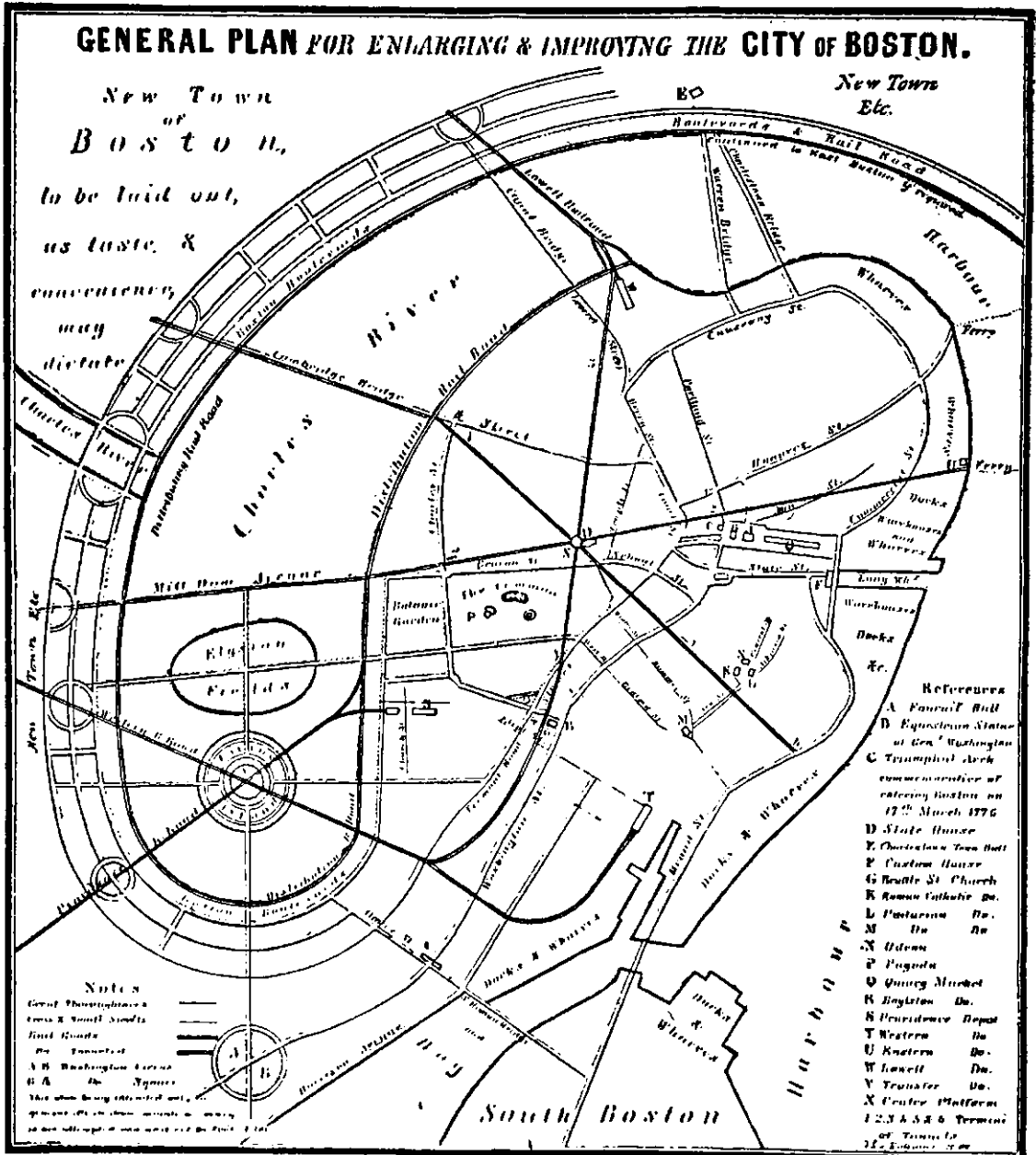
During the decade of 1870 to 1880 the western states still increased rapidly in population, a great part of the increase being in the cities. Most of these were planned haphazardly in rectangular blocks. Pictures of conditions in the central areas of cities at this period show districts containing fairly durable buildings of commonplace design, ranging from five to seven stories, these districts being surrounded by extensive areas covered with wooden shacks. In Chicago the great fire in 1871 provided special opportunity for better planning and more durable building, but this opportunity was neglected.

Nearly twenty years after the Goulay plan for Boston was prepared, Robert Morris Copeland, who had been a partner of H. W. S. Cleveland, published a pamphlet containing a plan for projected improvements in that city.¹ Thus Boston again supplies

¹ Essay and Plan for the Improvement of the City of Boston. Lee and Shepard, Boston, 1872.

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the next milestone in the records of city planning activity. The Copeland plan dealt with an area which extended from the Charles River to the Neponset River and had almost the scope of what we today call a regional plan.



COPELAND'S PLAN OF BOSTON

Copeland emphasized the importance of planning cities as a whole and in their related parts and of securing room in the streets for transportation. He propounded the problem as follows:

How best to use Boston's area must be a problem which admits of division into parts, of discussion and measurement, and a plan can be as well digested for its future progress so as to do full justice to the wants of a future population as for the laying out and construction of a building for public or domestic use.

The sole difference, or hindrance to such planning, is that we have not been accustomed to plan in this way. We have supposed that, for some unnamed reason, planning for a city's growth and progress could only be done as it grows; that no one can foresee sufficiently the future requirements of business to wisely provide for them. This is a fallacious belief.¹

We are still having to face the same fallacies as to the benefits of planning and the difficulty of foreseeing developments.

Copeland probably was the first in America to use the words "city plan." "When a man or company wish to begin a new or valuable business," he writes, "they can adapt their wants to the city plan."

The idea that planning for future use would interfere with the rights of private property is discussed by Copeland, who points out that what is best for the good of the whole would benefit owners. He made a miscalculation in proposing an excessive use of the waterfront for purposes of commerce, a common failure in city plans. While he emphasized the importance of providing facilities for business, he advocated beauty as being of the same importance as economy. He condemned disorderly suburban growth and the capricious and stupid destruction of natural beauty, and suggested that encouragement should be given to the development of handsome villages outside the city.

Public and private expenditures were interrupted by the financial panic of 1873, but in 1880 a great building boom was begun. The erection of much higher buildings than had hitherto been considered practicable was a feature of the eighties. The first noteworthy example was the construction of the ten-story fireproof building, the Montauk Block, in Chicago, in 1880, from the designs

¹ *Ibid.*, p. 10.

of Daniel H. Burnham and John W. Root. Thus was introduced the important change in the character of building, which led to the use of steel frame construction and the elevator and has since had much influence on the development of American cities.

Cities with a population over 8,000 have greatly increased in number during each decade following 1880 as compared with previous decades. The urban population in communities having 2,500 or more inhabitants was then increasing at a greater ratio to the total than was the rural population, although in 1880 the former was still only 28.6 per cent of the whole, and it was not until after 1910 that it reached the proportion of 50 per cent.

It is not surprising that the rapidity of urban growth, coupled with the extent and character of foreign immigration, continued to present great difficulties in controlling city expansion.

As the century neared its close a number of new forces began to affect civic growth. In the largest cities it became necessary to provide increasingly rapid means of local transit for passengers and freight. With the aid of developments in electrical power the rapid transit train came into operation and, assisted by the discovery of adequate supplies of gasoline, the motor car was started on a career which has since produced a revolution in street travel and in traffic conditions. High land values in central areas of cities and the economic advantages of concentration stimulated demands for higher buildings, and the invention of steel frame construction and the elevator made it practicable for commercial and residential buildings to be erected to a much greater height than had hitherto been dreamt of. Before 1900, therefore, ways were opened up almost simultaneously to expand cities both horizontally and vertically, and to create the new conditions and problems that have changed materially the character of civic growth in the past thirty years.

EMERGENCE OF THE MODERN CITY PLANNING MOVEMENT

In the period between 1870 and 1900 the combination of events, forces, and city planning efforts which have been alluded to in Chapter V coincided, happily, with the growing public consciousness for the need of improvements in civic conditions, and of popu-

lar demands for legislative and municipal action in giving effect to these improvements. Now city planning efforts became more actively directed toward improvement in the four important fields of: (1) sanitation, housing and park systems; (2) planning new towns and subdivisions; (3) architectural design of public buildings and places; and (4) transportation, transit, and traffic. To a greater extent than hitherto street and highway systems were considered in their relation to all the other phases, but the peculiar problems created by the motor car had not yet arisen. Zoning, as a means of regulating land and building development, was not introduced until after 1900.

The chronological order or relative importance of these efforts to promote civic improvement—efforts which ultimately led to the development of the broader movement of city planning—need not be considered here. Within a short period of time and along different avenues of approach, they converged in a united attack on defective forms of urban growth.

SANITATION, HOUSING, AND PARK SYSTEMS

It is usual to assume that modern city planning in the United States had its real beginning in the Chicago World's Fair of 1893. Undoubtedly, the imposing landscape and architectural features of the Fair had a great educational value and a stimulating influence in promoting civic art. But the Fair represented the culmination of a period of over twenty years' activity in the sanitary and aesthetic improvement of cities, rather than the beginning of a new period of effort.

Legislation that was passed in the seventies and eighties may be regarded as having an important and originating influence on the present socialized conception of city planning. It was significant not only in respect to its contents, but also as the expression of a campaign to improve public health in cities which, in spite of interruptions, had been gathering momentum for three decades.

What happened in Washington in improving sanitation during the years that immediately followed the Civil War is illustrative of what happened in varying degrees in other cities. By 1870 the population of Washington was 131,700, or 75 per cent larger than in 1860, and sanitary conditions, as stated, had become intolerable.

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Under the executive direction of Alexander R. Shepherd, many miles of streets and sidewalks were improved, lighting installed, sewerage begun, and triangles converted from rubbish heaps into gardens. Shepherd's undertakings proved to be costly and he was dismissed. Perhaps he was extravagant in some of his schemes—for instance, in the extensive changes he made in street grades—but, for the most part, his heavy expenditures were a penalty that had to be paid for previous neglect. The first Park Commission to be appointed in Washington directed the planting of 60,000 trees, which have since been doubled in number and contribute much to the beauty of the city.

The movement for improving sanitary conditions synchronized, also, with a growing sense of shame on the part of the public as to the character and surroundings of dwellings in the deteriorated parts of cities. In New York City, for example, the evils of the tenement system led to much agitation, by Jacob Riis and others, for reforming legislation. This movement reached its height in 1900, and was followed by the publication of a remarkable report by Robert W. de Forest and Lawrence Veiller in 1903.¹ This report gave a striking picture of the bad conditions then existing and outlined the steps necessary for their improvement, particularly the need for more open surroundings about buildings used for residential purposes and the need for providing more facilities for suburban transit. A number of plans were put forward in the same period showing how tenement house blocks could be rebuilt and more open space provided for recreation.

Cities began also to adopt proper building codes to control construction in new housing developments. It can hardly be said, however, that steps taken either to remodel slums or to control the erection of new dwellings conformed to really good standards or were effective in securing satisfactory results.

As has been noted, the movement to create parks and to improve park design began in the United States before the Civil War. Under the continued leadership of the elder Olmsted and other landscape architects the making of plans for park and street systems became associated with proposals for improving civic condi-

¹ Tenement House Problem, Including the Report of the New York Tenement House Commission. The Macmillan Company, New York, 1903.

tions in general. Soon after 1890 a beginning was made with the development of the park system of Kansas City, Missouri, which is especially noteworthy because of the extent to which it has been promoted and executed by collaboration between public authorities and real estate owners.

Two park systems, one in Boston and the other in Essex County, New Jersey, may be referred to as of special interest by way of illustration of what was happening in different parts of the country.

In Boston the Metropolitan Park Commission and the Water Supply and Sewage Board were established in 1890. The concurrent appointment of these two commissions, and the work which they performed, showed a recognition of the important relations existing between park and sanitary improvements in a metropolitan region. Jointly, they represented the first effort in regional organization connected with planning. These bodies were replaced in 1919 by the Metropolitan District Commission, which now controls nearly 10,000 acres of park lands outside the limits of the city. In addition, there are about 3,500 acres of parks under various local jurisdictions. Large parks in the state of Massachusetts, including the Blue Hills Reservation (4,900 acres), Middlesex Fells (1,900 acres), and Lynn Woods (1,800 acres), were linked together by wide parkways, aggregating nearly 50 miles in length.

The park movement in Massachusetts was stimulated by the creation of a body known as The Trustees of Public Reservations, which published its first annual report in 1891. The Trustees made landscape surveys to discover open spaces that should be reserved because of their literary, romantic, and historical associations, and particularly beaches, bluffs, ravines, groves, river banks, and roadsides. They suggested the need of more complete recognition of the conditions resulting from increasing concentration of population in towns. The report was signed by Charles Eliot, landscape architect, son of former President Charles W. Eliot of Harvard, as secretary to the Trustees. It is of passing interest to note that a letter to *The Spectator*, an English journal, for October, 1893, drawing attention to the powers and purposes of The Trustees of Public Reservations in Massachusetts led to the establishment in England of The National Trust, for the preservation of places of historic interest and beauty.

Legislation passed in New Jersey in 1895 authorized the appointment of park commissions, and enabled county boards of freeholders to provide funds for park acquisition out of general taxation. Under this legislation, the Essex County Park Commission increased the park area of the county from 25 acres in 1895 to 3,750 in 1927. Reports of the Commission have been illuminating in showing the benefits of parks in increasing land values in their vicinity. One report, issued in 1916, stated that increased revenue to the county was then sufficient to pay the interest and sinking fund charges on bonds issued for park construction, and almost the entire cost of annual maintenance.

PLANNING NEW TOWNS AND SUBDIVISIONS

Between 1869 and 1880, in addition to the city extension plan made for Boston by Copeland,¹ a number of comprehensive plans were made for residential estates and new towns. One of these, prepared by Olmsted and Vaux in 1869, illustrated and described in *Landscape Architecture* for July, 1931, was for a private estate of 1,600 acres at Riverside, Illinois, near Chicago. The plan is a good example of the landscape method, including a close conformity to topography and emphasis on the quality of range or open prospects that Olmsted employed in park design and city planning. The designers stressed the importance of domesticity in relation to indoor and outdoor life. The plan was largely carried out, and what still remains has many of the characteristics of the spacious New England village.

As an offshoot of the Riverside plan, Olmsted and Vaux proposed that a parkway, 260 to 600 feet wide, be constructed extending from the Aux des Plaines River to Chicago, a distance of six and one-half miles. Unfortunately this project was not carried out. In describing the scheme the authors suggested that houses be set back some distance from the highway and that trees be planted between the homes and highway line.

The year 1869 also saw the creation of a new town at Garden City, Long Island, founded and planned by A. T. Stewart, New York merchant. Garden City grew slowly for many years as a residential town. Later, with the establishment there of the

¹ See p. 170.

Doubleday-Page publishing and printing plant, it became partly industrial and afforded proof of the benefits which may accrue from the removal of an industry from a crowded center to a small town with open development. Another notable example is Pullman, an industrial town not far from Chicago, carried out by S. M. Pullman in 1880 and built around the Pullman Car works. Its founder attempted too much paternalistic control over the social life of his workers, and the town was the scene of a disastrous strike in 1894. Both Pullman and Garden City were laid out on rectangular lines, according to the customary methods of the land surveyor. They do not offer much guidance in the art of planning, although Garden City is a good example of the advantages to be obtained from the provision of ample space for streets and adequate settings for buildings.

Writing on *Model Factories and Villages* about thirty years ago an English social investigator, Budgett Meakin, drew attention to a number of places in the United States where industrial communities were being planned.¹ His impressions as a foreign visitor who had a background of knowledge of model village developments in England and Germany are interesting. He described a number of communities attached to large industrial plants which were planned and organized by the heads of the industries. Leclair, near St. Louis, established by H. O. Nelson in 1890 on a tract of 125 acres, was picturesquely laid out. Mr. Meakin visited Pullman, already referred to, which by 1904 had been engulfed by Chicago and lost its identity. Vandergrift, in Pennsylvania, 38 miles from Pittsburgh, was described as an attractive industrial village, formed in 1895 on a site of 640 acres. At Sparrowpoint, near Baltimore, the Maryland Steel Company had laid out some hundreds of acres with good tree-planted roads and a public park.

It was in New England, however, that Mr. Meakin found the most attractive industrial villages. Of these, Hopedale, adjoining Milford in Massachusetts, was given the credit of being America's best model village. Established in 1841 as a Christian socialist community, it was taken over and extended in 1856 by a firm of cotton machinery makers. The streets and dwellings were pleas-

¹ *Model Factories and Villages: Ideal Conditions of Labour and Housing.* T. Fisher Unwin, London, 1905.

antly laid out, a special feature being the appearance of the rear yards.

One of the oldest and most idyllic communities visited by Mr. Meakin was South Manchester, near Hartford, Connecticut. This gave him the impression of a vast, well-kept park of over a thousand acres, in which were located the homes of the employers and employes of the silk mills of Messrs. Cheney Bros. Every home stood in its own garden.

Other New England examples mentioned were Whitinsville, Massachusetts, housing 2,500 workers; Ludlow, near Springfield, begun in 1868 and developed after 1890 on 1,500 acres, housing 1,200 employes.

Residential villages to which attention was drawn included Biltmore, near Asheville, North Carolina, erected by George W. Vanderbilt in 1903. It had 100 houses and a picturesque railway station and business buildings facing a public square. The most ambitious effort in town building described was Dr. Dowie's Zion City in Illinois, inaugurated in 1901 on a site of 6,500 acres. It was elaborately planned with roads 66 to 150 feet wide, boulevards 300 feet wide, and a system of six parks, including a central one of 200 acres. This city, however, now has been crudely developed, its roads are uncompleted, and it contains the population of a small town.

One American experiment of interest, not referred to by Mr. Meakin, was made by followers of the single tax theories of Henry George. In 1894 they formed a joint stock company and created the town of Fairhope, on a beautiful and elevated plateau overlooking Mobile Bay, Alabama. Here it has grown to the dimensions of a flourishing village, although it has not had much influence in changing the methods of taxation, the financial basis on which city planning must be carried out in American cities.

The above-mentioned developments and others of a similar character fell mostly into two categories. One group contained experiments in social reform. Generally these have not endured as examples of model communities. Another group was the result of efforts, partly philanthropic, by industrialists to provide healthful living conditions for their employes. With some exceptions these have been successful in laying foundations for improved

living conditions that have continued over a considerable period of time.

Most developments of land for housing, however, took place on the edges of existing cities as ordinary commercial subdivisions. Usually the rectangular plan of streets and lots was followed as both the simplest by which to lay out the land and the one best adapted to produce quick profits from its sale.

Fifty years ago little attention seems to have been given to the problem of devising proper methods of subdivision control or of co-ordinating separate subdivisions. Streets, blocks, and lots were arranged with little or no regard to the interests of the community.

In Washington itself, the evils of the methods of subdivision of land in the environs of the city were recognized as early as 1893, but no effective steps were taken to insure improved conditions. Haphazard development proceeded outside the area planned by L'Enfant.

Before 1900 as afterward there were important exceptions to the rule of defective subdivision planning. Many estates in the suburbs of Baltimore, Cleveland, and other cities were intelligently planned by landscape architects or skilled land developers for comparatively wealthy residents, and the development of these has afforded much useful guidance in the practice of subdivision planning in recent decades.¹

Intelligent planning of land postulates order in buildings; thus where residential areas have been well planned we find the best examples of domestic architecture.

ARCHITECTURAL DEVELOPMENT OF PUBLIC BUILDINGS AND PLACES

The Centennial Exhibition held at Philadelphia in 1876 had some influence in promoting the art of design as applied to the treatment of public buildings and places; and from that time forward there was a gradual assertion of more art in the life of individuals and communities than had been the case during the hundred years that followed the planning of Washington. This assertion took place notwithstanding the resistance offered by the constant influx of

¹ See reference to Roland Park and other residential developments, p. 232.

immigrants, many with comparatively low standards of life and lacking both in taste and in desire for civic art.

The real awakening to the value of orderly grouping, arrangement, and design of public buildings, however, did not come until the demonstration made by the World's Fair at Chicago in 1893. When these architectural designs entered the scene they gave both a new direction and an added impulse to public thought on civic improvement.

The architectural development of the Fair represented in completed form the first great collaborative effort of an architect and a landscape architect. Imposing buildings, designed by Daniel H. Burnham and other well-known architects, were displayed in a beautiful park designed by Frederick Law Olmsted. As a result of their collaboration, together with that of Charles F. McKim, Augustus Saint-Gaudens, Francis D. Millet and others, a fine combination of monumental buildings, approaches, parks, and artificial lakes was produced that gave the whole structure of the Fair a unique distinction.

With some notable exceptions the architecture of public buildings up to this time had not been distinguished for its agreeable form, and little attention had been given to the surroundings of buildings. Before the Fair, Burnham wrote: "Never in any country was there such extensive public expenditure of money and never was expenditure carried on with so little regard for harmonious general results."¹

The great contribution of the Fair was not the architecture of the buildings but, as Burnham himself pointed out, the value of associating the arts of architecture and of landscape architecture in one project.

The extent and character of the collaboration of different artists are indicated by the following quotation from Charles Moore's biography of Burnham:

The general scheme of land and water for the Exposition was suggested by Mr. Olmsted. The arrangement of the terraces, bridges, and landings was made by his partner, Harry Codman. The size and number of the

¹ Moore, Charles, Daniel H. Burnham, Architect, Planner of Cities. Houghton Mifflin Company, Boston, 1921, vol. 2, p. 169.

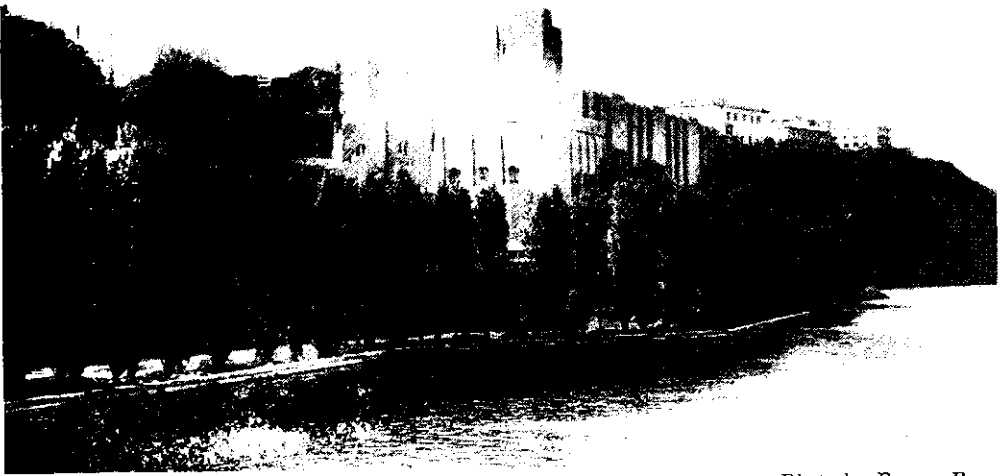
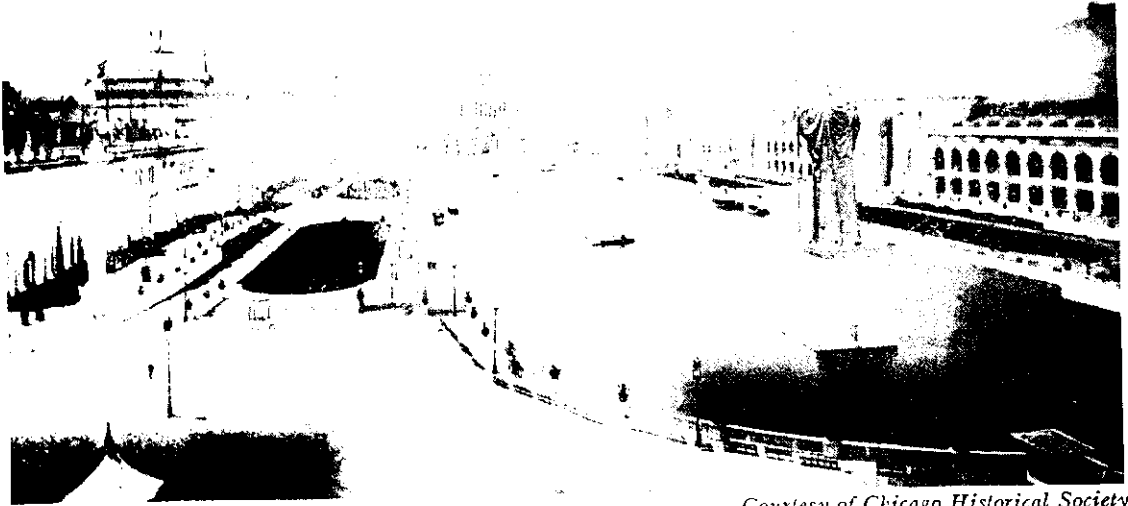


Photo by Brown Bros.

WEST POINT, NEW YORK

A small modern military center developed on its present lines since 1817



Courtesy of Chicago Historical Society

COURT OF HONOR, WORLD'S FAIR, CHICAGO, 1893

buildings was determined by Olmsted, Codman, Burnham, and Root . . . The shape and disposition of the buildings were determined by Mr. Burnham and Mr. Root in consultation with the engineer, Mr. Gottlieb.¹

On the occasion of opening the Fair, Burnham said of Olmsted that in the highest sense he was the planner of the Exposition.

The defects of the Fair were defects common to all expositions that are built to serve a temporary purpose. They were pointed out by Professor Charles Eliot Norton in a lecture on Art in America, in which he described the great scenic façades of the buildings as magnificent decorative pieces but otherwise not architecture. As they often failed to reveal the purpose of the buildings behind them, so they failed to express the vital spirit of the nation.²

Whatever may have been what Charles Moore calls the inconsistencies and unsubstantial qualities of the architecture of the Fair, it inspired visitors with a new sense of values of civic order and beauty. They wondered why their own cities could not be made more attractive, and many became propagandists for city beautification.

The social phases relating to the development of park systems and the improvement of sanitation were being developed along independent lines. A somewhat artificial separation of city planning into two movements subsequently took place, one being primarily aesthetic and the other primarily sociological in its emphasis. The expression of the former showed itself mainly in the designing of monumental groups of buildings, and of the latter in a broader comprehension of city planning, which subsequently became allied with zoning.

In the strictly architectural field, Henry Hobson Richardson had been a dominating personality in the eighties, while among the collaborators with Burnham at Chicago and elsewhere in the last two decades of the century, few were more influential throughout the country than Charles F. McKim, Stanford White, and Richard Morris Hunt—the last named being prominent in introducing to America the system of instruction of the *École des Beaux Arts*. John M. Carrère and Louis Sullivan influenced the style of that period in different ways—Carrère, in his leadership in classic design,

¹ *Ibid.*, vol. 1, p. 35.

² *Ibid.*, vol. 1, p. 87.

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and Sullivan giving striking expression to new ideas of structure, functional form, and color.

The emphasis given to monumental architecture in the World's Fair and in the later efforts in city beautification which it inspired, had the regrettable effect of creating the impression that civic adornment and city planning were synonymous terms. The result was an unfavorable reaction against architectural influence in subsequent city planning projects. However important the design and arrangement of public buildings may be, the most vital problems in city planning are connected with the improvement of residential areas and buildings. As already indicated, it is this improvement which is most necessary if a higher standard of civic art is to be attained.

TRANSPORTATION, TRANSIT, AND TRAFFIC

The planning and development of the country's system of railroads was in general carried out as an independent operation which primarily considered requirements of the system itself. Only incidentally was attention given by railroad authorities to co-ordinating railroads with civic improvements. Although railroads have been the strongest force in promoting the increase in size and number of cities, their owners were not, as a group, identified with city planning.

However, as more facilities for local travel developed in response to the expansion of cities, and as electrical power came into operation in the eighties, problems of interrelation between main railroads and transit lines, between all forms of rail operation and highways, and all forms of transportation and building development began to reveal the necessity for co-ordination. Railroad companies then began to take more interest in the appearance of stations and in the advantages to be gained from unification of terminals. Cities in which railroad lines ran along streets at grade were finding these an almost insuperable impediment to any scheme of civic improvement. As a rule no initiative in promoting comprehensive planning was taken by those interested in railroads, and municipalities were powerless to interfere with railroad property. However, some efforts were made to bring about co-operation between railroad and city authorities.

Rapid transit lines began to be built in New York City after 1875, and in 1882 the introduction of electrical power enabled the trolley and subway train to be operated electrically. The fact that rapid transit and trolley lines used the surface of streets, or were built above or below them, made their builders and operators more dependent on consent of local communities than was the case with railroad corporations. Transit lines passed through developed areas and had considerable effect on the value of adjoining property and on the character of its use. For short distances they formed a competing service with that given by free-wheel vehicles.

The first rapid transit lines in New York City built on elevated structures within the street areas for steam operation had the effect of darkening and blighting adjoining property. Subways were first opened for operation in 1904, and with the coming of electrical operation of trolleys and transit lines the problem of congestion in cities seemed to have been solved. It was correctly assumed that the more rapid means of travel would encourage dispersal of population over wider areas, but it was not realized that the spreading of the resident population over wider areas would be accompanied by increased congestion of economic activities in the centers.

Although the ultimate effects of these changes and enlargements in the means of communication could not be foreseen, they presented problems that forced themselves on the attention of those interested in the development and administration of cities. What later became the city planning movement evolved to some extent out of the necessity for more scientific planning and co-ordination of railroad and rapid transit lines and their terminal facilities.

The street and highway system has at all times been a major consideration in the planning of urban areas. The street has a larger number of direct contacts with the life and interests of the citizens than any other facility used for travel. It is more than a traffic way; for, in addition to accommodating the passage of vehicles from place to place, it is the right of way that affords access to all abutting buildings for all purposes of business, residence, policing, scavenging, and fire protection. It is also a public reservation within which are placed the service mains to supply water, gas, and electricity, and the sewers and drains connected with the disposal of wastes. Moreover, it is the space which insures to adjoining buildings a principal and certain means of obtaining light and air;

and, despite the danger to human life incidental to such use, it is often the only space available for children's play.

The necessity for improving the alignment, width, direction, and paving of streets was present in the minds of those who were interested in all other phases of planning. For example, when the movement to improve the park system of Boston was being actively promoted in 1891, a Board of Survey was appointed to devise a comprehensive system of streets.

Although modern conditions which have resulted from the general use of the motor car were not present in the years before 1900, evils of street congestion existed due to unintelligent planning and the defective distribution of functions and of population. Indeed, in the days of horsedrawn vehicles there were people who considered traffic as of such paramount importance that they were prepared to destroy parks by building "speedways" through them. For instance, a proposal to construct a speedway 75 feet wide through Central Park, New York, was approved by an act of the New York Legislature in 1892, although, happily, that act was repealed six weeks later.

One question which appears to have received little attention at that time was the importance of designing different streets for different purposes as part of an organic system. Then, as now, there was a tendency to think of the streets separately from the buildings, and to consider the problem of traffic congestion as one which could be solved by street widening here and there, coupled with methods of traffic regulation.

With dormant intervals, the last half of the nineteenth century has to its credit a record of much achievement in the promotion of civic improvement in its various forms. A great deal of experiment was carried out with the object of ascertaining how best to keep within control the new forces whose ultimate effects could not be foreseen. Much was done to impart beauty to cities by the acquisition and design of parks and the planting of street trees. Most important of all there was evidence of an awakening in the public conscience as to the need for accompanying the enlarged freedom of the citizen with a reasonable discipline, so as to protect human values in the expanding cities; and it was this awakening which ultimately resulted in the birth, in the twentieth century, of the modern city planning movement.

CHAPTER VII

NEW FORCES IN URBAN GROWTH IN THE UNITED STATES

THE new forces that were put into motion by the inventions of the nineteenth century have been greatly developed in the thirty years since 1900. Invention has resulted in enormous improvements in almost every field of industry and transportation, although the period has been especially distinguished for the organization of the use and application of earlier inventions. Manufacture has become more and more standardized and has developed in increased sizes of units; electricity has been effectively developed and used; and the motor car and rapid transit train have been perfected, the former being brought into almost universal use. More recently the airplane has been taking an important place as a means of transport.

These developments have both accelerated the growth of cities and added to their dependence on facilities for transportation. The further extension and improvement of means of communication since 1900 has made it economically practical for skyscraper districts to be created and for the commuting population to increase enormously and spread over wider areas in the great metropolitan centers. Whatever benefits have been derived from the new facilities, they have also produced new forms of inconvenience and intensified the evils of haphazard growth that still await the application of proper means of amelioration.

The motor car, as an essential agency of transportation, has caused the expenditure of enormous sums of money on road building, and has thus given to the highway a new importance in the system of communications. It is also responsible, together with a high density of building and a concentration of economic activities, for increasing traffic congestion on streets in central areas; and has created problems connected with the use of highways and streets by pedestrians, and the uses of land which abutted

on important highways, the solutions of which have had to be attempted in the face of almost insuperable difficulties.

Several new forces affecting civic life, that came into being in the nineteenth century, have since gained in strength and significance. Those that are chiefly worth noting, because of their bearing on the planning of cities, are:

1. *Increase of Urban Growth.* Continued acceleration of increase of population and expansion of cities; growing trend from country to city.

2. *Transit and Traffic.* Improvements and extensions of the use of electrical power on railroads and in subways; enormous increase in use of motor vehicles; invention of the airplane; great increase in the extent of buildable land in the environs of cities as a consequence of the expansion of transit facilities.

3. *Building.* Improvements in steel frame construction and mechanical equipment, permitting the erection of buildings of great height; increase in multi-family housing.

4. *Government.* Widened scope and increased cost of all forms of government.

5. *Finance.* Enormous increases in land values, together with a growth of insecurity in real estate investments.

6. *Aesthetic and Recreational Features.* Increased demand for preservation of natural beauty and provision of parks and parkways.

These factors will be briefly referred to in the order named.

INCREASE OF URBAN GROWTH

The character and extent of urban growth in the United States from 1900 to 1930 are indicated by the following figures taken from the Census:

Year	Total population	Percentage in urban areas of 2,500 or more population	Number of cities with 8,000 or more inhabitants
1900	75,994,575	40.0	547
1910	91,972,266	45.8	768
1920	105,710,620	51.4	924
1930	122,775,046	56.2	1,208

In the article on the United States in the Encyclopaedia Britannica it is stated that between 1910 and 1920 no fewer than 12,138,483 persons out of a total increase of 13,738,354 were added to the

urban population. Of the 28.8 per cent increase in the urban areas only a little more than one-third was due to natural increase (excess of births over deaths) of urban population and nearly two-thirds to foreign immigration and to domestic migration from rural to urban areas.¹ Out of the total number of cities, 68 in 1920 and 93 in 1930 had populations in excess of 100,000.

The most striking two facts brought out by these figures are first, the extent of the increase in urban as compared with rural population, and second, the extent to which the increase of the urban population has been due to immigration. The disappearance of free land had removed the attraction of rural areas to new foreign immigrants at the same time that organization in manufacturing and improvements in transportation had been increasing the attractions of cities. In recent decades most of the new immigrants have crowded into urban areas, which has created difficulties both of assimilation and of providing the newcomers with suitable housing accommodation.

TRANSIT AND TRAFFIC

The facilities for commuting in large cities have been greatly extended, mainly as a result of electrical operation of trains on suburban railroads and in new subways. Among the changes this has brought about are the widening of the distances between places of residence and places of employment in urban regions, the improvement of terminals, and the eradication of the offensiveness attached to steam operation within cities. The electrically operated track mileage of trolleys, rapid transit railways, and electrified trunk railroad lines in the United States in 1932 was 38,857 as compared with 21,902 in 1902.²

In the matter of road transport, the following figures for United States production and registration of motor vehicles, as published by the National Automobile Chamber of Commerce, indicate the revolutionary change which has taken place in the last quarter of a century.³

¹ Encyclopaedia Britannica, 14th ed., vol. 22, pp. 735-736.

² The 1902 figure was taken from the U. S. Census and 1932 figure from a census made by the Transit Journal, New York City.

³ Facts and Figures of the Automobile Industry, 1933 ed., National Automobile Chamber of Commerce, New York City.

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Year	Passenger cars produced	Trucks produced	Passenger cars registered	Trucks registered
1905	24,550	450	77,400	600
1925	3,870,744 ^a	557,056 ^a	17,496,420	2,440,854
1930	2,910,187 ^a	599,991 ^a	23,059,262	3,486,019

^a Includes production of plants located in Canada, making motor vehicles of U. S. design.

Growth in the use of motor trucks is even more significant than in that of passenger cars. It is not possible to give figures showing the enormous amounts that have been spent on road improvements, in street paving and widenings, and in providing the garage and other facilities needed as a result of the increased use of motor vehicles, but they must run into billions of dollars in the 48 states of the Union.

Phenomenal growth has taken place in connection with air transport. In the first ten years of the century the necessity had not arisen for landing fields for airplanes, and providing these for air travel is so recent that it is necessary only to state the figures for 1930. At the end of that year the number of landing fields in existence in the whole country, not including auxiliary fields, was 1,542 and 600 airplanes were in use in scheduled air transport. At the same time there were 9,818 aircraft in all types of operations.¹

As has been pointed out, the development of travel has greatly increased distribution of urban population in the environs of cities. It is not possible to predict what effect the new and more flexible methods will have. The great metropolitan regions may continue to grow in size of population, or the tide may be reversed—with benefit to the small city or town. One thing only seems to afford a basis for a reasoned prediction, namely, that the forces which have favored the high degree of concentration in the large metropolitan regions in the past will lose strength in the future.

The most hopeful expedient for controlling excessive concentration is that of planning the transportation, transit, and highway facilities with the definite purpose of encouraging dispersal. In the past, the contrary purpose has dominated. New York City is a good example of a region where more is being done to enlarge

¹ Air Commerce Bulletins, January 15, 1931, and February 2, 1931, Aeronautic Branch, U. S. Department of Commerce.

facilities of communication for the benefit of already congested areas than to afford improved access to and through undeveloped areas. If a better balanced distribution of transit facilities is to be obtained in large cities, more circumferential lines will have to be provided through undeveloped areas at various distances from the main centers. While such lines cannot be made as profitable as can radial lines, development of the motor bus and truck, coupled with the improvement of circumferential highways, are already facilitating the spread of industry and population over wider areas in the environs of great cities. The motor vehicle, usually operating in small units, serving small and scattered groups, and not requiring elaborate stations at fixed points, can be made more profitable where it serves an evenly distributed population than one congested in some places and widely scattered in others. Small cities or towns near one another, rather than large cities with wide distances between them, form the best communities for obtaining convenient and economical road transport.

One of the most significant results of the development of transit lines and the improvement of highways has been the great increase of buildable land, i. e., land accessible by means of rapid transit, railroad, or automobile. The accessible area is probably ten times what it was twenty years ago. In recent years this increase of buildable land has been accompanied by a lessening in the demand owing to a falling off in the rate of increase in population growth, the latter being due to the government policy of restricted immigration and in a lesser extent to a decrease in the ratio of births to deaths. There is now less need than ever for land suitable for any form of urban use to be priced extravagantly or overcrowded with buildings.

BUILDING

What is known as the skyscraper is an American institution. The erection of skyscrapers has been proved to be sound when under proper control and with adequate space about them for light and air, and to be unsound when erected in inappropriate locations or when permitted to overcrowd the land.

Skyscraper buildings have had a powerful influence on civic art in the United States and their best architectural expression has

given great beauty and distinction to cities. Although in themselves not a primary cause, they have indirectly created new problems of congestion. The crowding together of skyscrapers has both made them a factor in congestion and diminished the artistic quality of the individual structures.

In New York City the skyscraper has been the object of direct attack through commissions on heights of buildings and restrictive zoning ordinances; the real "devil of the piece," however, has been not the height, but the excessive bulk of such buildings in relation to adjacent areas of open land. The fact that skyscrapers have cut off light and air, have caused undue pressure on the traffic capacity of street systems, and upset the equilibrium of property values has been due to the absence of sufficient space about them. This has been the natural result of utilizing a system of streets and other open areas that has been laid out for the service of low buildings, without adapting it to the new needs.

The skyscraper depends for its beauty, as well as for its utility, as an individual structure on having sufficient space about it. Only buildings on frontages which face an open area, whose width is at least equal to the height of the building, can be seen to advantage. Nevertheless in the mass they may constitute an impressive mountain range of building as they do in the lower part of Manhattan Island. Just as a mountain range requires the valley to reveal its shape and contours, so does a range of skyscrapers; and so the great expanse of open water that exists on three sides of lower Manhattan provides the foreground necessary for the setting of its skyscraper range. Without this foreground it would be a confused mass, void of shape or visible architecture. Every building should have enough open space to give it room to display its form and to obtain for it the light and shade without which its value as a work of art is impaired.

Emerson considered nature to be inseparable from the useful arts, and in an essay on Art writes as follows:¹

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

¹ Society and Solitude. Houghton Mifflin Company, New York, 1895, p. 43.



Photo by Fairchild Aerial Surveys, Inc.

THE THIRTY-EIGHTH STREET DISTRICT, NEW YORK
The skyscrapers rob lower buildings of light



DURHAM CATHEDRAL, ENGLAND
Skyscraper effect of towers on high elevation



Photo by William Frange

LOWER MANHATTAN'S MOUNTAIN RANGE FROM
GOVERNOR'S ISLAND, NEW YORK

The most imposing mass of buildings in the world
created as result of steel frame construc-
tion introduced about 1885

The architecture of skyscrapers and the spaciousness of their surroundings have been greatly improved in recent years as a result of zoning. Restriction on the coverage of lots and the setting back of buildings at different levels have provided more space for their display and have increased the originality of their design. The New York Life Building in Manhattan¹ and the Los Angeles City Hall are good examples of fine architecture combined with an intelligent application of zoning laws.

When building heights, uses, and bulks are not adapted to the widths of streets, sooner or later the street space must be adapted to buildings; and sometimes the only form in which this space can be obtained is the superimposition of one street upon another. In New York, where to a greater extent than in any other modern city, buildings have been erected out of scale with the widths of streets, two-decked or three-decked streets have been suggested. Necessity for such a costly palliative is in itself a condemnation of the errors in development.

The tendency of public policy in the past has been to promote over-centralization of economic activities and incidental over-building in a few places. At the same time, and in spite of this tendency, there have been strong movements toward dispersal of many economic activities into subcenters, some of which in turn have also become congested. A recent tendency has been to reserve excessive land for business use, thereby encouraging the erection of temporary and disorderly structures and imposing excessive burdens of taxation on owners of land so reserved.

The erection of increasing numbers of apartment houses in cities has also introduced serious problems because most builders prefer sites in good single-family residential districts. Owners of homes have had their property greatly depreciated in value and have simultaneously had to face increased taxation. Greater control over the development of apartment houses is needed.

The popularity of apartments has been the result, inter alia, of a change in the personal habits of families and individuals living in urban centers. More has been accomplished in providing up-to-date labor-saving devices in apartments than in separate houses. Whereas the separate house usually has to be purchased, the

¹ See illustration facing p. 192.

OUTLINE OF TOWN AND CITY PLANNING

apartment can be leased for short terms, a convenience because it permits greater freedom of movement from place to place and lessens financial responsibility. A large proportion of wage-earners change their places of residence frequently in order to follow opportunities for work. For these and other reasons many people are prepared to pay more for an apartment than for a house, in proportion to the accommodation provided.

Whatever defects multi-family houses may have, especially in the discouragement of home ownership, their increase is not likely to be arrested under present conditions of social life. Assuming that they will continue to be a principal means of housing urban populations, the question of public interest is to make them healthful. Quality is not incidental to type, but to conditions affecting all types.

High multi-family houses crowd the land to a greater extent than is desirable for healthful occupation; they are not provided, as a rule, with adequate light and air or with sufficient space for recreation; they are erected on streets too narrow for such intensive building use; and in too many instances they destroy the amenities of areas devoted to other types of residence.

One of the most promising methods for relieving pressure on existing centers—which has been followed in a few places since the year 1900—is the deliberate organizing of new communities in the open country. The garden cities of Letchworth and Welwyn in England, and the new town of Radburn, New Jersey, in the United States, are prominent examples. In these new communities the attempt is made to combine industry, business, residence, and facilities for recreation in such a way that all social and economic needs may be provided locally.

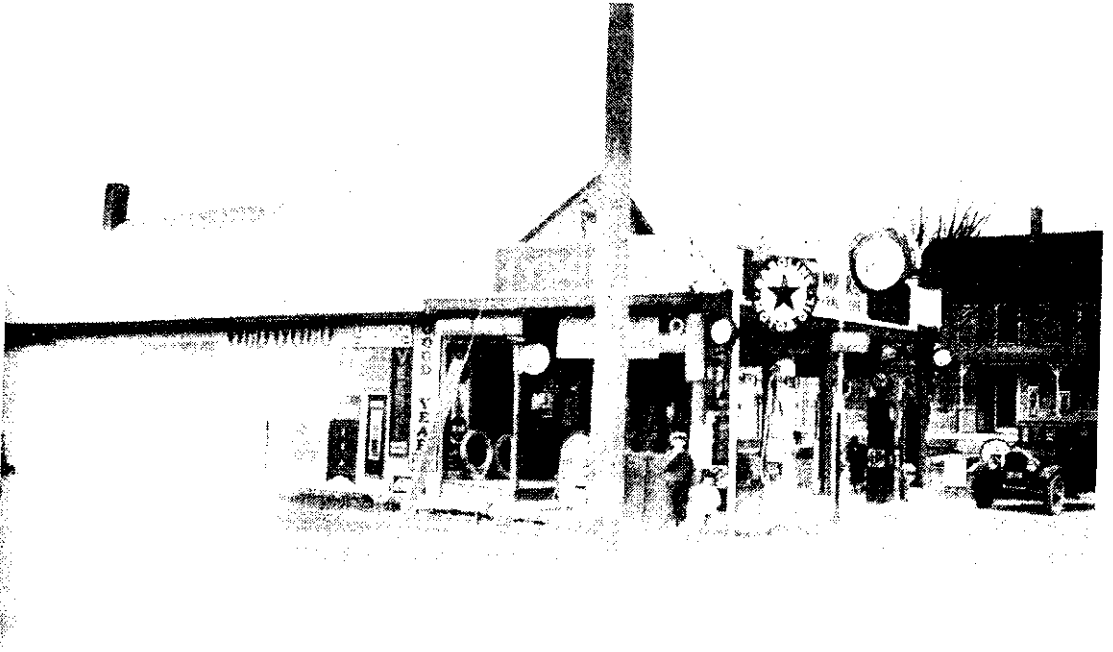
A recent advance has been appreciation of the fact that the neighborhood rather than the house by itself constitutes the home, and that neighborhood communities should be developed with a well-organized social life. Neighborhood unit principles are fully discussed by Clarence A. Perry in volume 7 of the *Regional Survey of New York*.¹ Mr. Perry proposes that the unit of population be limited to that which can be served by one school providing for the educational needs of the children; that it be defined in its

¹ *Regional Plan of New York and Its Environs*, New York, 1929.



Photo by William Frange

THE NEW YORK LIFE BUILDING AND THE METROPOLITAN
TOWER, NEW YORK



Courtesy of the Roadside Bulletin
HIGHWAY SPOILIATION BY BILLBOARDS



Courtesy of Los Angeles Regional Planning Commission
GAS STATION NEAR LOS ANGELES, CALIFORNIA

boundaries by main thoroughfares, none of which should pass through it; that stores and other business buildings be adjacent to the boundaries; and that the school and other community buildings be placed in small centers away from main thoroughfares.

GOVERNMENT

The widening scope of government powers in recent decades has made it necessary for society to embrace a new concept both of the functions of governing bodies and the character and extent of the public enterprises which they initiate and finance. This development has come about through changes in the structure of community life and because of the concentration of capital in the hands of public agencies. Public works are being promoted more and more on a scale that only these agencies can undertake, and are less and less concerned with piecemeal operations designed to meet isolated local needs.

The ideal of regional government has been gradually taking hold of the public mind as a theoretical conception. One tendency in this direction is the constitution of such interstate bodies as the Port of New York Authority, which functions as an agency of government and carries out constructive enterprises on a vast scale.

FINANCE

In the broadest sense the financial problems of cities are involved with those of states and nations. There is a note of pessimism in the current discussion of these problems for which there is some justification. It has been suggested that the economic life of nations has become too complex for man to control—and, in so far as this is true, it is in the cities that loss of control has become most noticeable. The scale of some urban aggregations, as well as of many industrial organizations, has become so large as to make effective control almost impossible. New scientific inventions have grown, both in numbers and importance, more quickly than has man's capacity to use them to advantage. Taxation has reached a point where it represents the maximum burden that communities can bear.

Perhaps these views reflect a tendency, at the present, to overrate the financial difficulties of cities, as well as of nations; but unquestionably it is now time for an examination of conditions, an appraisal of resources, and the giving of more attention to planning and organization so as to promote economic security as well as more wholesome community life.

So much have modern cities lost as a result of failure to plan and regulate their growth, that the question arises as to whether they can afford to make those substantial improvements that are necessary for social well-being. In particular, the cost of slum clearance and of traffic relief is greater than the average city can bear, and the same is true of ameliorating conditions due to overbuilding. Whereas these costs are arguments in favor of city planning, they are frequently used as an argument against planning. It is not generally perceived that the primary cause of the high cost of replanning is the failure to plan and regulate growth before and during the building of a city—a penalty which it has to pay for its own neglect.

The problem every city has to face is not whether it can avoid spending money, but which is the wisest way to spend what should be spent in any case. Without a plan, a city is bound to be haphazard concerning what should and what should not be done and the order in which improvements should be made.

The income of a city is derived, in large measure, from the taxation of property, while the major portion of its expenditures are incurred in the carrying out of projects that normally benefit property. Assessments for taxes as well as special assessments for local improvements, therefore, involve a consideration of the values of land and buildings in relation to their uses.

The indirect effect of a city's system of assessment and taxation should encourage developments for the health, safety, and social welfare of its inhabitants. On the other hand, it should never be an instrument with which to punish bad development. For instance, overbuilding on land should be prevented and assessments based on a healthful density; the former should not be permitted and then made a subject for special taxation.

In considering the control of land and building development, transportation and transit, centralization, and aesthetic features, it is necessary to have in view the effect of such control on the

values of real estate and the revenues from its taxation. While owners of property should be protected against forms of control that lessen the value of their property for legitimate uses, the public should not be required to compensate them for financial losses due to restrictions against wrong uses of property—that is, uses injurious to health, safety, and general welfare.¹

AESTHETIC AND RECREATIONAL FEATURES

In recent years there has been a widespread desire to see natural beauty preserved where its destruction is avoidable; to prevent the use of vacant lots for junk-yards; and to save the frontages of highways from ugly “hot-dog” stands and vulgarly designed and painted gasoline stations. None of the offensive features in any of these structures is necessary for economic reasons. So far as they are essential conveniences, they can be improved both in location and design.

Contemporaneously with the desire to preserve natural beauty has come a growing demand for the reservation of ample spaces for pleasure parks and parkways, and for the proper landscaping of such spaces; nevertheless, disorder in cities and along highways continues on a wide scale, although public sentiment is improving in aesthetic appreciation. Much carelessness is shown by those who visit places of natural beauty and whose apparent craving for its enjoyment does not prevent them from injuring it. For obvious reasons the average person finds it easier to appreciate natural beauty and the value of simple tidiness in the use of land, than to understand architectural beauty and the distinction between good and bad design. It is therefore likely that public opinion will continue to take a more advanced view toward the necessity of preserving natural amenities than of controlling architectural design.

While the chief object of zoning, as a part of city planning, must always be to secure health and safety, public opinion and the courts are beginning to recognize the fact that orderly design of buildings and preservation of natural beauty are among the essentials in securing the general welfare.

¹Problems of land values in relation to use of land are more fully discussed in *The Design of Residential Areas*, by Thomas Adams, Harvard University Press, Cambridge, 1934; and in a monograph on Land Values forming part of volume 2 of the *Regional Survey of New York and Its Environs*.

CHAPTER VIII

CITY PLANNING IN THE UNITED STATES BETWEEN 1900 AND 1909

THE forces discussed in the previous chapter that were giving a new direction to civic growth added to the difficulties of cities. By increasing the sizes of urban aggregations they simultaneously increased the sizes of the deteriorated areas. It became more and more evident that these evils, consequent on the defective arrangement of cities, could be corrected only by comprehensive planning based on scientific study. This appreciation of the need of city planning materialized into practice very gradually, and planning efforts up to 1909 continued to be sporadic and experimental.

The difficulty of marshaling and applying collective intelligence to deal with civic affairs has always stood in the way of planning of cities in democratic countries. Where the greatest individual freedom exists, too often there is failure of effective co-operation in community action. Individuals think of their own affairs first and consequently fail to appreciate the benefits to be obtained by subordinating them to those of the community.

In this connection, one of the many remarks made by Samuel Johnson and the comment thereon of James Boswell are worth quoting:

Talking of London he (Johnson) observed, Sir, if you wish to have a just notion of the magnitude of this city, you must not be satisfied with seeing its great streets and squares, but must survey the innumerable little lanes and courts. It is not in the showy evolution of buildings, but in the multiplicity of human habitations which are crowded together, that the wonderful immensity of London consists.

Boswell's comment was:

I have often amused myself with thinking how different a place London is to different people. They whose narrow minds are contracted to the

consideration of some one particular pursuit, view it only through that medium. A politician thinks of it merely as the seat of government in its different departments; a grazier, as a vast market for cattle; a mercantile man, as a place where a prodigious deal of business is done upon 'Change; a dramatic enthusiast, as the grand scene of theatrical entertainments; a man of pleasure, as an assemblage of taverns. . . . But the intellectual man is struck with it, as comprehending the whole of human life in all its variety, the contemplation of which is inexhaustible.¹

Were it possible to make an ideal plan, it would be based on the contemplation of all human activities in the city. These being inexhaustible, the scope of studies must be limited to the most essential features connected with physical growth. Subject to these limitations, there is nothing of greater importance to a city than that it should have the guidance of a well-conceived plan, and surely this importance is greatest in democracies like the United States where the chief object of society and government is to promote the happiness and general welfare of all citizens.

BEGINNINGS OF COMPREHENSIVE PLANNING

It has been seen that city planning as a movement emerged out of efforts made before 1900 to promote the improvement of sanitation, housing, and park systems; to create object lessons in town development; to develop civic centers and other projects for civic adornment; and to extend and improve means of communication. These efforts continued after 1900; but the scope of each of the four aspects named above became gradually widened and is yet tending more and more toward gradual co-ordination in a general city planning movement. It is proper to consider these four aspects, and the new aspect of zoning which entered the scene about 1909, as subordinate elements in the master city or regional plan.

Much of the planning done before 1909 was concerned with aesthetic objectives, but this does not mean that it was less comprehensive in outlook than subsequent planning in which the aesthetic was either disregarded or subordinated to the promotion of social welfare or of economic stability.

¹ Hill, George Birkbeck Norman (Editor), *Boswell's Life of Johnson*, 1887, vol. 1, p. 422.

In its beginnings, and largely up to the present time, the modern city planning movement has been concerned for the most part with the remodeling of existing cities and towns. This has meant that the planner has been hampered by the necessity of conforming to established conditions so that his plan is largely a compromise. He has also had to conform to demands of the public that are influenced more by the effects than by the causes of evils, since the former are easily perceived without investigation, while the latter have to be brought to light by persons of trained intelligence. Too often this investigation has not been made, and plans have been developed to deal with isolated effects in the nature of abuses that should be prevented.

In so far as plans made in the past were devoted to promotion of the "city beautiful" and omitted proposals for economic stability or the amelioration of social conditions, they do not compare favorably with more recent plans; but, on the other hand, the latter usually have their own form of incompleteness. Therefore, judged from an ideal conception of what a complete plan should be, most planning that has been undertaken has been limited or lacking in some respect in proper emphasis or comprehensiveness.

WASHINGTON PLAN OF 1901

The most important undertaking in the field of city planning in the United States at the beginning of the twentieth century was the plan made for the improvement of Washington, D. C. In December, 1900, the first steps were taken which led to the making of this plan, and in the following March Senator McMillan introduced a resolution authorizing the Committee on the District of Columbia to consider and report plans for the development and improvement of the entire park system of the district, and to secure the services of experts.

The American Institute of Architects had for some time been insisting that action be taken to improve the parks and to obtain proper settings for public buildings in the capital. This resulted in the creation of a Commission by the Senate, which appointed Daniel H. Burnham and Frederick Law Olmsted, Jr., with power

to add to their number. They invited Charles F. McKim and Augustus Saint-Gaudens to act with them.

This expert body had before them the results of over a hundred years of development in more or less conformity with the plan of L'Enfant. They had to consider whether the original plan had stood the test of time and changing conditions, and the effects of considerable departures made from it.

It is a great tribute to the genius of L'Enfant and the statesmanship of Washington and Jefferson that the Commission of 1901 found the original plan more perfect than the attempts of those who had since been replanning parts of the city according to their ideas of the practical demands of their times.

In Washington, as in other cities, overbuilding on lots and commercial uses of open spaces had been permitted, with consequent losses in economic values. The defects were the result of departures from the plan in detail and, to some extent, in general conception. In 1928 Milton B. Medary pointed out that Presidents Washington and Jefferson had introduced control over design and that the buildings of the early Republic were "models of good taste, sound design, and beauty of mass, proportion and detail"; but that this control had been relinquished for a long period resulting in the erection of temporary and badly designed buildings that should be replaced.

The plans of the Commission included proposals for reverting to the original conception of the Mall, including the restoration of a broad thoroughfare showing organic connection between the Capitol and the Mall, and also of the Mall axis with its extension to the Lincoln Memorial. An attractive design by McKim for the Lincoln Memorial, the Arlington Memorial Bridge, and a parkway connecting Potomac and Rock Creek Parks is illustrated in Charles Moore's biography of Burnham.¹ The Lincoln Memorial and approach, as subsequently designed by Henry Bacon, is shown facing page 200. The Commission also made suggestions for planting and developing the Mall and for extensive parkways and drives.

¹ Daniel H. Burnham, Architect, Planner of Cities. Houghton Mifflin Company, Boston, 1921, vol. 1, p. 162.

A bold scheme for dealing with railroad approaches without impairment of the original plan was included in the proposals. Under the influence of President Alexander J. Cassatt, the Pennsylvania Railroad relinquished its right to cross the Mall. This action was followed by the development of the present Union Station and Post Office with their spacious surroundings. The result has been to give Washington a splendid gateway.

The 1901 plan has not been officially adopted and some of its proposals have not been, and could not now be, realized. It has suffered from much criticism of details and deliberate delays in execution, especially during 1903 to 1904, when the preservation of the Mall was threatened. But the main features embodied in the general conception have been adopted.¹

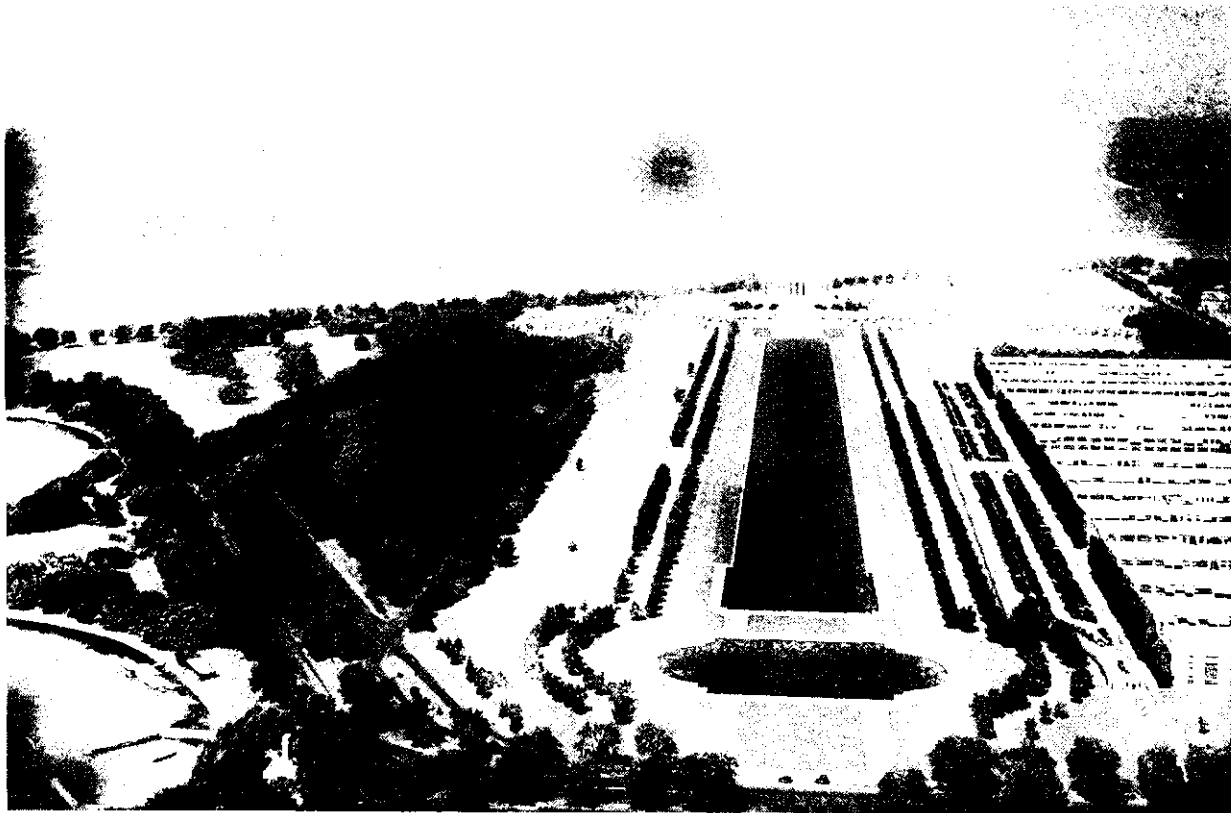
CIVIC AND TRANSPORTATION CENTERS

Simultaneously with the interest shown in the improvement of Washington, the "city beautiful" movement that had been initiated prior to 1900, spread throughout the country and led to many efforts to develop monumental civic centers with spacious settings for public buildings. These plans were elaborated in much detail, but too often realization involved more cost than could be undertaken by the cities for which they were prepared.

One of the first and most ambitious plans for a civic and transportation center was made for Cleveland during 1902 to 1903. Here again the influence of Chicago leadership was seen in the employment of Burnham, with whom was associated John M. Carrère and Arnold W. Brunner. The plan provided for a long Mall lined with monumental buildings and leading to a new railroad terminal on the lakefront. The City Hall and Federal Building were erected, but changes in railroad plans have since resulted in the erection of a new terminal in the central business district.² Buffalo also had prepared an ambitious plan for a civic center and lakefront improvements; Philadelphia had continued its exertions to carry out the Fairmount Parkway project; while at Harrisburg, Pennsylvania, Arnold Brunner designed a new state Capitol and related features. One of the early projects put forward in the

¹ See also p. 233.

² See further reference on p. 258.



VIEW OF LINCOLN MEMORIAL, WASHINGTON, D. C.

West was that for a civic center in Denver, Colorado, planned in 1906 by Charles M. Robinson and since revised by Edward H. Bennett, and a plan for Duluth, Minnesota, by Daniel H. Burnham in 1908.

Among the most important projects for transportation centers initiated between 1902 to 1905 were the Pennsylvania and Grand Central terminals in New York City. The former designed by McKim, Mead, and White, was completed in 1910, and the latter, designed by Warren and Wetmore and by Reed and Stern, in 1913. These schemes were associated with the change from steam to electric operation of trains, and involved the redevelopment of considerable areas of land surrounding the stations.

MANILA AND OTHER BURNHAM PLANS, 1905 TO 1906

In 1905 Mr. Burnham was asked to make plans for the cities of Manila and Baguio in the Philippine Islands, and San Francisco.¹ Improvements that have been carried out in accordance with the Manila plan include much waterfront reclamation; construction of new traffic arteries 100 to 108 feet wide; and reservation of sites for government buildings. It did not contain any proposals for dealing with the slum areas and poor suburban districts occupied by temporary houses with inferior sanitary conditions.

At Baguio a new town was planned on government reservations for a possible population of 25,000. The plan was tentative in character, owing to the absence of adequate surveys.

The Bureau of Public Works of the Philippine Islands has in recent years prepared developments for the larger towns on the Islands, but has experienced difficulty in getting them carried out.

In 1902 an association was formed in San Francisco to secure a plan for improving and adorning the city. Mr. Burnham was selected and he had a bungalow erected on Twin Peaks in accordance with his practice of viewing a city from a high position with a commanding view. The plan and report were presented in 1906, before the destruction of the city by earthquake. That disaster might have been expected to give opportunity to prepare a revised plan with advantages in execution not possible before.

¹ For a description of these plans see Appendices A and B of Charles Moore's biography of Daniel H. Burnham.

Instead it resulted in the dropping of Mr. Burnham's plan and caused suspicion of efforts at civic improvement. The plan was beneficial, however, in inspiring citizens to develop San Francisco's civic center, although not on the site proposed in the general plan, and to construct the parkway connecting Golden Gate with the Presidio.

While directing the plan of Manila, Baguio, and San Francisco, in which he was aided by Peirce Anderson, William E. Parsons, and Edward H. Bennett, Mr. Burnham was also devoting much attention to the development of the Lakefront Parkway in Chicago, and to surmounting the obstacle to this improvement in the presence of the Illinois Central railroad tracks. He was also interested with Professor Charles Eliot Norton and Francis D. Millet in a scheme to secure more orderly development of Harvard University. A report to Professor Norton in 1905, signed by Burnham and Millet, contained the following:

Lack of order in our American Cities and universities has been the rule. With a few notable exceptions, such as the city of Washington and the University of Virginia, all of them have developed the evils to be expected from the lack of a systematic plan. . . .¹

The suggestions for improvement of the architectural treatment of Harvard did not produce much effect, although they were the subject of serious consideration at the time they were made.

Perhaps the most ambitious effort in planning in advance of development of a university in the United States was in connection with the University of California. In 1896 Mrs. Phoebe Hearst, the benefactress of the University, gave a sum of \$30,000 in prizes for a plan, which was open to international competition. The jury finally awarded the prize to a French architect, Emile Benard. The dominant style of the University buildings, which include the Sather Campanile in granite, is Italian Renaissance.

CHICAGO PLAN OF 1907 TO 1909

Mr. Burnham's final and greatest effort in city planning was the making of the plan for Chicago. In this instance, as in that of San Francisco, he received no remuneration for his services, and

¹ Daniel H. Burnham, Architect, Planner of Cities, vol. 1, p. 250.

the cost of his staff and of publishing the report, which he did between 1907 and 1909, was met out of a fund raised by the Merchants' and Commercial Clubs of Chicago. Charles D. Norton and Frederic A. Delano, who some fifteen years later were successive chairmen of the Committee on the Regional Plan of New York and Its Environs,¹ were members of a special committee of the Merchants' Club of Chicago, which in 1907 merged with the Commercial Club. The plan Burnham prepared, with the aid of Edward H. Bennett, was of particular merit as a conception of the architectural possibilities of a great city. The report on the plan was published by the Commercial Club in 1909.²

The extent to which the plan dramatized architectural possibilities somewhat obscured the fact that it also gave much consideration to improvements of main streets and railway terminals, parks, playgrounds, piers, bathing beaches, and lakefront reclamation. It proved to be a great inspiration to citizens of this mid-western metropolis. Renderings of the drawings by Jules Guérin gave the presentation a distinction, in at least one respect, that has never been approached in any subsequent plan.

Up to 1925, 15 major improvements in conformity with the plan had been carried out by the city of Chicago. Of these the most notable were the making of new park land on the lakefront and the widening of Michigan Avenue; the construction of Twelfth Street or Roosevelt Road; the improvement of South Water Street; creation of the Cook County Forest Reserve; and the Wacker Boulevard project. The last provides three levels of roadways and a two-level bridge over the Chicago River at the north end of Michigan Avenue.

Michigan Avenue is worth citing as an example of the effect of a street improvement in creating new land values. The total cost was \$16,000,000, of which half was paid by the city and half assessed on the abutting property. The increase in property values is estimated to have amounted to more than \$100,000,000, or over twelve times the amount of the special assessment.

No plan is without its critics, for none so extensive in its scope and ramifications as a city plan must be can satisfy all minds or

¹ For description see pp. 223-224.

² See *Plan of Chicago*, by Daniel H. Burnham and Edward H. Bennett, Commercial Club, Chicago, 1909.

even give full satisfaction to the planner. Critics of Mr. Burnham's plan have been not only those who objected to the idea of making Chicago a "city beautiful," but also those who, believing that city planning should be concerned mainly with promoting beauty, objected to the classical "order," or what has been called the "renaissance flair," of the World's Fair and Chicago plans as being dishonest.

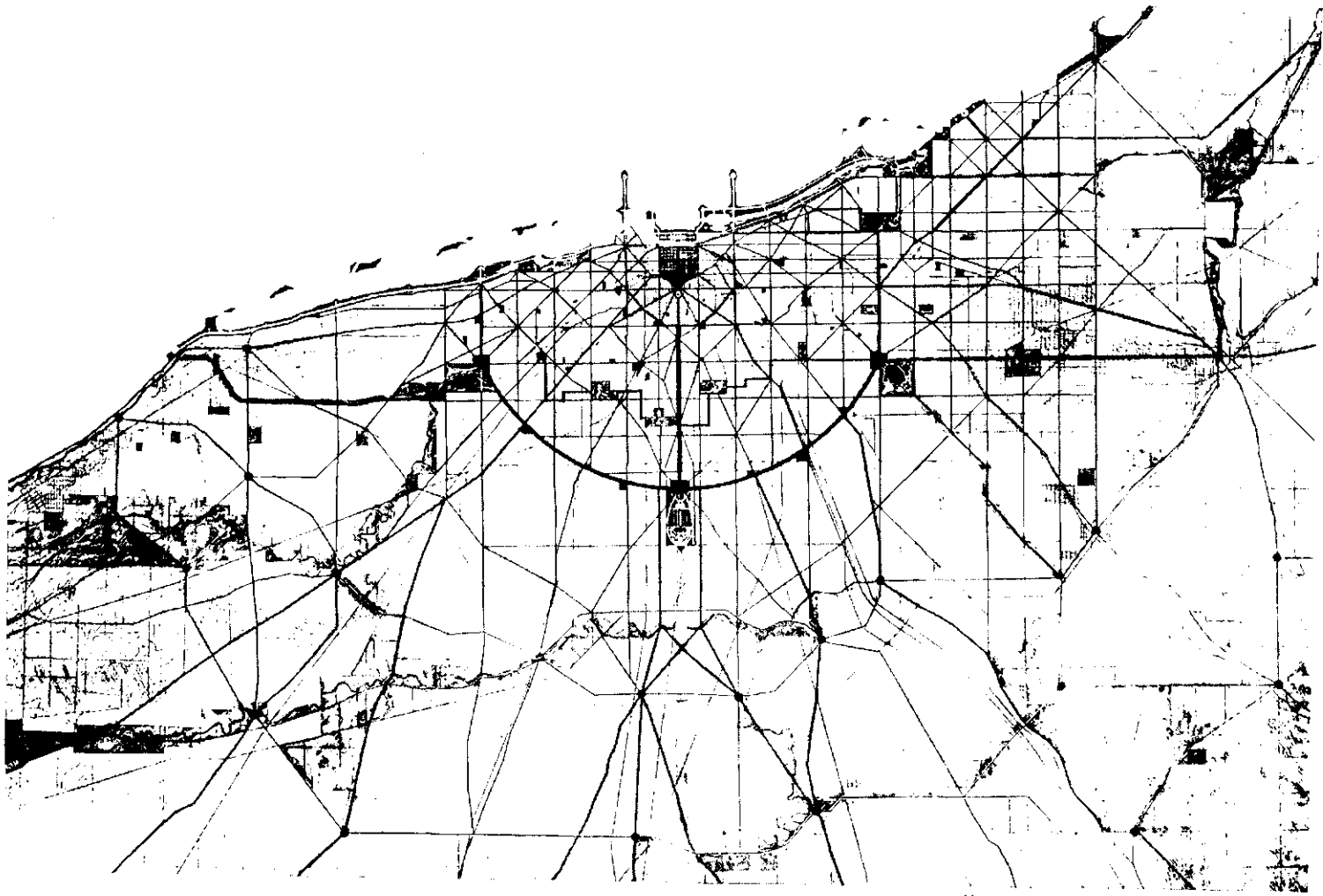
These are controversial points that relate to architecture rather than to city planning and will not be entered into here. In any event, the plan was not only the most comprehensive prepared for an American city before 1907, but it has been productive of much practical achievement based on civic spirit and enterprise.

Omissions in the plan were omissions common to nearly all city plans made before 1909; namely, lack of proposals for controlling the uses and methods of development of private property. The Chicago City Plan Commission with Charles H. Wacker as chairman was appointed in 1909 and it took steps to secure public support toward the carrying out of the plan.

INSPIRATIONAL VALUE OF BURNHAM'S WORK

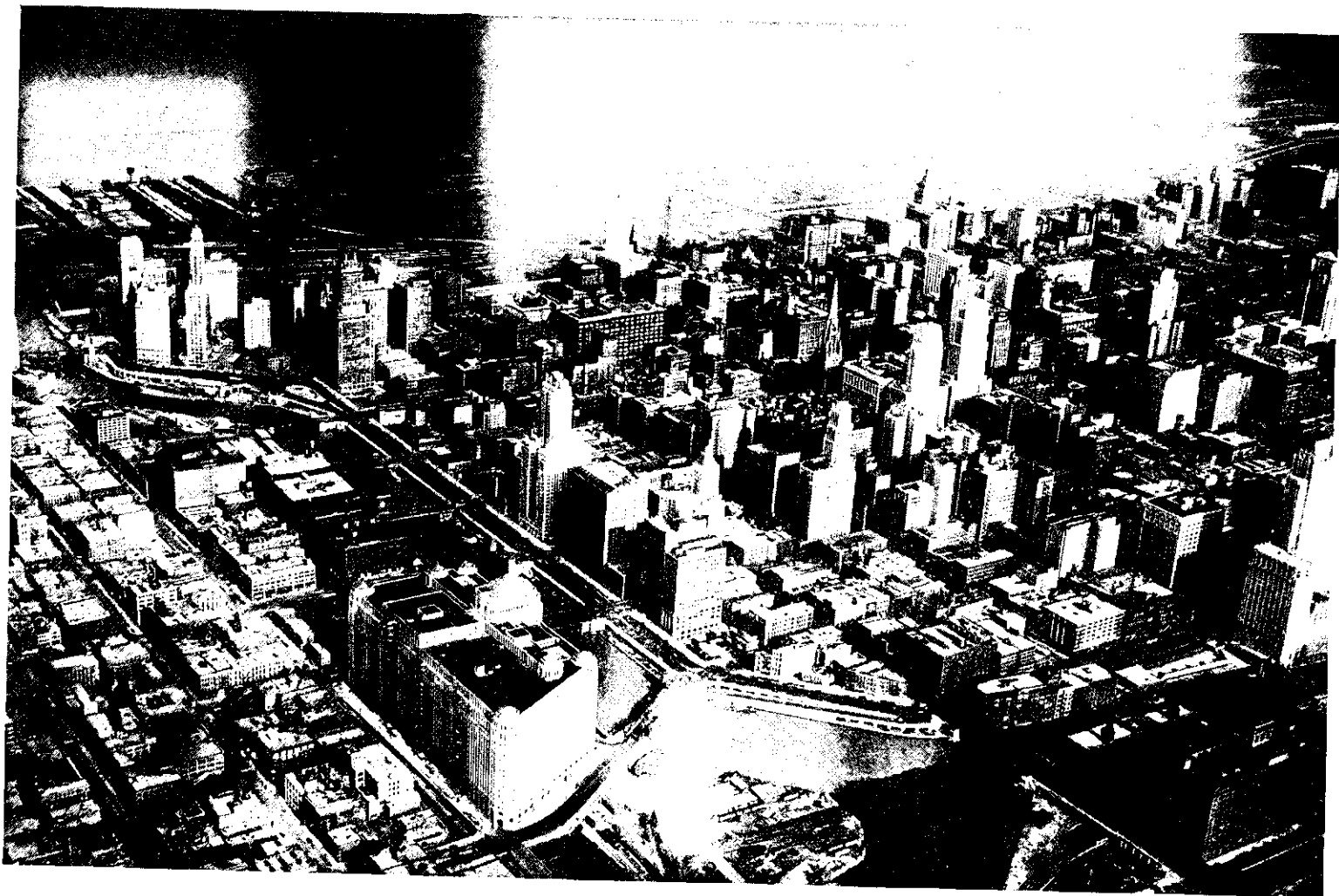
The work of Mr. Burnham and other architects, who devoted attention in the first years of this century to the adornment of cities, by planning either whole cities or civic centers, had great inspirational value in promoting a general movement toward the development of more intelligent city planning. It is true, no doubt, that the projects they put forward were often too elaborate and expensive to carry out even in large cities, and they offered no guidance as to what might be possible in smaller communities. They were lacking in consideration of important social and economic needs. The artistic domination that was practicable in a World's Fair, or the emphasis that could be given to aesthetic considerations in planning the parks and buildings of a nation's capital were both out of place in the average city, with no financial resources other than what could be raised by local taxation.

Because certain projects designed for the adornment of cities seemed under existing conditions to be too costly to put into operation, they came to be regarded as extravagant even by those who



GENERAL OUTLINE OF BURNHAM'S PLAN OF CHICAGO

Courtesy of Chicago Plan Commission



VIEW OF RAISED WATERFRONT HIGHWAY, CHICAGO, SHOWING LAKEFRONT DEVELOPMENT IN THE BACKGROUND

Chicago Aerial Survey Company

admired them as inspiring visions. After a time, "city beautification" became a term of reproach. This was unfortunate, because it is a most desirable thing to have a community seek to express itself, within reasonable limits, in noble buildings nobly placed. The secret of the successful attainment of this object in a democratic community is that the nobility of public structure be obtained without loss to social welfare or injury to economic stability.

Mr. Burnham's work was notable for its results in achieving his purpose as an artist. His idea of city planning was the same as his idea of architecture. He said that architecture was, "after all, the art of creating an agreeable form," that "scale is the all important element in creating an agreeable form," and that "scale is the finding the relationship between a composition and its surroundings." In a letter to Leslie M. Shaw, at that time Secretary of the Treasury, he used these words:

There are two sorts of architectural beauty, first, that of an individual building; and second, that of an orderly and fitting arrangement of many buildings. The relationship of all the buildings is more important than anything else.¹

These quotations show Burnham's appreciation of the essential relationship between architecture and landscape architecture, and of streets, parks, and buildings—no doubt owing largely to his association with the elder Olmsted in the planning of the World's Fair.

His most inspiring statement, so often quoted, was this:

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency. Remember that our sons and grandsons are going to do things that would stagger us. Let your watchword be order and your beacon beauty.²

It was enough for one man to have presented a great vision, leaving to others the duty of promoting those phases of city planning that were more closely concerned with the comfort, domestic conveniences, and health of urban populations.

¹ Daniel H. Burnham, vol. 1, p. 206.

² Daniel H. Burnham, vol. 2, p. 147.

A DIFFERENT APPROACH TO CITY PLANNING

As has already been said, the costliness of carrying out "city beautification" projects that were put forward after 1900 caused a reaction against them in spite of their value as inspirations. This reaction, however, had positive results in stimulating action in other phases of planning. Significant work that was carried out in connection with these other phases was promoted, rather than retarded, by the development of fine architectural conceptions, however difficult to realize.

Boston and other cities were busy with important parkway developments, and attention was being given to the need of foresight in dealing with the simple and ordinary features of community life and control of private building, particularly in the smaller cities. The establishment of the Metropolitan Improvement Commission in the Boston Region in 1902 provided perhaps the first example in regional organization.

Waterfront improvements and the cleansing of rivers were associated with the schemes for laying out parkways. In New York City, for example, improvements were being made of the waterfront along the Hudson River above Seventy-second Street; and outside the city, the Bronx Valley Sewer Commission was appointed in 1905 to study the means of cleaning up the offensive and unsightly nuisances along the Bronx River. In its report at the end of the following year the Commission recommended that the valley be made into a public parkway, which led to the creation of the Parkway Commission in 1907.

There was much activity, especially in New York, in the promotion of schemes for improvement of housing conditions and replanning of slum areas. The defects of existing municipal conditions were being pointed out in such works as *The Shame of the Cities*, by Lincoln Steffens.¹

The erection of high buildings was leading to the adoption of zoning regulations. The first Commission on Heights of Buildings was appointed in Boston in 1904 to 1905 to designate height zones.

A small group of landscape architects, including Frederick Law Olmsted, Jr., Charles M. Robinson, and John Nolen, began to

¹ McClure, Phillips and Company, New York, 1904.

take up the work of planning cities and towns. In making their studies of parks, they had observed the need for more comprehensive planning of communities. Between 1901 and 1905 Mr. Robinson published his books, *The Improvement of Towns and Cities*,¹ and *Modern Civic Art*.² In these works he showed a remarkable insight into fundamental problems of civic growth.

During 1906 to 1908 plans were made for Denver, Colorado; Oakland, California; Dubuque³ and Cedar Rapids, Iowa; and Ridgewood, New Jersey, by Mr. Robinson. For Savannah, Georgia; Roanoke, Virginia; and San Diego, California, they were made by Mr. Nolen; and for Utica, New York, by Mr. Olmsted. Under the leadership of these men a new approach to city planning developed.

St. Louis began its unusual activity in continuous planning under the leadership of the Civic League in 1907.⁴ Other plans included those made for Columbus, Ohio, and Grand Rapids, Michigan. The first city planning commissions were appointed for Hartford, Connecticut (1907), and Milwaukee (1908).

Attempts to solve separate problems connected with parks, public buildings, sanitation, transportation, and other matters by independent action in relation to each was found, by competent administrators and city planners, to be ineffective. It was realized that such segregated efforts could not produce understanding of the interrelations between problems, of the order of importance to be attached to proposals for their solution, or of the degree of balance that had to be established between aesthetic, social, and economic elements in plans. Gradually it became apparent that some form of organization was necessary to bring together those interested in different phases of city planning for mutual discussion and education, and in 1909, as we shall see in the chapter that follows, *Recent Developments in City Planning in the United States*, the movement took a fresh start toward the achieving of greater unity of purpose and the extension and co-ordination of efforts in planning.

¹ G. P. Putnam's Sons, New York, 1909 (3d ed.).

² G. P. Putnam's Sons, New York, 1918 (4th ed.).

³ A later plan of Dubuque was made by Mr. Nolen and is reproduced on p. 216.

⁴ See also p. 215.

CHAPTER IX

RECENT DEVELOPMENTS IN CITY PLANNING IN THE UNITED STATES

FROM 1909 onward the United States has been a field of extensive experiment of city planning in new aspects and applications. One feature of this period has been the publication of an extensive literature dealing with planning operations and discussion of principles, methods, and results.¹ Because of the existence of this literature and the fact that the time has not arrived when the significance of recent planning achievements can be properly appraised, nothing more will be attempted here than the presentation of a brief summary of certain phases and examples.

Evidence of a consciousness of the need for organized city planning in the United States was shown during the year 1909 by the first National Conference on City Planning, by the publication of the Chicago Plan, and by the establishment of a course in city planning in the School of Landscape Architecture at Harvard University.

NATIONAL CONFERENCES

The city planning conference in Washington, D. C., in 1909 was called at the instance of the New York Committee on Congestion of Population. Frederick L. Ford was elected chairman. The papers presented stressed the economic rather than the aesthetic elements of city planning, and called attention to the necessity for preceding the preparation of plans by a broad technical survey.

¹ Among the innumerable books and printed reports that contain information regarding recent city planning efforts in the United States are the volumes recording the proceedings of the National Conference on City Planning; the comprehensive review of modern city planning progress in *Our Cities To-Day and To-Morrow*, by Henry V. and Theodora Kimball Hubbard (Harvard University Press, Cambridge, Mass., 1929); the *Manual of Information on City Planning and Zoning*, prepared by Theodora Kimball (Harvard University Press, 1923); and *Planning Information Up-to-Date*, prepared by Theodora Kimball Hubbard and Katherine McNamara (Harvard University Press, 1928).

RECENT DEVELOPMENTS IN UNITED STATES

Strong emphasis was laid on the need of comprehensiveness and co-ordinated treatment of related problems.

The second conference, held at Rochester, New York, in 1910, was organized by representatives of the American Institute of Architects, American Society of Landscape Architects, American Civic Association, and the National Conference of Charities and Correction. Frederick Law Olmsted, Jr., chairman of the conference, pointed out that city planning dealt with: means of communication (transportation, transit, and traffic); distribution and treatment of spaces devoted to public purposes other than communications; and the control of development of private lands.

At the third conference, held in Philadelphia in 1911, an international character was given to the meeting by the presence of delegates from Great Britain, and special emphasis was laid upon the housing question. Meanwhile the New York Committee on Congestion of Population, which had sponsored the first conference in 1909, organized itself on a permanent footing under the name of the National Housing Association, and in 1911 it held its first conference.

Since 1909 city planning conferences have been held annually in different sections of the United States and have done much to give effective guidance to city planning efforts.

CITY PLANNING ADMINISTRATION

Simultaneously with these educational movements, in the early years of the century, state governments and municipalities were showing increased activity in extending their administrative machinery to promote and carry out city plans and civic improvements.

The need of controlling civic developments by central city authorities or commissions appointed in each city had been recognized before 1909.

In an article written in 1908 the late Robert W. de Forest, then president of the Art Commission of the City of New York and later a member of the Committee on the Regional Plan of New York and Its Environs, advocated the appointment of a central authority to plan future developments in cities and their environs. He said:

OUTLINE OF TOWN AND CITY PLANNING

Some central city authority should regulate and control the location of all parks and public buildings, and should also forecast and control the laying out of streets and the location of possible future parks and public buildings in the undeveloped outlying districts. . . . City planning, notably the location of parks and public buildings, might be wisely entrusted in American cities to some commission or municipal body having long terms of office.¹

At a hearing before the Committee on the District of Columbia in the United States Senate in 1909, John Quincy Adams advocated the appointment of a permanent city planning commission in each city to serve without pay, and to have complete control of future developments of the city.²

Hundreds of commissions and boards have since been appointed, with varied degrees of authority and power, but generally having their actions and expenditures subject to review and approval by the city councils which appoint them.

Chicago appointed a Plan Commission in 1909 and was followed soon after by Baltimore and Detroit. An important topographical survey was carried out in Baltimore in 1910 which provided that city with an excellent base map for city planning.

New England was a center of much activity. A report on Public Improvements for the Metropolitan District of Boston was issued in 1909, in which the need of regional planning was implied, and in 1914 the City Planning Board of Boston was established. In 1911 Salem, and in 1912 Norwood, Massachusetts, appointed town planning boards following the lead that had been given by Hartford, Connecticut, in 1907.

The first city planning legislation which contained mandatory provisions was passed by the state of Massachusetts in 1913. This provided that "Every city and every town having a population of more than ten thousand at the last preceding national census shall, and towns having a population of less than ten thousand may, create a town planning board."³

¹"The Practical Side of City Planning." In *Charities and the Commons*, February 1, 1908, pp. 1549-1550.

²Hearing Before the Committee on the District of Columbia, United States Senate, on the Subject of City Planning. Government Printing Office, Washington, 1909, p. 89.

³General Laws of Massachusetts, c. 41, secs. 70, 71, and 72.

RECENT DEVELOPMENTS IN UNITED STATES

These boards have been successful in achieving the main object for which they were created, namely, to provide a continuous planning service for their respective communities. However, the legislation which compelled the creation of the boards did not require that they be provided with funds, and this deficiency has lessened the effectiveness of the boards in obtaining practical results. They have nevertheless done excellent educational work in their several communities and have acted together as a state Federation of Planning Boards.

By the year 1913, 18 cities in the United States had official planning commissions or boards legally established by legislative act or local ordinance, and 46 cities had unofficial planning committees or some form of organization to promote city planning. Eight of the official commissions and all the unofficial bodies were without any completed city plans. However, in a number of cities, city planning has been more actively pursued and better done by voluntary organizations of citizens than by official commissions or boards in other cities.

PROGRESS IN MAKING CITY PLANS

Among early city plans prepared between 1909 and 1913, the following may be mentioned as typical examples: New Haven, Connecticut, by Cass Gilbert and Frederick Law Olmsted, Jr.; Boulder, Colorado, also by Mr. Olmsted; Walpole, Massachusetts, by John Nolen; Seattle, Washington, by Virgil G. Bogue; Portland, Oregon, by Edward H. Bennett; Newark, New Jersey, by George B. Ford and Ernest P. Goodrich; Houston, Texas, by Arthur C. Comey; Binghamton, New York, by Charles M. Robinson; and Dallas, Texas, by George E. Kessler.

Plans prepared between 1913 and 1922 included Oakland and Berkeley, California, by Dr. Werner Hegemann; Minneapolis, Minnesota, by Edward H. Bennett; Bridgeport, Connecticut, and Akron, Ohio, by John Nolen; Birmingham, Alabama, by Warren H. Manning; Hamilton, Ohio, St. Louis, Missouri, and Grand Rapids, Michigan, by Harland Bartholomew; Worcester and Springfield, Massachusetts, by the Technical Advisory Corporation; and Norwood and other small Massachusetts towns by Arthur A. Shurcliff. A report suggesting a comprehensive plan for

New York City was published in 1914.¹ In the technical field Nelson P. Lewis, George B. Ford, Ernest P. Goodrich, Robert H. Whitten, and others were active in promoting and developing the New York plans and zoning regulations which included the comprehensive zoning maps adopted by the city in 1916.² Leaders in the administrative field in New York then and subsequently included Robert W. de Forest, George McAneny, and Lawson Purdy. In the legal field Edward M. Bassett and Frank B. Williams in New York, and later, Alfred Bettman of Cincinnati, have been leading exponents of the law of city planning in the United States.

More recently, city plans have been made for Wichita, Kansas; Memphis, Tennessee; Kenosha, Wisconsin; Pittsburgh, Pennsylvania; Cincinnati, Ohio; White Plains, New York; Fort Worth and Houston, Texas; Jacksonville, Florida; Knoxville, Tennessee; Little Rock, Arkansas; Tulsa and Oklahoma City, Oklahoma; Sacramento, California; New Orleans, Louisiana; Des Moines and Dubuque, Iowa, and other cities. A full list of plans prepared up to 1926 with the names of their authors is summarized in a paper presented by John Nolen to the National Conference on City Planning in 1927³; and a more recent list with descriptions of plans and the extent to which they have been carried out in many cities is given in Appendix II of *Our Cities To-day and To-morrow*.⁴

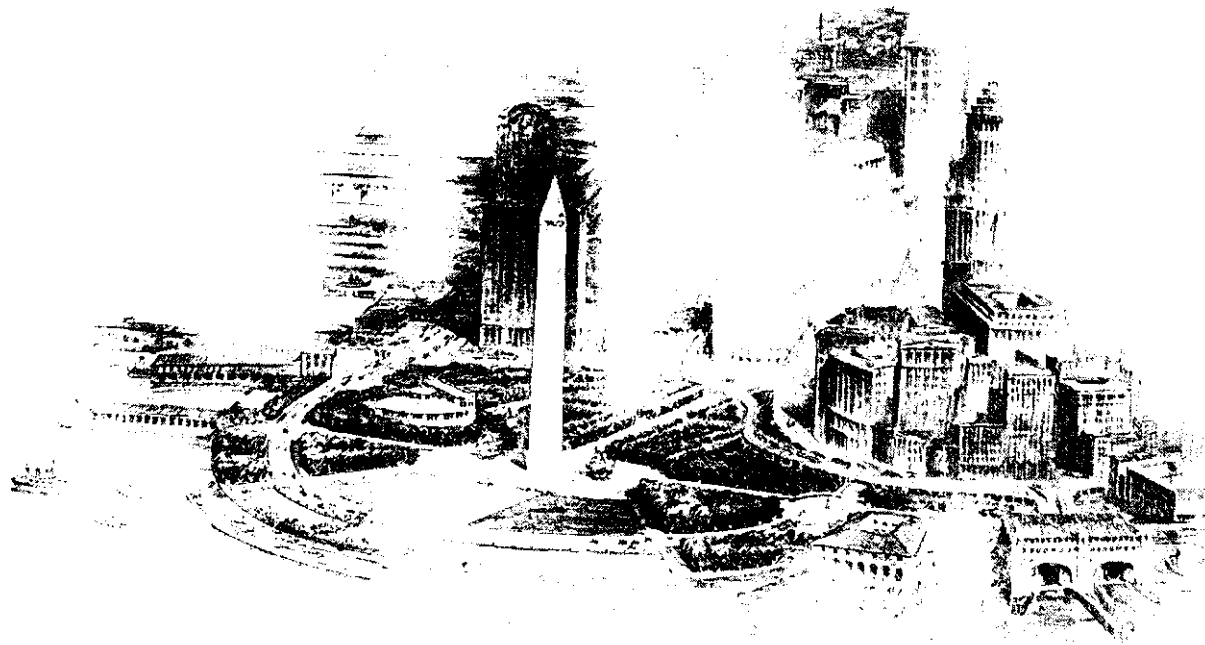
Plans and planners are not here referred to with any intent to give a selective list of those most worthy of distinction. The names mentioned are representative, and comprise some of the best known city plans and city planners, during a period that lies too close in range for judgment to be formed regarding relative values of achievements. This is an age of specialization in technique, coupled with wide territorial diffusion of effort, mainly applied to replanning existing cities. There is no recent example of planning any new city of importance in the United States which would

¹ Report on Comprehensive Plan for the Improvement of New York, December 14, 1914.

² See p. 243.

³ See *Planning Problems of Town, City, and Region: Papers and Discussions at the Nineteenth National Conference on City Planning, Washington, D. C., May 9, 1927*.

⁴ See citation in footnote on p. 208.



Regional Plan of New York

THE PRINCIPAL GATEWAY OF THE UNITED STATES
Sketch of project for monumental treatment of Battery Park, Manhattan, New York

Eric Gugler, Architect

have afforded an opportunity for a really striking achievement. Mr. de Forest, in the article already alluded to, indicated what the limitations of modern city planning were, as an art, when he said: "City Planning would be one of the fine arts if it could be applied to unoccupied sites, with precise forecast of the development and growth of these embryo cities within the decades following their foundation."

However, there are a few examples of planning new towns and village communities which are mentioned later in this chapter,¹ although the main occupation of modern city planners is that of mending existing cities, by replanning their developed areas and planning their extensions. While this process of city-mending calls for great skill it has the effect of narrowing the horizon of city planners and making city planning less of an art. It is true that on occasion a master city plan includes a major project of partial city building which presents an opportunity for creative design on a large scale. Recent examples of such opportunities have been the proposals for railroad improvements and a Union Station contained in the Cincinnati Plan, and a number of architectural projects for development of the waterfront of Manhattan, that were included in the Regional Plan of New York and Its Environs.

It has been calculated that at least a thousand published and unpublished plans have been made during the last twenty-five years. The greater proportion of these, however, have been partial plans, the largest number dealing with zoning. Many have remained pigeonholed since they were prepared. A small number have been based on comprehensive studies, and perhaps not more than one-fifth are being followed in some degree for guiding the development of cities.

TYPICAL MASTER PLANS

Master plans that have been made in recent years deal, more or less fully, with those matters set forth in the outline of modern aims and methods in Chapter XI. Most of them contain proposals relating to means of communication by railroad, waterway, airway, and highway; to zoning and platting control;

¹ See p. 230.

to prevention and rehabilitation of blighted areas; to public recreation and public buildings; and to civic art in relation to buildings and streets. In general, master plans take into consideration the same economic and social objectives and the same physical features and problems. However, the plans that have been prepared vary considerably both in comprehensiveness and in the degree of emphasis given to separate features and objectives. There is also variation in character of presentation. Some are distinguished more for their artistic or scientific quality than for their practicability, so far as the latter has been shown by completed projects, and the contrary is true of others. In many respects city planning has been improved in recent years both in outlook and technique; and has developed in accordance with sounder conceptions of both economic realities and social ideals. In one respect, however, the technique of planning has suffered as a result of the widening of its scope; this is in an excessive subordination of planning, in both principle and much detail, to mere regulatory procedure and consideration of legal points. One of the chief dangers ahead in modern city planning is that the technique of planning will become completely subservient to legal and administrative control.

To make a city plan should be to make a constructive design for the development or re-development of a city or town. Of course every plan should be based on proper consideration of what is practical, and conform to regulations that are essential to carry it out; but merely to make a map for the purpose of graphically illustrating the requirements of a set of standardized rules is not to make a city plan.

A few cities in the United States during the last twenty-five years are specially noteworthy for the application of constructive design combined with a satisfactory degree of its realization. Among these, as is most appropriate, Washington, D. C., occupies the first place. The history of city planning in its most striking manifestations is a history of the planning of capitals—and it is a noble sentiment that inspires rulers or people to embellish their capital cities. Washington has been well described as a capital of capitals for it is the government center of many states with their own capital cities, and in proportion as it embodies stateliness and

order in its building it inculcates the pursuit of these qualities throughout the nation.

Recent planning efforts in Washington may be regarded as supplementary to the early plan of L'Enfant and as confirming the wisdom of the improvement plan of 1901 referred to in an earlier chapter.¹ Under the chairmanship of Frederic A. Delano and the technical guidance of Charles W. Eliot, 2d, the National Capital Park and Planning Commission, which was created by act of Congress in 1926, has laid down a well-conceived plan for the upward and outward extension of the city. In addition, the Commission gives advice in planning matters to the District of Columbia. It also maintains harmonious relations with the adjoining Maryland and Virginia counties which since the World War have become suburbs of the national capital.²

In matters relating to artistic embellishment, the watchful care of the National Commission of Fine Arts in Washington, D. C., appointed by President Theodore Roosevelt in 1910, represented by Charles Moore, and the voluntary advice given by many distinguished architects and landscape architects have contributed to the distinction and beauty of the city as it has grown in size, notwithstanding occasional defects of new developments in the environs.

Among other cities, including those that are state capitals, perhaps none has been more active or more successful in their city planning during recent years than Chicago and St. Louis.

As a result of continuous effort since 1909 Chicago has carried out great enterprises in conformity with the plan designed by Daniel H. Burnham in 1907, especially in the development of its waterfront,³ and has prepared supplementary zoning and regional plans.

St. Louis has been noteworthy for achievements in comprehensive city planning. In 1908 Charles M. Robinson described the early planning efforts made by the Civic League of St. Louis after 1905⁴ and referred to the report of the League published in 1907 as the most comprehensive that had appeared before that time.

¹ See p. 198.

² See also p. 222.

³ See illustration facing p. 204.

⁴ Robinson, Charles M., "The City Plan Report of St. Louis." In *Charities and the Commons*, February 1, 1908, p. 1542.

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Proposals included the groupings of public buildings in a civic center and in neighborhood centers, and the development of an inner and outer park system, a railroad group plan, and major street improvements including a boulevard along the River des Peres. These have remained chief objectives in the program of the City Plan Commission of that city for over twenty years, during which the Commission, with the expert aid of Harland Bartholomew, city plan engineer, has carried out continuous planning.

In spite of difficulties in application, scientific methods of zoning and platting control have been adopted in St. Louis simultaneously with the execution of the ground plan of communications and parks. The revised River des Peres Plan, published in 1916, shows elaborate proposals for improving the river channel, and for constructing connecting railroads and developing special industrial districts.¹

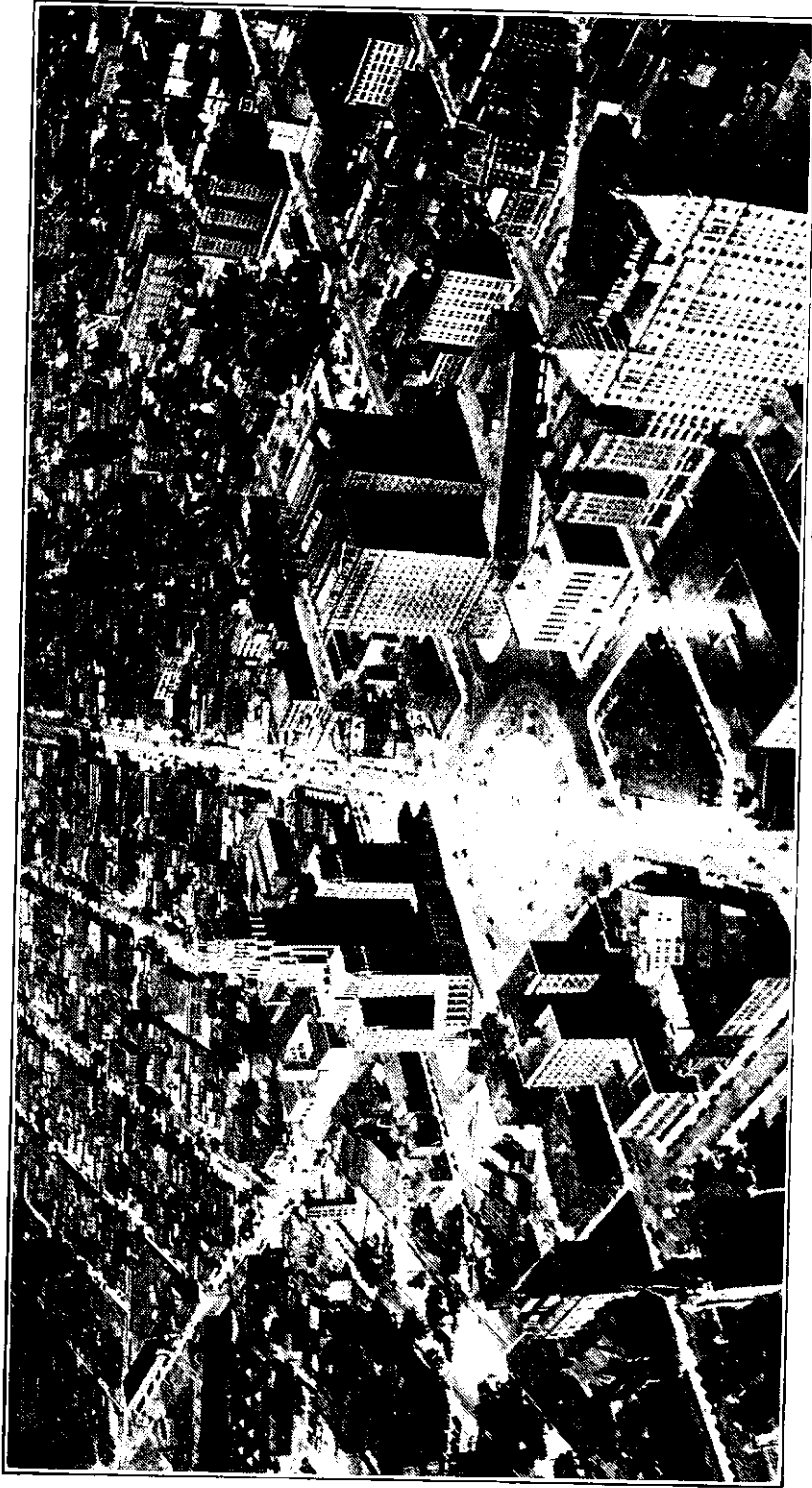
Other cities that have been specially active in actual execution of city plans having different degrees of comprehensiveness include Cincinnati, Memphis, Dallas, Detroit, Los Angeles, Atlanta, Dayton, Kansas City, Milwaukee, Minneapolis, St. Paul, Buffalo, Providence, Rochester, Denver, and Cleveland.

The Cincinnati Plan, prepared by George B. Ford and Ernest P. Goodrich in 1925, was unique in the extent to which it was officially adopted. Cincinnati follows the best practice in subdivision control by requiring the installation of utilities, or the guaranty of their installation, prior to the final approval of plats in new subdivisions.

Memphis is another city which may be cited as an example of the continuity given to planning policies and of exceptional control over new subdivisions. It exercises a high degree of control over planning in its environs up to a radius of five miles.

Two examples of city plans are shown here. One is for Des Moines, the capital of Iowa, situated on the Des Moines River, and the other for Dubuque, an industrial city in the same state on the Mississippi, respectively prepared by Harland Bartholomew and John Nolen. These plans afford examples of modern city

¹ Ten Years' Progress on the City Plan of St. Louis, 1916-1926; also River des Peres Plan, 1916; City Plan Commission, St. Louis, Mo. (For illustration of the St. Louis Riverfront project see *Our Cities To-Day and To-Morrow*, p. 37.)



Courtesy of Buffalo City Planning Association, Inc.

CIVIC CENTER, BUFFALO, NEW YORK

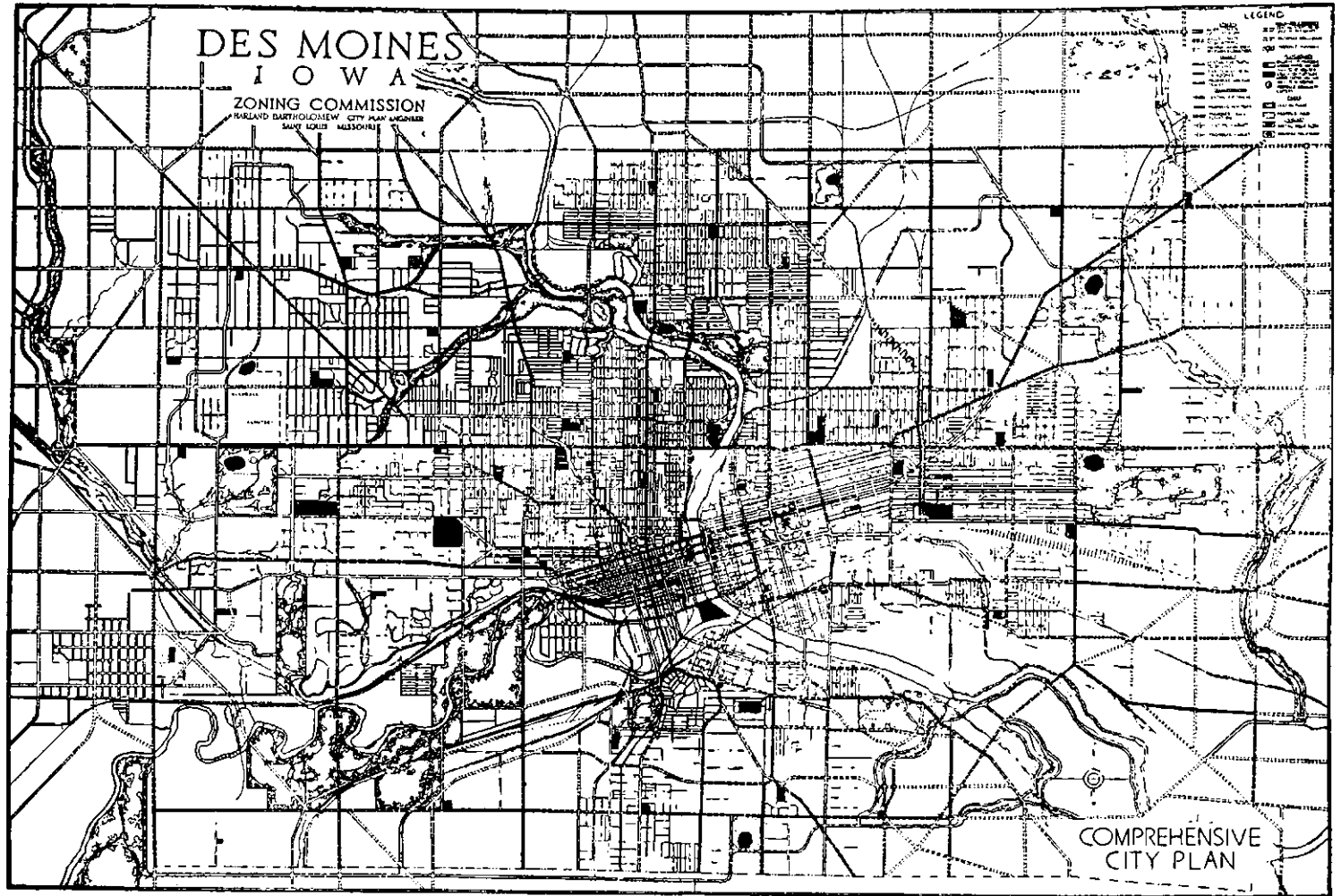
planning in two stages; the first stage being that of the original planning of the street system carried out in the nineteenth century, and the second that of superimposing modifications and extensions of the original street plan in combination with other improvements in a new master plan. It is not practicable to reproduce these plans on a scale large enough to show details of proposals; but this is unimportant as the purpose is merely to indicate the general outline that is followed in preparing modern plans for the improvement of existing cities.

Des Moines has been particularly active in giving effect to the proposals in its master plan and in developing a fine civic center originally planned by Charles M. Robinson. The city has acquired all the land on both sides of the Des Moines River for a distance of over six miles. The center is situated on the riverfront on what was once a blighted area. The buildings grouped about the center include a City Hall, a Municipal Court House, a Coliseum, and a Federal Court Building, to which an Art Museum is to be added. In its earlier condition of much disorder the river separated the two parts of the city; but the improvements carried out have made it a unifying feature. A notable feature of the city is the State Capitol which occupies a high site in a park of 80 acres.

Dubuque has a specially interesting street arrangement due to the influence of its much varied topography in breaking down rigid conformity with the rectangular system. It differs from Des Moines in that it is developed entirely on one side of the river on which it is situated. Its chief industrial section occupies flat land on the lowlands adjoining the Mississippi River, and its residential areas largely occupy steep slopes and bluffs set back from the river. These command fine views over surrounding country.

Des Moines has grown much more rapidly than Dubuque, their respective populations in 1860 being 3,965 and 13,000, while in 1930 they had increased to 142,559 and 41,679.

The difference in respect to rapidity of growth as well as in topography of these two cities in one state illustrates the fact that each city is a problem in itself and that a plan, whether for a new city or for remodeling an existing one should not be an imitative pattern but a design especially prepared to meet the peculiar needs of every location and set of conditions.



Harland Bartholomew, City Plan Engineer
COMPREHENSIVE CITY PLAN FOR DES MOINES, IOWA

Proposals to improve the street system of a city which has an existing rectangular system of streets frequently take the form of superimposing diagonal streets on the rectangular pattern when it is too late to secure satisfactory results of this arrangement at reasonable cost. Indianapolis has the advantage of having planned in its early layout four of its main avenues to radiate from the center to the outskirts of the city.

Philadelphia has been active in city and regional planning without having attempted to prepare a master plan. As will be shown later, its Fairmount Parkway plan in process of realization is an outstanding civic enterprise.¹ In presenting a revised layout for this parkway, Jacques Gréber, the French architect, made a general plan suggesting new radial avenues and approaches to the civic center. It is a finely presented conception of a tentative city plan.²

In regard to the adoption of a general plan for its remodeling and zoning, Philadelphia has been a city of lost opportunities. Although the street system of its central part conforms to lines laid down in the original plan of William Penn, the building development is very different from that which was intended by Penn. He envisaged a city between the Delaware and Schuylkill Rivers with separate houses in spacious gardens instead of solid rows of buildings with shallow lots, and he proposed wide promenades along the river frontages.

To some extent the fate of Penn's plan must be the fate of any plan which is formal and standardized in its original street system and where zoning and platting control are not combined with street and park planning. In the absence of control of sizes of blocks and lots and of building densities a street framework may become an excuse for worse crowding and more inconvenience of arrangement of buildings than if no street plan were prepared.

As a rule the degree and extent to which plans have been carried out in certain cities, as compared with those in other cities, have not been due to any peculiar merits of the plan, but to the greater efficiency of local organization. A high degree of execution can be obtained only as the result of organized effort applied to the promotion of plans. To be successful this effort must be accompanied

¹ See p. 238 and plan on p. 239.

² See illustration facing p. 238.

OUTLINE OF TOWN AND CITY PLANNING

by educational work in awakening public consciousness to the value of the proposals.

One feature in certain modern city plans that has received some prominence is the preparation of financial budgets or programs. An early suggestion of this kind of financial planning was contained in an order introduced by Matthew Hale in the Boston City Council in 1911, suggesting that a plan for the comprehensive development of the city up to 1920 should be prepared by the Finance Commission.

The foregoing references to master city plans should not be concluded without drawing attention to the fact that all that follows in this chapter regarding regional planning and national and state planning has an intimate relation to city planning, which is a subordinate type of planning in its geographical aspect. Also the master plan may embrace or overlap with local development plans dealing with subdivisions and civic centers and with partial plans dealing with zoning or thoroughfares. The extent of effort in a particular city or urban region can be ascertained only when all planning activities for different categories of area and types of plan are considered together.

DEVELOPMENT OF REGIONAL PLANNING

The planning of a city or town connotes restriction to an area within the boundaries of a municipal unit. In some instances that unit is large enough and is sufficiently detached from other urban areas to permit of effective plans being made. But there are many metropolitan, mining, and agricultural regions in which groups of adjacent municipal units form one large community or a closely related family of communities, where the master plan needed is a regional rather than a city or town plan.

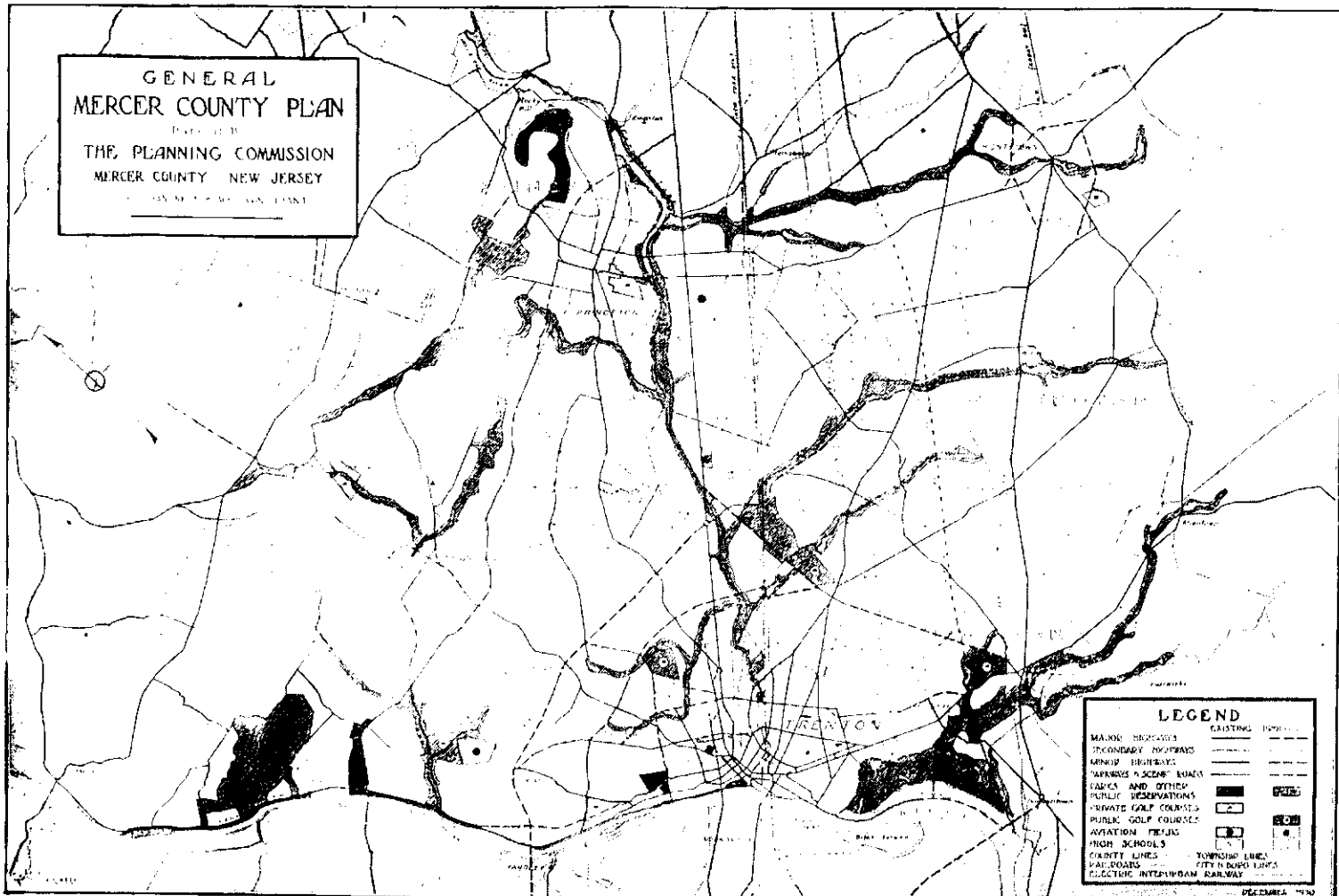
Such regions will be found to have common problems and common economic and social purposes that should be considered in their totality.

While a regional plan may extend into different counties and states, and may disregard arbitrary municipal boundaries, it should be prepared as a framework and guide for city and town planning, not as a substitute for it. In other words, regional planning

**GENERAL
MERCER COUNTY PLAN**

PLANNED BY
**THE PLANNING COMMISSION
MERCER COUNTY, NEW JERSEY**

BY N. VAN NEST BLACK



LEGEND	
	EXISTING 1930
MAJOR HIGHWAYS	—————
SECONDARY HIGHWAYS	-----
MINOR HIGHWAYS	-----
PARKS AND OTHER PUBLIC RESERVATIONS	■
PRIVATE GOLF COURSES	□
PUBLIC GOLF COURSES	□
AVIATION FIELD	□
HIGH SCHOOLS	●
COUNTY LINES	-----
RAILROADS	-----
ELECTRIC INTERURBAN RAILWAY	-----
	TOWNSHIP LINES
	CITY BOUNDARY LINES
	ELECTRIC INTERURBAN RAILWAY

DECEMBER 1930

Russell Van Nest Black, Consultant

AN OUTLINE OF A COUNTY PLAN FOR MERCER COUNTY, NEW JERSEY

needs to be followed by more detailed planning of each municipal unit.¹

As has been stated, the early efforts made in planning park, sanitary, and highway improvements in the metropolitan region of Boston contained the germ of regional planning without the name; while, to some extent, the value of regional organization has been recognized in Massachusetts from 1913 onward.

As town planning adviser to the Commission of Conservation of Canada the writer in 1917² completed a survey of rural development in its regional aspects in Canada, and in the following year directed the making of one of the first regional surveys in America. This dealt with an international region of about 700,000 acres, or something over 1,000 square miles, lying on both sides of the Niagara River, with its focus on the power supply of Niagara Falls.³

The planning of regions, having areas that extend into different counties or states, will always be hampered by lack of established governmental jurisdiction over the entire region. It was probably because of this that early plans of regional extent were made co-extensive with county areas. The first county planning agency was the Allegheny County Planning Commission, established in Pennsylvania in 1918 as an unofficial body, but given official status in 1923. This Commission functions as part of the County Department of Public Works and has as its principal duty the preparation of topographic surveys and major highway plans for the vicinity of Pittsburgh. The Regional Planning Commission of Los Angeles County established in 1922 is not so limited in jurisdiction, since large unbuild areas in the city environs have been brought within the city and county limits.

Official regional planning has also been carried out in Milwaukee County, Wisconsin; Santa Barbara County and Monterey Peninsula, California; Glynn County, Georgia; Lucas County, Ohio (including the city of Toledo), and Hamilton County, Ohio.

¹ See also references to scope of regional plans in Chapter XI.

² Rural Planning and Development. Commission of Conservation of Canada, 1917.

³ "Regional and Town Planning." In the Transactions of the National Conference on City Planning, 1919, p. 83.

OUTLINE OF TOWN AND CITY PLANNING

The Niagara Frontier Planning Board, an advisory body, was established in 1925, by special act of the New York State Legislature, to prepare a plan and recommendations for solution of the special problems in the Buffalo Region. A Maryland-National Capital Park and Planning Commission, as already stated, coordinates plans over several jurisdictions, while at the same time maintaining the planning standards for the national capital established by President Washington.

One recent example of a county plan is that for Mercer County, New Jersey, prepared by Russell Van Nest Black.¹ In California 25 counties out of 58 in the state established county planning commissions between 1927 and 1932.

Examples of unofficial agencies that have organized the preparation of regional plans are the New York Regional Plan Committee, the Regional Planning Federation of the Philadelphia Tri-state District, and the Chicago Regional Planning Association.

The Committee on the Regional Plan of New York and Its Environs was organized in 1922 on the initiative of Charles D. Norton, who had been an active member of the Chicago Plan, and under the auspices of the Russell Sage Foundation, which provided the funds. It became the most extensive and elaborate survey and plan that has been made for any region. Mr. Norton was chairman of the committee of distinguished citizens formed to make the survey and plan until his death in 1923, when he was succeeded by Frederic A. Delano, who had collaborated with him on committees of the Chicago Plan.

The technical work was carried out by a staff of experienced city planners, economists and sociologists, under the general direction of the writer, over a period of seven years. The region comprised 5,528 acres, and in 1925 had a resident population of 9,900,000. It embraced 22 counties, either in whole or in part, in the states of New York, New Jersey, and Connecticut, including the five counties that formed New York City. Altogether it comprised about 500 separate municipal areas. It would have been impracticable to organize a governmental agency to provide the financial means and administrative machinery for the task of making a survey

¹ See illustration facing p. 220.

and plan for a region of such political diversity. The fact that the Regional Plan was prepared under private auspices made it possible to consider the best interests of the many communities affected from a more unbiased point of view than if it had been an official body. A comprehensive plan for an area such as this, with its multiplicity of problems and interests, had necessarily to be based upon a factual survey of unusual thoroughness. The principal findings were grouped under their respective heads in reports presented in eight survey volumes dealing with: Major Economic Factors in Metropolitan Growth and Arrangement; Population, Land Values and Government; Highway Traffic; Transit and Transportation; Public Recreation; Buildings—Their Uses and the Spaces About Them; Neighborhood and Community Planning; Physical Conditions and Public Services.

The plan was described and illustrated in two additional volumes, the first presenting the graphic plan, with descriptions of all mapped proposals in regard to ways of communication and land uses; and the second dealing with the building of the city, principles of planning, desirable standards, a description of architectural and engineering opportunities, and proposals for treatment of specific areas and problems in New York City, including civic and art centers, neighborhood units, and model plans.

The finished plan of the New York Region has been presented to the city of New York and the states of New York, New Jersey, and Connecticut. The work of promoting the plan is being carried out by a permanent Regional Plan Association, which will make detailed studies as they are needed and modifications as may, from time to time, seem desirable. The Association stimulates the interest of communities of the region in county, city, and village planning, issues reports of actual achievement, and constitutes a body for consultation and advice.

In 1933, four years after the completion of the plan, the Association was able to publish a report¹ showing that many of its proposals for highways, bridges, and parks had been carried out or approved for early execution. Out of 494 municipalities in the region, 109 then had official planning boards, and 257 unofficial planning

¹ From *Plan to Reality: Four Years of Progress of the Regional Development of New York and Its Environs*. Regional Plan Association, New York, 1933.

councils. There were 273 zoning ordinances in effect and 31 in preparation. Eight of the 17 suburban counties had official planning boards and two others had federations of officials concerned with planning.

The Regional Planning Federation of the Philadelphia Tri-State District has been financed by public subscription. This method has insured a widespread popular interest and support which, in the case of New York, was achieved by maintaining intimate contact with the political subdivisions of the region and unofficial groups of citizens. The Philadelphia Tri-State District is composed of parts of Pennsylvania, New Jersey, and Delaware, with a radius roughly of 35 miles around Philadelphia. Beginning in 1924, several years of preliminary survey work were undertaken and publications issued from time to time to enlist public interest. The report on the survey and plan was published in 1932 and contains a digest of policies, procedure and findings; a summary of proposals for development of the region, for improvement of transportation, transit and traffic facilities, of parks and parkways and of water supply and sanitation; and a discussion of architectural and aesthetic elements in planning. The plan and report was the work of technicians, government officials, and interested citizens under the leadership of Samuel P. Wetherill, Jr., chairman of the Executive Committee.

The Chicago Regional Planning Association was formed in 1923 and incorporated two years later. As one of its first achievements it entered into an agreement with the United States Bureau of Public Roads, Illinois Division of Highways, Cook County Department of Highways, and the Chicago Plan Commission that the highway plan drawn up would not be departed from by any of the four parties without submission to the other three. It has also maintained close contact with unofficial organizations and has built up a marked degree of public co-operation.

In addition to the plans that have been made for great metropolitan regions in the United States, several more or less tentative studies have been made for mining and agricultural sections. The plan for Birmingham, Alabama, in 1919, and other plans prepared by Warren H. Manning have dealt with large sections of mining and rural territory.

Among the special values to be obtained from regional planning as demonstrated in the experimental work already undertaken are: first, its fostering of joint action between states, counties, and municipalities in dealing with their common problems; second, its bringing together, in the same picture, rural, suburban, and urban related problems; and third, its educational effects in promoting comprehensive city, town, and village planning. In many areas in the United States the need for regional planning is urgent and nothing is being done. Some of these areas are in the states of Massachusetts and Pennsylvania, states exceptionally well advanced in providing legal machinery for planning.

STATE AND NATIONAL PLANNING

The constitution of the United States makes the state rather than the federal government the responsible agency for the promotion and regulation of city planning by means of enabling legislation and administrative guidance.

STATE ACTIVITIES

The subject of legislation which hitherto has been the chief city planning activity of states is referred to later.¹ In a few states, however, efforts have been made in the past to give state guidance and practical assistance in city planning operations. Reference has already been made to the mandatory laws of Massachusetts,² passed in 1913, which involved state supervision and which led to the formation of a Federation of Planning Boards in 1916. Still earlier, in 1911, the Homestead Commission of Massachusetts was created and has influenced state action in city planning.

In a paper on State, City, and Town Planning, by the writer, presented at the National Conference on City Planning held in Cleveland in 1916, it was suggested that an outline plan should be made of the whole state of Ohio as a framework within which Cleveland and other cities, and rural communities, should fit their local plans.

In 1919 both Massachusetts and Pennsylvania led in a movement to create added state responsibility in the field of city planning.

¹ See p. 247.

² See p. 210.

OUTLINE OF TOWN AND CITY PLANNING

Massachusetts established a department of Public Welfare, with a division of Housing and Town Planning, and this new body took over the work of the Homestead Commission. Pennsylvania enlarged the functions of its Bureau of Municipalities so as to enable it to provide general guidance and practical aid in the planning of urban communities.

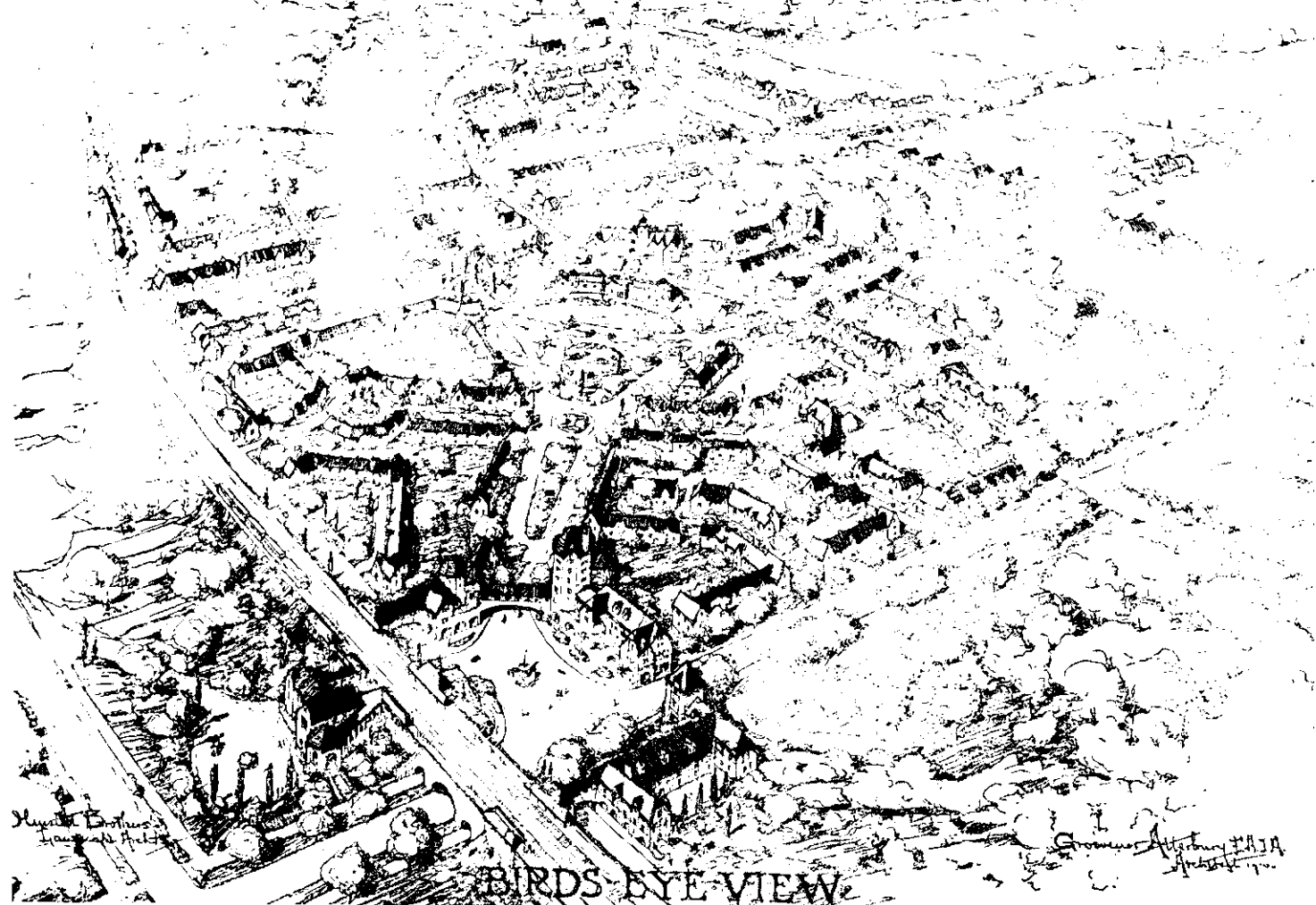
While no state has prepared a comprehensive state plan, several have made some efforts in the direction of state planning. The New York Commission on Housing and Regional Planning, established by former Governor Smith, published a pamphlet in 1925 describing tentative proposals by Clarence S. Stein and Henry Wright for a state plan dealing particularly with classification of areas for urban industry and agriculture. Other states have established organizations to promote state planning, examples of which are the State Planning Commission of Illinois and the State Regional Planning Committee of Wisconsin. Most states have prepared partial plans of state highways and several of state park systems. Some states have made investigations of land utilization, which have given evidence of the need of the planning of land and means of communication together in order to secure economic development of urban and rural areas.

Only the smallest states, Rhode Island for example, can be effectively planned as units. Most states should be divided into regions, and state action in planning should be confined largely to supervising the co-ordination of the regional plans within the state. State surveys should determine the appropriate boundaries of regions for planning and should provide the basic data regarding natural resources, the distribution of urban and rural populations and their requirements for health and general welfare, nature of land utilization, character and location of industries, and systems of communication by water, rail, and road.

NATIONAL LEADERSHIP

While the aid of the state is needed in connection with the organization of surveys and of regional planning in state territory, so the aid of the federal government is needed in securing common and co-ordinated action between states principally by means of investigation of problems and education in appropriate methods. The

FOREST HILLS GARDENS
DESIGNED FOR THE SAGE FOUNDATION HOMES CO.



BIRDS EYE VIEW

Frederick Law Olmsted, Jr., and Grosvenor Atterbury, Architects

A PERSPECTIVE VIEW OF FOREST HILLS GARDENS, LONG ISLAND, NEW YORK

federal government also can set an example of practical initiative in city planning, as for instance it has done in the District of Columbia, to which several references have already been made; as well as in the planning of war villages in 1918, and in the inauguration of the plan for the Tennessee River Valley in 1933, to both of which reference is made subsequently in this chapter. Its most noteworthy work in the field of education has been in promoting national conferences to investigate city planning and housing problems and in issuing model forms of legislation for the guidance of states.¹

The appointment of the Country Life Commission by President Theodore Roosevelt in 1909 was in effect a recognition of the need of national planning in relation to country life. The Commission reported in favor of a national survey of rural territory which, had it been undertaken, would have been the first step in discovering the needs and opportunities for co-ordinated planning of metropolitan, agricultural, and mining regions throughout the United States.

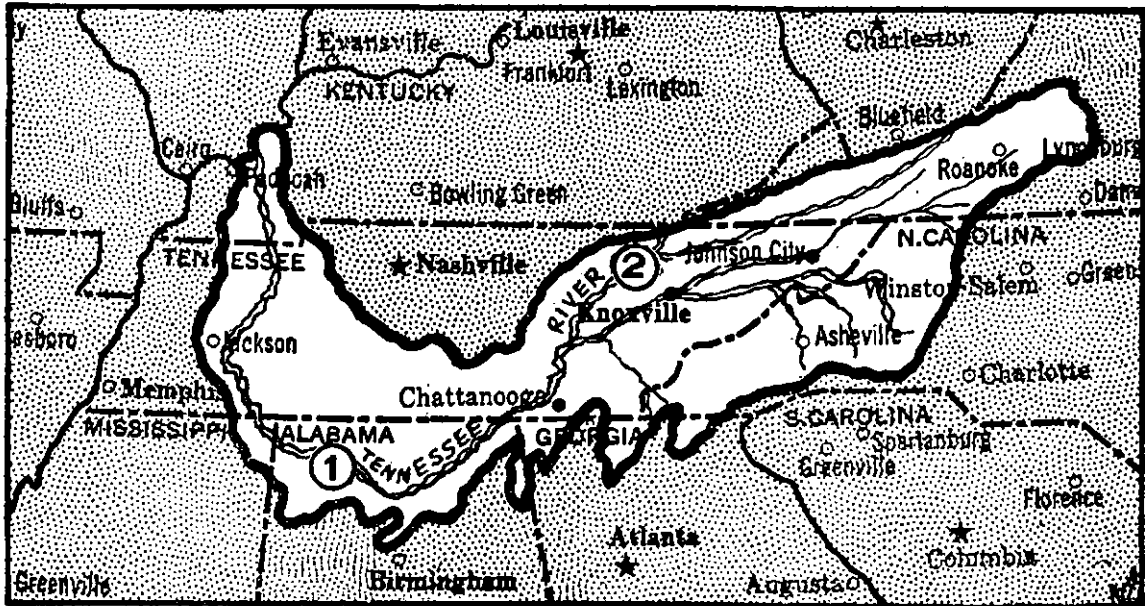
Occasionally, since 1909, suggestions for developing a country planning policy have been made by students of country life. Until 1933 these suggestions aroused comparatively little interest and led to no practical results. However, following the election of President Franklin D. Roosevelt, country planning, as part of national planning, became a major issue in public policy. It is too early to say, at the time when this is written, where this policy will lead in giving new direction to the physical arrangement and organization of rural communities, but the comprehensive and ambitious work now being undertaken in the Tennessee River Valley should be described. The territory comprises a great rural region of 40,000 square miles having within its boundaries the hydro-electric power development at Muscle Shoals and numerous small cities and villages. It has been chosen as a testing ground for country and industrial planning on an enormous scale. As the territory takes in parts of seven states—Tennessee, Virginia, North Carolina, Georgia, Alabama, Mississippi, and Kentucky—the propriety of federal leadership and action is apparent.

¹ See p. 247.

OUTLINE OF TOWN AND CITY PLANNING

In a special message to Congress President Roosevelt said that the Muscle Shoals development was but a small part of the potential public usefulness of the entire Tennessee River Valley. The problems to be considered entered the wide field of flood control, soil erosion, afforestation, elimination from agricultural use of submarginal lands, and distribution and diversification of industry.¹

At the President's instigation a Tennessee Valley Authority was created by Congress in 1933, charged with the broad duty of plan-



Courtesy of the American City

THE TENNESSEE VALLEY REGION

(1) Muscle Shoals; (2) Cove Creek—Site of Norris Dam

ning for the conservation and development of the natural resources of the Tennessee River drainage basin and its adjoining territory for the general social and economic welfare of the nation, and clothed with powers to carry these plans into effect.

The Tennessee Valley Authority with the aid of town planning and other experts has embarked on the preparation of elaborate plans for the region. Consideration has been given to the plotting of town sites and planning new towns, highway and utility loca-

¹ President's Special Message to Congress on the Tennessee River Valley Project, April 10, 1933.

tions, land classification, and development of a healthful and economically sound pattern of country life.

In July, 1933, Hon. Harold L. Ickes, Secretary of the Interior, in his capacity of Administrator of Public Works, appointed a National Planning Board to encourage the development of state and federal territory, with Frederic A. Delano as chairman, and Professor Charles E. Merriam of the University of Chicago and Dr. Wesley C. Mitchell of Columbia University as its other members. After its creation the Board met in several large cities throughout the country, and one of its chief objectives was to get every state in the Union interested in the problem of planning. The governor of each state was requested to appoint an official planning board, and in some states this was done.

By May, 1934, some 40 states had taken action and a large proportion had appointed planning consultants whose services were paid for by the federal government. On June 30, 1934, the National Planning Board and the Committee on Land Problems were abolished by executive order of the President and in their place was established the National Resources Board. Messrs. Delano, Merriam, and Mitchell constitute an Advisory Committee to the new Board. Charles W. Eliot, 2d, is Executive Director of the Board. Its work includes the preparation of a plan for the development and use of land, water and other natural resources, and the continuation of the work of the National Planning Board in connection with state planning activities.

In important respects, proposals for national planning relate to the financial rather than to the physical structure of communities. These two aspects should be kept distinct, however much they may overlap. The aspect which concerns the regional planner relates to physical conditions and the possibilities of their improvement as a basis for creating more stable financial conditions. He should limit himself to this physical aspect, which requires the application of the same principles and methods of technique that are employed in city planning. The wider the geographical scope the more necessary it is to confine attention to special aspects and to broad essentials in relation to them.

OUTLINE OF TOWN AND CITY PLANNING

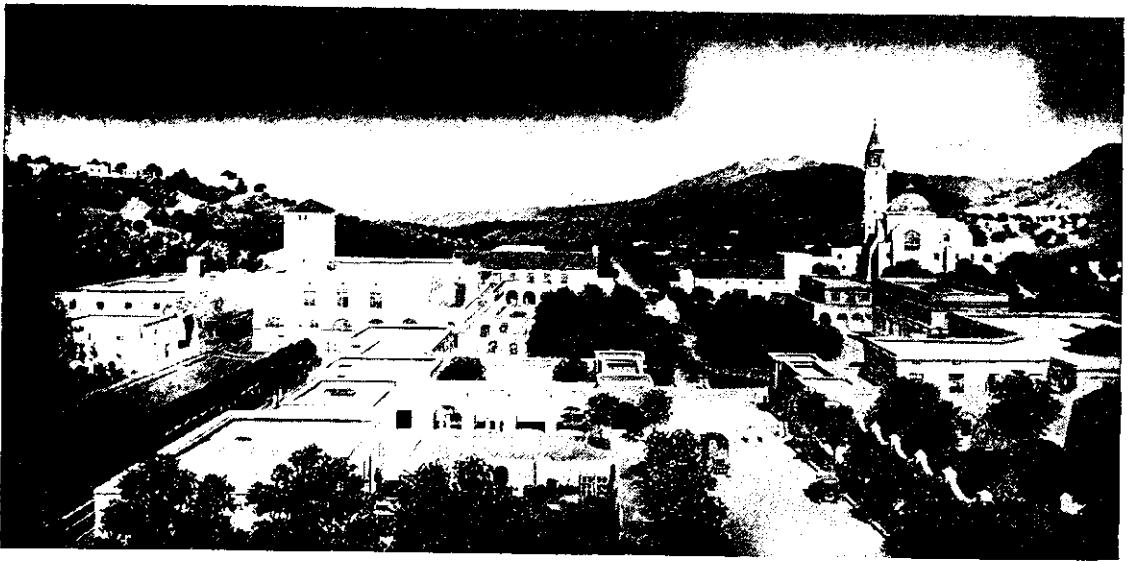
PLANNING OF NEW TOWNS, VILLAGES, AND NEIGHBORHOODS

A considerable number of small urban communities have been planned *de novo* in the United States during the last hundred years. Some of the earlier of these, laid out by social reformers and industrialists, have already been referred to. In recent decades the communities planned have been mainly those promoted to provide housing accommodation for workers in a special industrial plant or group of plants, or to provide residential amenities in organized neighborhoods within or near existing cities.

From an architectural point of view the plan made in 1915 to 1916 for Tyrone, New Mexico, by Bertram G. Goodhue is one of the most noteworthy examples, although it is behind others in the degree to which it has been carried out. The plan was prepared for the Phelps Dodge Corporation to provide housing and a community center for workers at the nearby oil wells. The development was not carried out exactly on the lines proposed by Mr. Goodhue, but its main proposals were not materially changed.

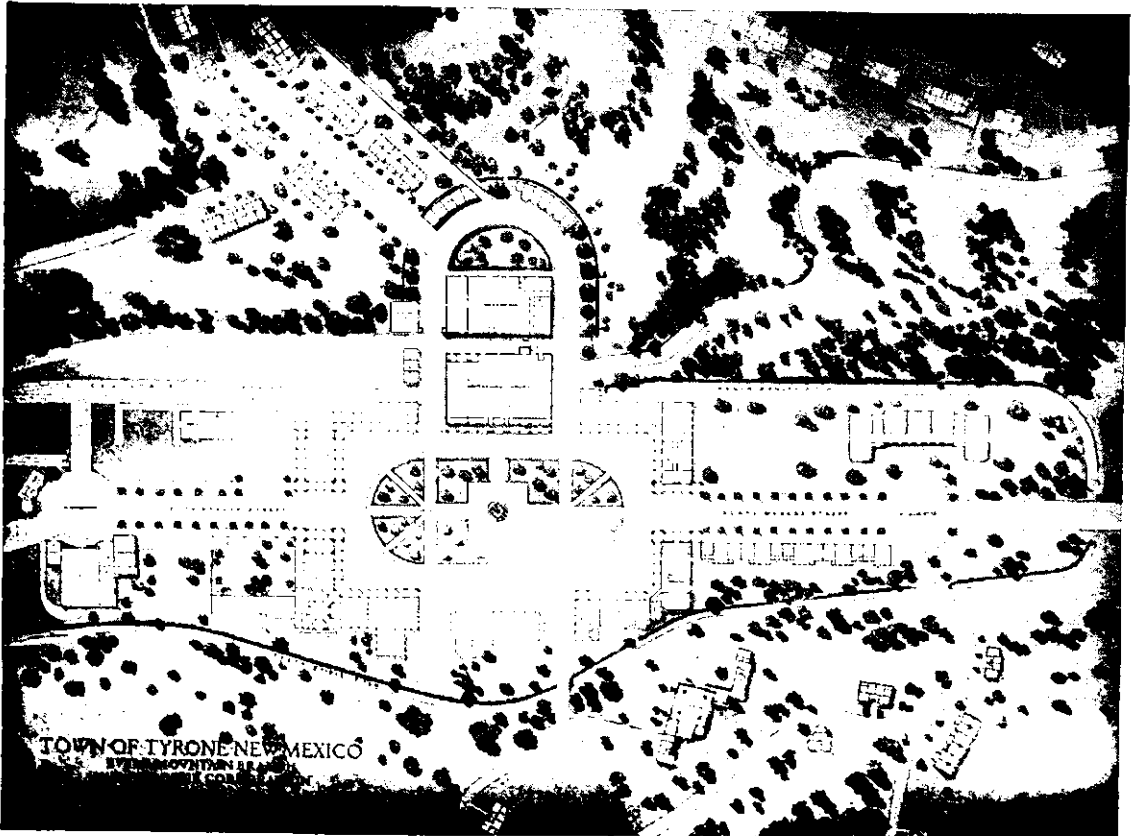
The plan and perspective afford interesting illustrations of an architectural conception for the development of a small town. Unfortunately the oil wells had to be closed down, but before this happened about 60 per cent of the buildings had been erected. The plan gave proper consideration to topographical conditions, and the location of the railroad terminus at the head of a narrow valley. The railroad station was made one of the first and most essential in the group of buildings. The station plaza, surrounded by an arcade with landscape treatment of the planted spaces, was 140 feet wide by 250 feet long. The community buildings proposed included a postoffice, churches, hospital, court house, office building, motion picture theater, clubhouse, and hotel, most of which were erected.

A more successful effort in creating a model community has been carried out at Kingsport, Tennessee. This town was planned by John Nolen on a site which in 1910 was occupied by a few farm houses and in 1930 had a residential population of about 19,000 in the city and environs. Its origin was due primarily to the construc-



Bertram G. Goodhue, Architect

PERSPECTIVE VIEW OF CENTRAL PLAZA AND SURROUNDING BUILDINGS
IN TYRONE, NEW MEXICO



Bertram G. Goodhue, Architect

PLAN FOR VILLAGE MINING COMMUNITY, TYRONE, NEW MEXICO



A VIEW IN KOHLER VILLAGE, KOHLER, WISCONSIN

tion of a new railroad, which passed through an undeveloped region in Sullivan County, Tennessee, that was rich in natural resources. These resources included large quantities of timber, coal and other minerals, and ample supplies of water and power required for industrial development. Included among its industries is the Tennessee Eastman Corporation which in 1920 erected a large plant on 372 acres. The town is remarkable for its variety of interlocking industrial plants, each ministering to the needs of others. The planning of the town was initiated by the Kingsport Improvement Corporation which subsequently has been responsible for controlling the development of the site, for securing high standards of housing accommodation, and for stimulating the interest of the working population in community affairs.

A few industrial towns have been planned in connection with the establishment of steel mills by the United States Steel Corporation and its subsidiaries, of which the town of Gary, Indiana, and developments at Fairfield, Alabama, and Duluth, Minnesota, are examples.

In 1918 a group of village and suburban developments, largely to accommodate workers on war projects, were carried out by the United States Housing Corporation and the United States Shipping Board. The character of the work done by the Housing Corporation is described and illustrated in a report published in 1919.¹ Over 80 projects were planned between July and November, 1918, by collaborating groups of architects, landscape architects, and engineers. Among the plans prepared were those made for sites at Alton Hill, Illinois; Bridgeport, Connecticut; Ridley Park, Pennsylvania; Neville Island, Pittsburgh, Pennsylvania; and New Brunswick, New Jersey.

One of the most complete towns planned for the Shipping Board was at Yorkship, New Jersey. Other examples of city planning in relation to industrial housing are Longview, Washington; Good-year Heights, Akron, Ohio; and Kohler, Wisconsin.

Among the many residential estates or subdivisions that have been intelligently planned in advance of development a few are

¹ Report of the United States Housing Corporation, December 3, 1918. Government Printing Office, Washington, 1919.

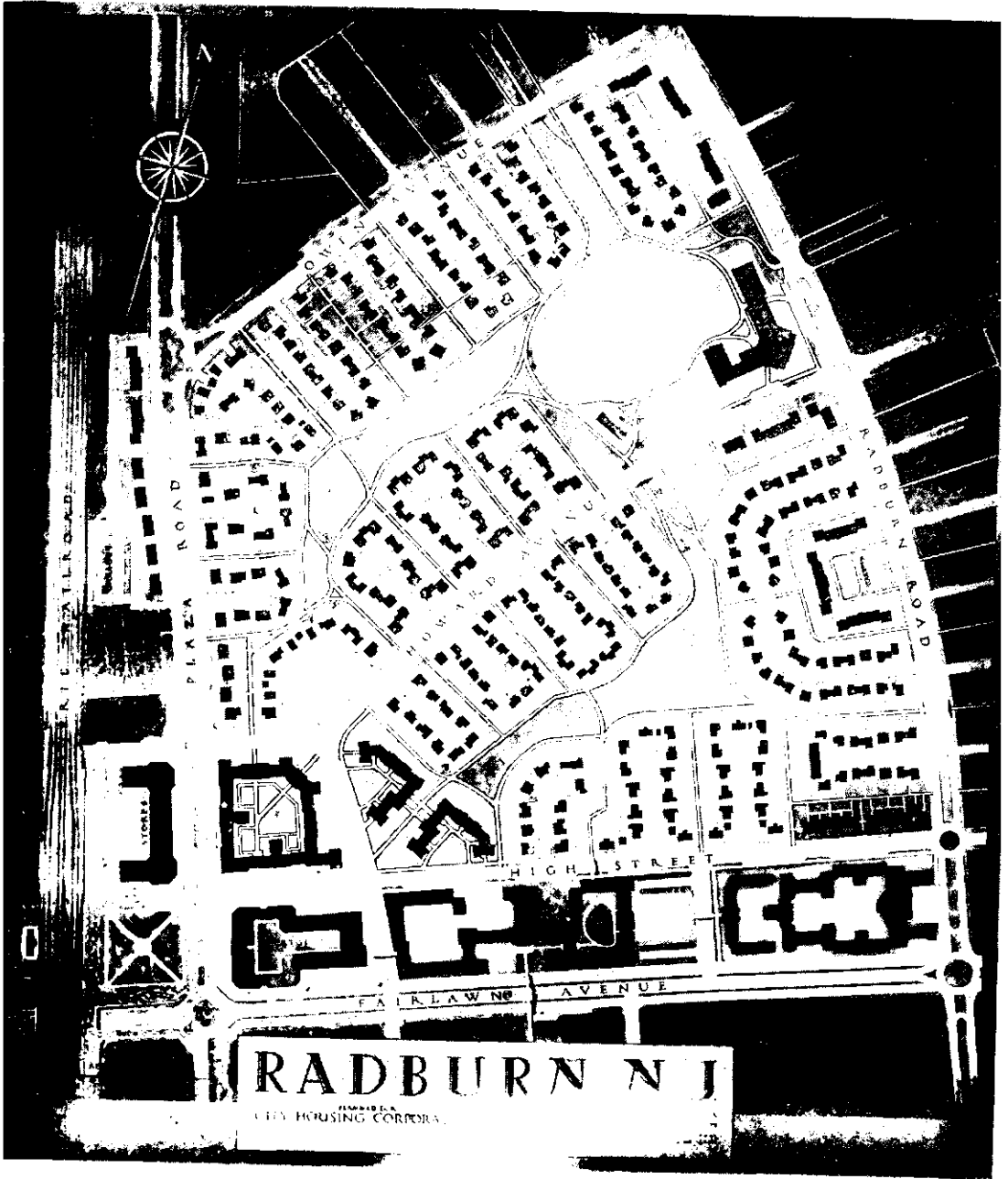
specially deserving of mention. Forest Hills Gardens, Long Island, planned by Frederick Law Olmsted, Jr., in collaboration with Grosvenor Atterbury as architect, is a leading example of sound planning and successful achievement.¹ Others include Roland Park, Baltimore; Shaker Heights, Cleveland; Country Club District, Kansas City, Missouri; Palos Verdes near Los Angeles, California; Mariemont near Cincinnati, Ohio; Coral Gables, Florida; Sunnyside, Long Island; and Chatham Village, Pittsburgh. Many of these developments may be described as high-class subdivisions laid out for comparatively wealthy people, and cannot be taken as object lessons to be followed in planning and building neighborhoods of low-cost houses.

Radburn, New Jersey, affords a more recent and unique example of comprehensive planning of a new town for residents of moderate means. The plan was prepared by Clarence S. Stein and Henry Wright, in consultation with Robert D. Kohn, Frederick L. Ackerman, and the writer.

The intention of the owners, the City Housing Corporation, was to create a comparatively self-contained, but partly commuting town, based in general on the lines followed by English Garden Cities but especially suited to American conditions. The almost universal use of the motor car was a reason for providing a garage with each dwelling; and the problem of doing so, and of securing safe access to parks, schools, and so forth, for all pedestrians, gave rise to designing most of the service roads as dead-end streets.

The estate, over 1,000 acres in extent, is laid out chiefly for residential purposes, but includes a section to be devoted to industry and has the usual provision for local business. The civic center is conveniently apart from, but closely related to, the main business center. Principal streets and parkways provide sufficient capacity, directness of route, and ease of grade for through traffic. The block area is unusually large, ranging from 30 to 50 acres. A series of open spaces is provided in the centers of these blocks, and narrow links form a connected system throughout the town. The schools are placed in these park spaces and, except for service drives to the schools, access to both is generally confined to pedestrian ways. A great proportion of the local streets are in the form

¹ See illustration facing p. 226.



Larence S. Stein and Henry Wright, Architects
PLAN OF FIRST DEVELOPED PORTION OF RADBURN, NEW JERSEY



BIRD'S-EYE VIEW OF DEVELOPMENT OF "SUPER BLOCKS," RADBURN, NEW JERSEY
Showing position of the railroad in the foreground

of culs-de-sac, with a pavement 18 feet in width and no sidewalks. These afford access to what is really the rear part of dwellings and to garages for motor vehicles. The fronts of dwellings face on open gardens, at the end of which are footpaths connecting the roads and parks. The footpaths are lighted and controlled as semi-public ways. The plan has proved to be very practical, but in view of the unique character of the arrangement of streets, paths, and parks, it may be regarded as experimental from the point of view of planning and likely to be varied in any future development of a similar kind as a result of experience.

PLANNING OF GOVERNMENT, CIVIC, AND TRANSPORTATION CENTERS

Most city planning in execution falls short of the conception. This is especially true of elaborate projects for government, civic, and transportation centers. Such projects can be carried out only over long periods of time. Failure to realize the greater number of them is understandable. It is due to one of three causes: first, change of governing bodies with consequent change of ideas; second, over-elaboration in conception involving extravagance in cost of execution; third, necessity for change or reduction in scale owing to changes in conditions.

Appropriately the capital of the United States presents the greatest example of realization of a great government center as well as of broad-scale city planning. Indeed, Washington is in its entirety a government and civic center. Such districts as comprise the great Mall from the Capitol to the Potomac River, or the White House with its surrounding public buildings set in spacious parks, are important parts, but only parts, of the whole. These districts are the distinguishing features of Washington among capital cities; and its architectural possibilities, if not its present extent of realization, are greater than in any capital city.

References have already been made to its original plan by L'Enfant and the subsequent McMillan Improvement Plan of 1901. The latter was very largely concentrated on the major feature of the Mall. As Charles Moore, chairman of the National Commission of Fine Arts, has pointed out, the environs of the Capitol and the Mall suffered from glaring perversions and intrusions carried

out before the Plan of 1901. At the time Senator McMillan's Plan was prepared it was called a dream of impractical artists. But, in recent decades, under the influence of successive presidents, Congress has gradually approved its execution and given the appropriations necessary to carry it out.

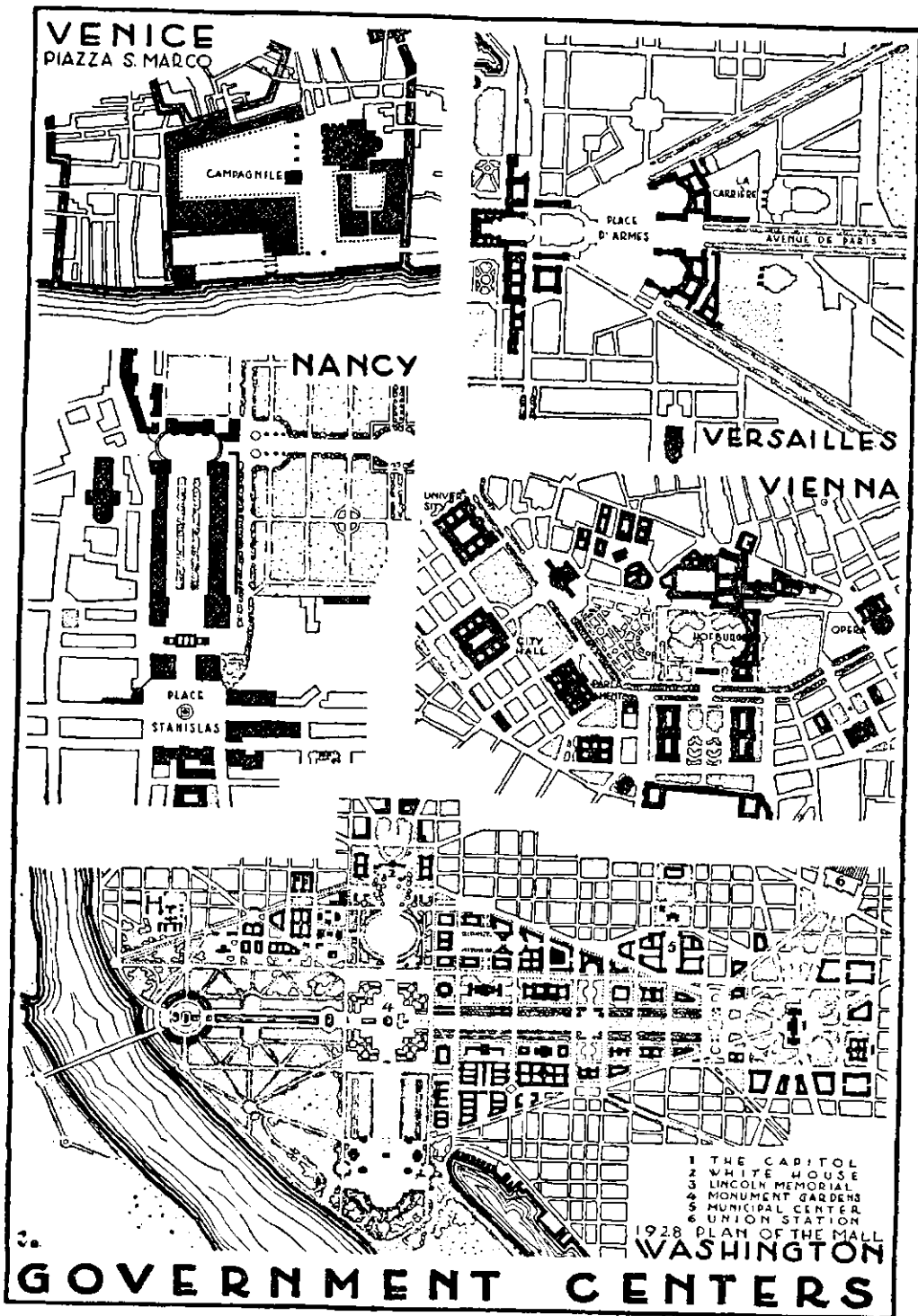
In general the architectural embellishment of the city is being greatly increased. The Public Buildings Act of 1926 was an expression of policy on the part of the national government in favor of giving more dignity and beauty to the city as a center of government. Great new groups of public buildings have been erected on the south side of Pennsylvania Avenue from the Treasury to the Capitol, a magnificent new bridge now spans the Potomac, and the site between the Capitol and the Union Station has been cleared and planned to provide a dignified entrance to the city.¹

The plan of the Mall in Washington dated 1928, showing the sites of the Capitol, White House, Lincoln Memorial, Monument Gardens, Municipal Center, and Union Station, is illustrated on page 235, in comparison with larger scale plans of government and civic groups of buildings in Venice, Nancy, Versailles, and Vienna. These are five famous examples of different types of orderly and distinguished arrangement of public buildings and places, the Versailles and Washington plans conforming most closely to each other in the design of the axial avenues according to principles followed during the Renaissance period.

A group of famous European plazas related to groups of public buildings are reproduced here in order to demonstrate, first, how these plazas compare with the detailed arrangement of the central features in the Washington plan, and, second, the varied possibilities in the design of central spaces in capital cities. These plazas include the square Piazza Cavour opening into a wedge-shaped park in Florence; the Piazza del Popolo, having three axial approaches converging on the Obelisk, in Rome; the Place de l'Étoile in the shape of a large circle surrounding the Arc de Triomphe on which converge 12 avenues, including the magnificent Champs-Élysées; and the spacious Place de la Concorde in Paris; the great Königs Platz between the Reichstag and the Kröll

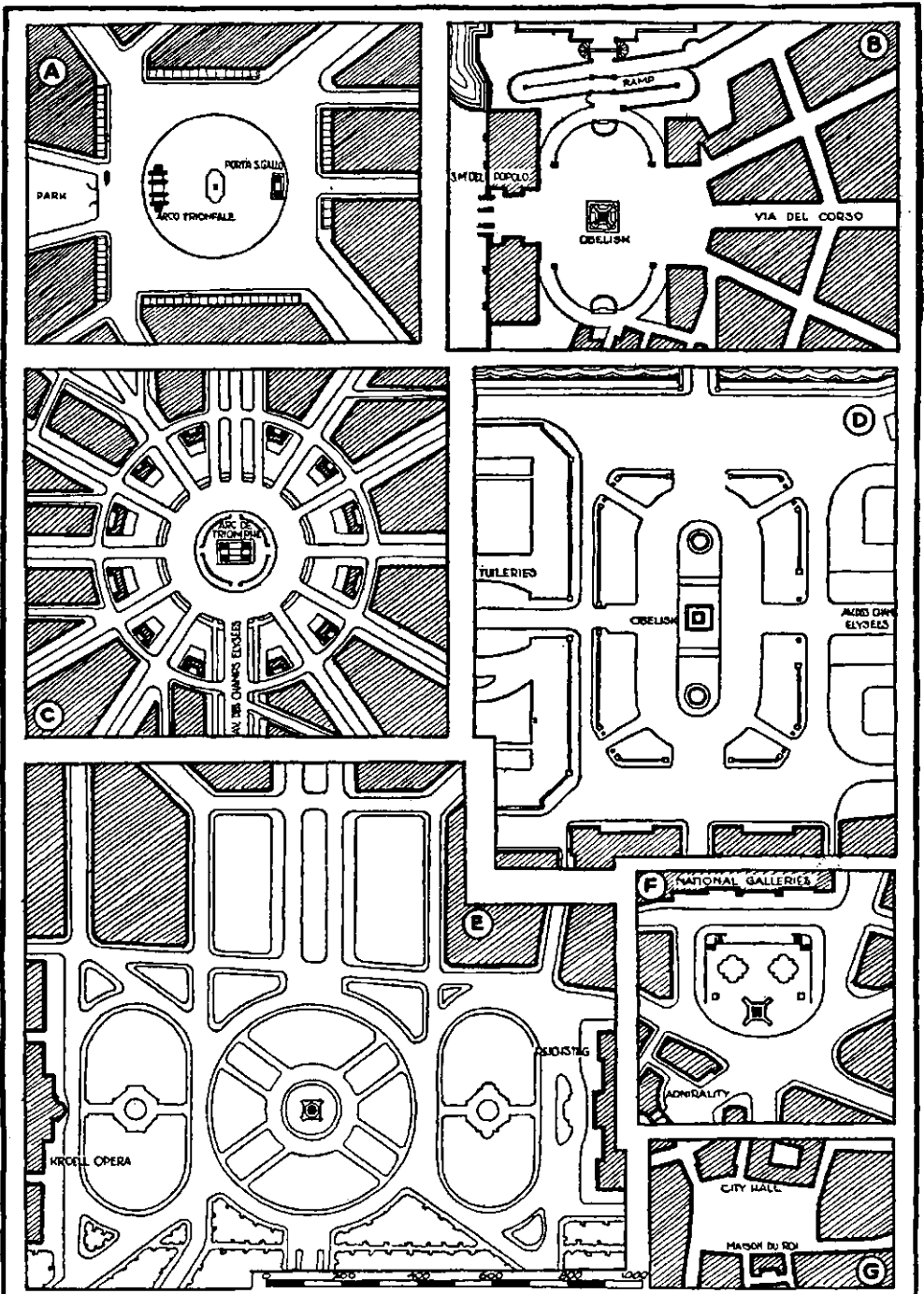
¹ See frontispiece. A symposium in the National Geographic Magazine of June, 1923, contains a remarkable series of illustrations of Washington.

RECENT DEVELOPMENTS IN UNITED STATES



COMPARISON OF FIVE NOTABLE GOVERNMENT CENTERS

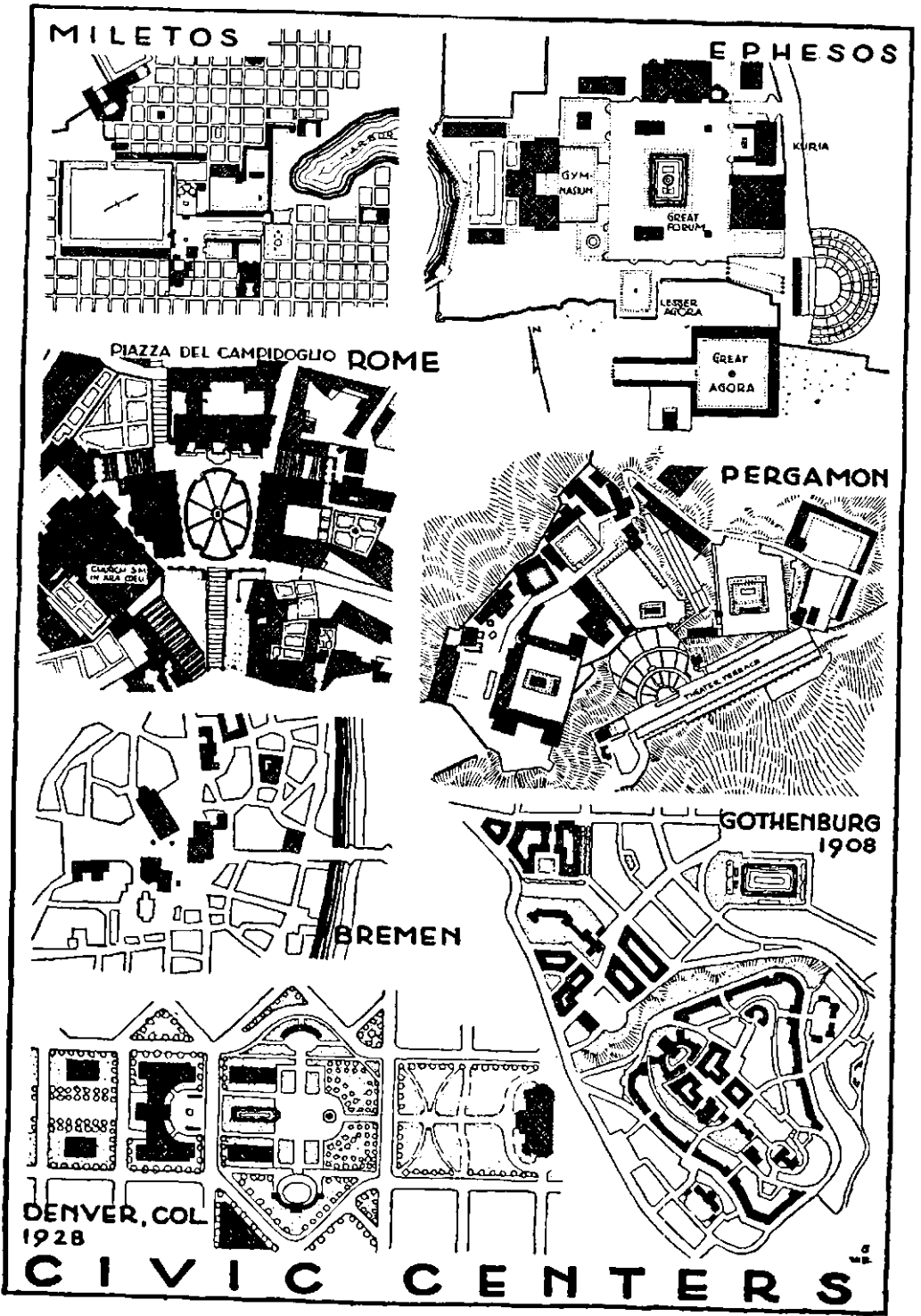
OUTLINE OF TOWN AND CITY PLANNING



FAMOUS EUROPEAN PLAZAS.
 A. PIAZZA CAVOUR, FLORENZ. B. PIAZZA DEL POPOLO, ROME.
 C. PLACE DE L'ÉTOILE, PARIS. D. PLACE DE LA CONCORDE, PARIS. E. KOENIGS PLATZ, BERLIN.
 F. TRAFALGAR SQUARE, LONDON. G. GRAND PLACE, BRUSSELS.

FAMOUS EUROPEAN PLAZAS

RECENT DEVELOPMENTS IN UNITED STATES



COMPARISON OF ANCIENT, MEDIAEVAL, AND MODERN CIVIC CENTERS

Opera House in Berlin; the irregular Trafalgar Square in London; and the small closed-in Grand Place fronting the City Hall in Brussels.

In several state capitals of the United States, plans have been prepared for the grouping of public buildings connected with state government. Harrisburg, Pennsylvania, is carrying out the group plan, prepared by Arnold W. Brunner, overlooking the riverfront park designed by Warren H. Manning. A sketch of a group of civic centers in the United States on page 239 shows the general arrangement of the public buildings in Harrisburg in comparison with the design of the proposed state capitol group in Olympia, Washington; also the civic center groups in Cleveland, Ohio; St. Louis, Missouri; Los Angeles, California; Kenosha, Wisconsin; and Philadelphia, Pennsylvania.

The Cleveland Civic Center plan has already been referred to.¹ Although the changes made in the organization of the railroad terminals have given rise to modifications in the plan, the formal arrangement of public buildings facing a wide parkway and terminating in a proposed lakefront park on Lake Erie is being adhered to. Cleveland has found that in a city of its size more than one center is necessary. In addition to the establishment of its new terminal in the main business district, it has created a new cultural and educational center five miles out in the suburbs in a setting of great natural beauty.

The civic centers in St. Louis and Los Angeles have been partly developed with fine public buildings and include important improvements in its system of thoroughfares.

It will be noted that all civic center plans illustrated on page 239 are rectangular in form, except the wedge-shaped diagonal parkway that is being constructed in Philadelphia. The Fairmount Parkway in this city is perhaps the leading example of a great municipal undertaking in developing a combined civic and art center with a major street improvement. A proposal to connect the heart of Philadelphia with its suburban parks was made by an anonymous writer in 1871, and other proposals were put forward in 1884. Definite action, however, was not taken until after 1900. It was in 1907 that a plan of the Parkway was prepared by Paul P. Cret,

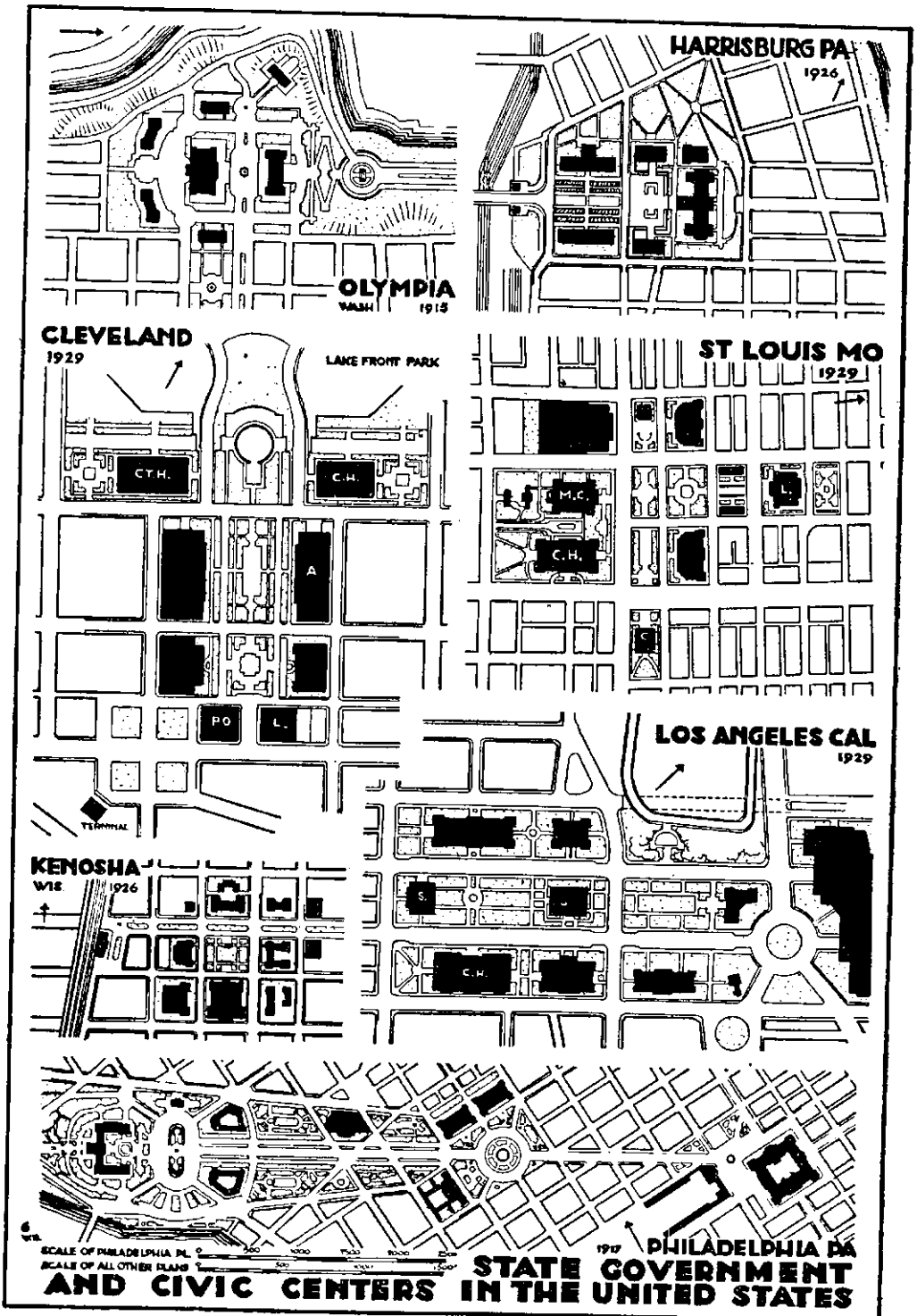
¹ See p. 100.



Jacques Gréber, Architect

PLAN FOR THE IMPROVEMENT OF PHILADELPHIA, SHOWING FAIRMOUNT PARKWAY AND
SUGGESTED RADIAL AVENUES

RECENT DEVELOPMENTS IN UNITED STATES



STATE GOVERNMENT AND CIVIC CENTERS IN THE UNITED STATES

Horace Trumbauer, and C. C. Zantzinger. This plan was adopted by the city in 1909 and purchase and condemnation proceedings followed. In 1911 the abandoned site of the Fairmount Reservoir at the outer end of the Parkway was set aside for an Art Museum. The revised plan for the whole project prepared by Jacques Gréber and already alluded to, was submitted in 1918.

Other developments include the distinguished civic group at Springfield, Massachusetts, designed by the firm of Helmle and Corbett; the Memorial Plaza at Baltimore, Maryland; civic groups at Denver, Colorado; Duluth, Minnesota; Toledo and Columbus, Ohio; Milwaukee, Wisconsin; Oklahoma City, Oklahoma; Rochester, New York; and San Diego, California.

The interesting civic center at Denver as it was being developed in 1928 is shown in comparison with a number of ancient and mediaeval centers, and with the modern center in Gothenburg, Sweden.

Smaller cities that have planned centers include Knoxville, Tennessee; Kenosha, Wisconsin; Ponca City, Oklahoma; Montgomery, Alabama; Cedar Rapids, Iowa; Verona, New Jersey; Weston and Newton, Massachusetts. A view of the Newton Civic Center is shown facing page 242. Groups of cultural and educational buildings are being developed at Chicago, Detroit, and Indianapolis.

There is variation in the degree of attention given to the organized grouping and arrangement of university buildings, but in recent years, extensions of Harvard, Yale, Chicago, and other important universities have been well planned in parts, and the fine new group of the Massachusetts Institute of Technology in Cambridge forms part of a comprehensive scheme.¹

TERMINAL CENTERS AND STATIONS

In recent years several great railroad stations have been erected in the United States. The buildings have been well designed in their elevations and interior arrangement, but as a rule lack spacious surroundings. Notable designs of station buildings include the Washington Union Station, and the Pennsylvania and New York Central terminals in New York City to which reference has

¹ See illustration facing p. 250.

already been made; and also the Buffalo and Chicago Union terminals.

Several stations have been designed with good approaches in small cities, one example being at Yonkers, New York, where in 1928 several blocks of old buildings were cleared away and a large plaza was constructed in front of the main station, containing two one-way roadways separated by a wide park strip. Besides providing a pleasing gateway to the city, a wide station approach distributes traffic and furnishes parking space for automobiles close to the heart of the business district.

RECONSTRUCTION PLANS

Innumerable plans have been made for the reconstruction of buildings and the widening of streets in deteriorated areas of American cities. In most instances the object of these plans has been to improve means of traffic and to replace all run-down structures by modern buildings.

Park Avenue in New York, an avenue 140 feet wide built over the tracks of the New York Central Railroad, is an example of a reconstruction project that constitutes a major civic improvement. Other reconstruction schemes in New York City where street widening was the main objective have been the widening of Sixth and Seventh Avenues, and Houston, Allen, Chrystie, and Forsyth Streets. In Boston the widening of Pleasant Street from a cobbled roadway to an important thoroughfare, and the notable riverfront improvement in Chicago¹ carried out in combination with the widening of Michigan Avenue are other instances.

Well-planned reconstruction schemes usually result in immediate benefits to the circulation of traffic and to gradual remodeling of the abutting buildings. In some instances reconstruction is delayed and building lots are given an awkward shape because new streets are cut diagonally across rectangular patterns.

A major or secondary object in a reconstruction plan may be the demolition of slums and the erection of modern buildings in their place. There are numerous examples of such projects that have been wholly or partly carried out in New York, Boston, Cleveland, and other large cities. Considerable impetus has been given to the

¹ See illustration facing p. 205.

slum clearance movement in recent years as a result of the public demand for improvement of housing conditions. It is increasingly recognized that slums constitute a social menace and are a financial liability in any city. However, there are great financial difficulties in the reconstruction of such districts, as heavy compensation has to be paid for land and old buildings that cannot be recovered from the new developments, especially when the latter have to be carried out with a smaller density of buildings than that which they may replace. The law needs to be improved so that less compensation has to be paid to owners of such structures as are uninhabitable.

PARTIAL CITY PLANNING

The three major types of what may be called "Partial Plans" are those concerned with (1) zoning, (2) thoroughfares, and (3) parks. They are partial in the sense of being limited to one or two particular aspects, although they are often related to a tentative study and plan of whole communities. More plans of a partial than of a comprehensive type have been prepared for existing cities in the United States.

ZONING PLANS

Zoning is the name used to describe the regulation of the use of buildings, structures and land, and the height and space about buildings, by means of dividing communities into various districts or zones.¹

An extended use of the police power, which is that delegated by states to municipal governments to regulate within certain limits the actions of individuals and the use and character of property without payment or compensation, has developed in connection with zoning control. It is distinguished from the power of eminent domain, under which property can be compulsorily acquired for public purposes upon payment of compensation.

Beginning with the Federal Statute of 1899,² which limited the heights of buildings by districts in the city of Washington, D. C.,

¹ See more extended reference to zoning on p. 300.

² 30 U. S. Stat. 922, c. 322 (March 1, 1899). Cited in *The Law of City Planning and Zoning* by Frank B. Williams, The Macmillan Company, New York, 1922, p. 265.



Photo by Curtiss-Wright Air Terminals, Inc.

VIEW OF CIVIC CENTER, NEWTON, MASSACHUSETTS



SHOPPING CENTER SHOWING GOOD ARCHITECTURE AND PRESERVATION OF TREES,
BRONXVILLE, NEW YORK

various measures were enacted throughout the country possessing certain features of zoning regulations, as they are now known, although not referred to by that name.

About 1904-1905, Baltimore and Indianapolis restricted heights of buildings in certain areas, Boston created height districts throughout the entire city, and some cities excluded industry and business from certain districts. Between 1909 and 1915 Los Angeles enacted a series of ordinances covering the whole area of the city.

Comprehensive zoning was first introduced in 1916 with the adoption of the New York City zoning resolution. This action followed on investigations made by the New York City Heights of Buildings Commission in 1913.¹ This Commission was appointed on the motion of George McAneny, then president of the Borough of Manhattan. Edward M. Bassett was chairman, and George B. Ford, secretary and director of investigations. In a sense it was a great planning commission, dividing itself into committees dealing with office buildings, hotels and theaters, application of zone and district method, residential buildings, industrial buildings, and Fifth Avenue conditions. Evidence was given before the Commission by the chief authorities on city planning in the country and the published report of its findings was excellent. In 1915, before the passage of the zoning resolution, a Committee on City Plan of the Board of Estimate and Apportionment was appointed with Robert H. Whitten as secretary.

After nearly twenty years of operation of the zoning regulations their tangible effects are to be seen in Manhattan. But they have not been stringent enough to control effectively heights and densities, although they have secured some desirable limitations and have had indirect benefits in improving architecture.

In his description of eighteenth century Edinburgh, Robert Chambers once described it as "close and massy, deep and high."² Nothing that zoning has done to New York has prevented it from continuing to deserve that appellation. Chambers might have been describing New York as well as his native city when he said

¹ Report of the Heights of Buildings Commission, New York, December 13, 1913.

² Traditions of Edinburgh. William and Robert Chambers, London and Edinburgh, 1846.

of the latter that if a stranger entered it: "Everywhere he would have seen symptoms of denseness of population; the open street a universal market; a pell-mell of people everywhere." Zoning control is not sufficient without control of uses of streets, and vice versa. Sanitary improvement, however, has made high and crowded buildings more bearable than those of earlier times.

The New York ordinance was soon followed by the adoption of comprehensive zoning regulations throughout the country. By 1921, 76 communities in different parts of the country were zoned, and this number had increased to 564 at the end of another five years. By the end of 1931 the number of zoned communities was about 800. Of these about 450 are municipalities of less than 10,000 population, and about a hundred are communities of less than 1,000. Less than 20 per cent of the larger cities in the country (those over 100,000 population) have no form of zoning ordinance.

THOROUGHFARE PLANS

Since 1909, what are called "major thoroughfare plans" have been prepared for a number of cities. Major street plans were made for Worcester, Massachusetts, in 1911 and for Omaha, Nebraska, and Portland, Oregon, in 1919.

One of the most elaborate street studies and plans in recent decades was the Los Angeles Street and Traffic Plan, prepared by Frederick Law Olmsted, Jr., Harland Bartholomew, and C. H. Cheney in 1924. More recently, Robert H. Whitten has undertaken comprehensive studies and thoroughfare plans for the cities of Providence, Rhode Island, and Boston, Massachusetts; the Traffic Survey Report of the latter issued in 1930, being specially valuable for reference.

Detroit has taken a lead in planning so-called "super-highways" for express traffic. These have been laid out three miles apart, and 204 feet wide. The 84 feet in the center are reserved for rapid transit, leaving 60 feet on each side. Super-highways already built have two 40-foot one-way roadways. About every half-mile there is a cross-street, with the grades separated. In all, land has been dedicated for 200 miles of these super-highways, either 204 or 120 feet wide.

Highway aggrandizement may lead to the same results as other forms of aggrandizement. Highways can be too wide as well as too narrow, and to assure their being of proper width in relation to all other features of the city—including the utilization of the highway frontages for building, zoning of districts, and the secondary street system—they should be planned together with these features. It is not always cities with the widest streets that have the least traffic congestion; and mere widening of existing streets, without an adequate control over building densities, does not remedy the evils of congestion. It cannot be too often reiterated that street system and building development should be planned together.

Since 1920 much progress has been made in the United States in developing parkways as integral parts of both thoroughfare and park systems. A general traffic highway is a public right-of-way for all classes of traffic with a public right of access to and from land that abuts it on both sides; while a parkway is a road bounded by park strips of varying widths, with a special legal quality that denies right of access to it from abutting land. A third type usually provided is the boulevard, which is a highway that is furnished with trees, grass, or other landscape features, but to which right of access from abutting private property is not denied. Service roadways may be provided for the local traffic needs of property facing a parkway or boulevard. They normally flank the main roadways and are separated from them by park strips. In some instances, express highways are proposed for fast traffic and special trucking routes for the exclusive use of commercial vehicles.

PARK PLANS

The prominence that has been given to the development of parks in American cities, both in connection with and independently of city planning, shows that the American people have a keen appreciation of natural beauty and an understanding of the importance of providing adequate facilities for recreation.

With the growth of congestion in large cities, and the increased prevalence of automobile ownership, have come both the desire and the ability to get away from the city for outings in the adjacent country.

OUTLINE OF TOWN AND CITY PLANNING

The tendency toward regional planning has been greatly stimulated in metropolitan areas by public realization of the desirability of supplementing city parks by a system of country parks within easy traveling distance. This was found to be so in the early park plans of Boston and has become so in other cities, notably in New York.

Examples of park systems are too numerous to mention individually, but we will refer to one of the most significant and delightful of recent developments—that in Westchester County, New York, carried out under the technical leadership of Jay Downer. The county possesses a series of north and south valleys containing streams. Parks with intersecting parkways have been laid out along these valleys, and these are supplemented by east and west cross-country park strips, wild parks, and amusement resorts.

Over the greater part of their length the parkways included in the Westchester park system have no buildings along their road frontages, and few streets entering them. All main roads cross on bridges, so that there is little interfering cross traffic. Approach ramps and driveways are provided at convenient points.

In 1922 the Bronx Parkway Commission of Westchester, which was responsible for planning and developing the first parkway, was replaced by the Westchester County Park Commission. The entire Westchester park system, as planned, will eventually have 160 miles of parkways, and will embrace about 5.3 per cent of the area of the county.¹

One of the most interesting semi-parkways that have been constructed in this country is that along the Charles River, connecting Boston and Cambridge. When a waterfront is not used for railroad tracks or industry, too often it is allowed to remain in an unsightly condition, with refuse dumps, cheap wooden tenements, and automobile "graveyards" occupying the river banks.

The reclamation of the shorefront of the Charles River included the construction of a suitable retaining wall, boulevard and esplanade, planting of shade trees, and the placing of benches and

¹ The reports of the Regional Plan of New York, and the annual reports of the Westchester County Park Commission, give illustrated descriptions of the Westchester Park system in its various aspects.

pavilions at frequent intervals. Riverfront improvements have also been successfully undertaken in other cities, of which examples are to be seen in Hamilton, Ohio, and Chattanooga, Tennessee.

In planning park systems, consideration has to be given to the needs of inhabitants for quiet resorts in which natural beauty is preserved; for formal parks designed in relation to buildings; for playfields and for playgrounds. The function of the park in improving the appearance of a city is being more and more appreciated; and in communities that are primarily residential, it needs to be supplemented by the preservation of natural features on private property and of the general amenities.

The value of interweaving natural beauty with buildings and of caring for the amenities has been specially realized in Asheville, North Carolina; Colorado Springs, Colorado; Madison, Wisconsin; Newport, Rhode Island; San Diego and Santa Barbara, California. In them no conflict exists between the interest in preserving natural beauty and in the profits to be obtained from industries that directly or indirectly destroy it. In contrast there is the outstanding failure in city planning in the neighborhood of Niagara Falls, where great scenic grandeur has been destroyed on the erroneous assumption that this was necessary for commercial reasons.

LEGISLATION

In the field of legislation there has been much progress in the United States. City planning to be effective must be carried out in accordance with state enabling acts giving broad powers to municipalities to prepare plans and put them into effect.

A state enabling act for city planning was passed in 1909 by the state of Wisconsin and, in the same year, an enabling ordinance was adopted by Chicago. In the following year, Baltimore obtained a special legislative act and Detroit passed an ordinance, both of which created plan commissions with power to retain experts and make reports. None of these enactments, however, gave the commissions any real control over the development of the cities affected. New Jersey followed in 1911 with an act creating departments of planning in cities of the first class; and Pennsylvania passed a similar act, giving cities of the second class authority to

appoint commissions with more extensive powers than had hitherto been granted by any law. In 1913 the Pennsylvania act was made applicable to third-class cities, and a special act was passed authorizing a metropolitan planning commission for the district of Philadelphia. It was in this year, also, that the first legislation was adopted in New York State—an act authorizing planning commissions in cities and villages—and that Massachusetts passed the act making it mandatory upon all cities and towns over 10,000 population to have planning boards.¹

In 1914 Cleveland passed an ordinance requiring approval by the Planning Commission of all plans for public construction, and also providing that no such work, when completed, should be accepted by the city until again approved by the Commission.

Planning acts were passed by the New Jersey legislature in 1913, 1915, 1916, and 1920, and in Connecticut in 1918 and 1921. New York State passed acts for cities and villages in 1926, and for towns (unincorporated areas) in 1927. These New York acts are more comprehensive than any earlier legislation and give planning commissions more detailed duties and powers.

Earlier planning enabling acts had differed greatly both in form and content. Lack of court decisions upholding planning principles had influenced many states to adopt acts granting very inadequate powers to planning commissions, for fear of adverse rulings. With the present tendency of courts to support all reasonable legislation framed for the public benefit, enabling acts have been drawn which authorize municipalities to delegate to their commissions much broader powers.

Legislative action in the different states has been greatly stimulated, and the scope and form of laws improved, as a result of the leadership of the Division of Building and Housing of the United States Department of Commerce. Former President Hoover, when Secretary of Commerce, appointed a City Planning Committee of this division, and it proceeded to draw up a Standard City Planning Enabling Act. This model act has been already followed by states that had not previously passed planning legislation, and in some states it has been adopted almost verbatim. In nearly all states in the Union there are more or less effective enabling acts in ex-

¹ See also p. 210.

istence; and, in *Our Cities To-Day and To-Morrow*,¹ it is observed that there is no state where some movement to secure the benefit of planning and zoning does not exist.

The city planner has to acquire some knowledge, not only of the powers contained in city planning and zoning enabling acts, and of the extent and character of the control of land and buildings under the police power, but also of the use that can be made of methods of *eminent domain*. Where land is needed for public improvements it has to be condemned for purchase through the exercise of the power of eminent domain; and where it is desirable to purchase more land than is needed for the specific improvement in order to facilitate the carrying out of a plan, what is known as *excess condemnation* has to be resorted to. These questions are fully discussed in Frank B. Williams' book, *The Law of City Planning and Zoning*,² and current information on laws and ordinances is contained in annual bulletins issued by the Division of Building and Housing of the United States Department of Commerce.

EDUCATION AND LITERATURE

Progress in the art and science of city planning must largely depend on training men in the technique of planning. In recent decades much has been done in the United States to increase and improve such training.

In 1929 more than 80 colleges and universities were giving instruction in city planning, mainly to students of architecture, landscape architecture, and engineering. Reference will be made here to but two examples.

The earliest course of teaching in the subject was offered by the Department of Architecture of Harvard University in its School of Landscape Architecture. Here, under the guidance of Frederick Law Olmsted, Jr., Professor James Sturgis Pray, and Professor Henry V. Hubbard, principles and methods of civic design have been taught for over twenty years. In 1929 a School of City Planning was founded at Harvard, which gives a post-graduate course leading to a degree of Master in City Planning. Professor Hubbard is head of the School, which is associated with the School of

¹ See footnote on p. 208.

² See footnote on p. 300.

Landscape Architecture. Special lecture courses are offered to other students in addition to the instruction given to students entered for the city planning degree. Extensive research is also undertaken in different phases of city planning.

The Department of Architecture of Massachusetts Institute of Technology has maintained a course of lectures on city planning since 1921, this course being required of candidates for the degree of Bachelor in Architecture. The Department has now instituted a five-year undergraduate course in the subject, leading to a degree of Bachelor in Architecture in City Planning.

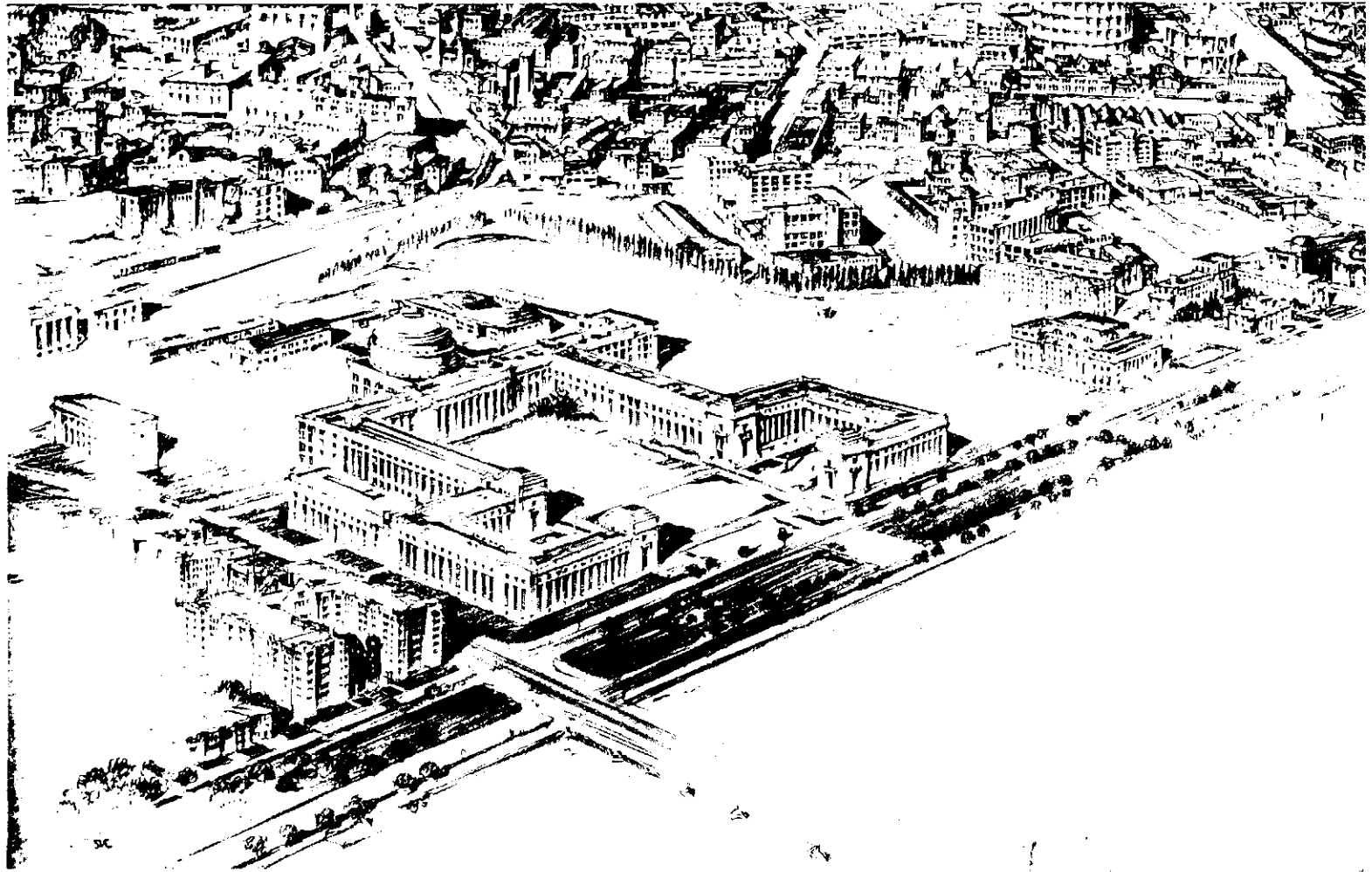
There is considerable variation in the extent and character of training given in the other colleges and universities, but the general tendency is to widen the scope of instruction.

The formation of the American City Planning Institute in 1917 represented the first step in professional organization in the United States and was an important step in promoting technical education among practicing city planners.

The work of commissions of fine arts, including the National Commission of Fine Arts in Washington, has been a powerful educational force, particularly in regard to the composition, location and erection of statues, fountains, and monuments in public squares and parks. New York, Philadelphia, and other large cities have art commissions as guides in matters of taste.

Valuable educational work has also been undertaken by the American Civic Association of Washington, D. C., and by civic leagues in many cities, as, for example, the Massachusetts Civic League of Boston. Surveys made by sociologists have contributed to the knowledge of cities necessary as a basis for city planning, two of the most important of the early surveys having been made in Pittsburgh, Pennsylvania, and Springfield, Illinois. The first was directed by Paul U. Kellogg and the second by Shelby M. Harrison. The promotion of city planning as a movement in public policy and the improvement of knowledge on the subject has been greatly aided by the leadership of many eminent men in the fields of politics and journalism.

There has been a large output of literature on the subject of city planning in the United States. The early work of Charles M. Robinson was noteworthy for its vision and practicality at a time



From a drawing by N. Chamberlain

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE

View of the fine new buildings of the Institute showing the orderly development of their frontage toward the Charles River in contrast with the haphazard development of the modern town of Cambridge at the rear of the buildings



STORM KING HIGHWAY

Although part of a radial thoroughfare, this highway where it intersects the Palisades Interstate Park, New York, is a magnificent parkway laid out on the slopes of the palisades overlooking the Hudson River

RECENT DEVELOPMENTS IN UNITED STATES

when he spoke as one crying in the wilderness. The engineering aspects of the subject were first comprehensively dealt with by Nelson P. Lewis.¹ Valuable government publications have been issued by the Advisory Committee on City Planning and Zoning of the Division of Building and Housing of the Department of Commerce; many comprehensive treatises dealing with special phases of the subject have been published, including a special series of the Harvard Press giving the result of research undertaken by the Harvard School of City Planning; and there are numerous regional and city planning reports that discuss practical problems in a great variety of aspects.

On the whole, it may be said that during the past thirty years substantial advances have been made in city planning and that permanent foundations have been laid, on which sound policies may be built and skilled methods may be developed by future generations.

¹ *The Planning of the Modern City*. John Wiley and Sons, Inc., New York, 1916. The publication of this book was followed in 1917 by a report on *City Planning Progress in the United States* prepared for the American Institute of Architects by George B. Ford. It described city planning or architectural projects in 233 cities.

CHAPTER X

TOWN PLANNING OUTSIDE THE UNITED STATES

INTRODUCTORY

OUTSIDE the United States, city planning is generally known as town planning. Its modern phases in Great Britain, and to some extent in other countries, have been dealt with by the writer in *Recent Advances in Town Planning*.¹ A brief outline of these phases and some of their manifestations will be given in this chapter.

The developments in technology and the economic and political changes of the nineteenth century that influenced the direction of growth of city planning in America had similar influences in Europe. Although the character of the changes and the degree of their influence were much the same on both continents, the effects produced have been different. The new industrial order in Europe had to be grafted upon, or interwoven with, an old established social organization with traditional forms of land tenure and town structure that did not exist in America except, to some extent, in cities of the eastern seaboard. A natural conservatism toward these established conditions and forms has operated to prevent adjustments of law and methods of planning from meeting the needs created by the economic changes in recent decades.

In Italy, Germany, Sweden, and Great Britain laws relating to the control of town extensions and of public health in urban areas were passed between 1865 and 1875. These contained the germs of modern town planning legislation.

In 1865 Italy passed a Town Extension Act dealing with the control of suburban developments; this was followed in Sweden in 1874, and in Germany in 1875, by similar but more effective legislation. The British Public Health Act of 1875 may be regarded as

¹ Adams, Thomas, in collaboration with F. L. Thompson, E. M. Fry, and J. W. R. Adams. The Macmillan Company, New York, 1932.

a forerunner of the town planning legislation which was passed in Great Britain between 1909 and 1932. This legislation has since become probably the most comprehensive in the world in dealing with different phases of town planning, and it will be well to refer briefly to it before describing these phases.

BRITISH TOWN PLANNING ACTS AND SCHEMES

In 1909 the British Housing, Town Planning, etc., Act was passed as an enabling measure to authorize preparation of town planning schemes by local authorities (cities, boroughs, urban districts and rural districts). The schemes had to relate primarily to land in course of development or likely to be used for building purposes. They could be comprehensive in their contents in relation to such land, and could include provisions for restricting densities of buildings and securing preservation of amenities about buildings without compensation having to be paid to owners of property affected by these restrictions. Amending acts were passed in 1919 and 1925, and in 1932 the scope of the law was widened and given the comprehensive character it now has under the title of the Town and Country Planning Act.¹

The new act authorizes town and district councils (known as "local authorities") to prepare schemes with respect to the development and planning of all land in their areas, whether urban or rural; to provide for the protection of rural amenities and the preservation of buildings and other objects of interest or beauty; and to facilitate the acquisition of land for garden cities. Two or more local authorities or county councils may act jointly in preparing and adopting schemes for a number of adjacent municipal areas forming a region, and supplementary ones may be prepared for sections of any such region.

A scheme contains the provisions that are necessary or expedient for prohibiting or regulating the development of land in the area to which it applies, and generally for carrying out any of its objects by the authority made responsible for its execution. Among

¹ Town and Country Planning Act, 1932, 22-23 Geo. V, c. 48; also (Provisional) Model Clauses for use in the preparation of schemes under the Town and Country Planning Act. H. M. Stationery Office, Adastral House, Kingsway, London, W. C. 2.

other things it may preserve space about buildings; limit their number; regulate their size, height, design, and external appearance; impose restrictions on their use, and prohibit the erection of buildings either permanently or temporarily. These matters under certain conditions are excluded from those concerning which owners of property may claim compensation for injurious effects. Local authorities may recover betterment up to 75 per cent of the increased value which may accrue to property from the making of a scheme.

A provision in the 1919 Act making it compulsory for towns and urban districts having a population of 20,000 or more to prepare schemes was withdrawn in the 1932 Act, but the latter has certain provisions to compel local action; for example, the Minister of Health may order two or more authorities to act jointly in the preparation and adoption of a scheme.

The Act is administered on behalf of the national government by the Ministry of Health in England and by the Board of Health in Scotland. These departments have issued rules to regulate the procedure in preparing schemes and a set of "Model Clauses" which really constitute the framework of a draft scheme, or ordinance, which each local authority adapts to its special conditions and planning proposals. Town planning inspectors of the Ministry of Health hold local hearings for the purpose of advising the Minister of Health regarding the areas to which schemes should apply, the contents of schemes, and their compliance with provisions of the law. Schemes cannot be adopted until they have been approved by the Minister; and after his approval is given, they must be laid before both Houses of Parliament for approval.

Thus a town planning scheme in Great Britain is a greatly involved undertaking which, when completed, has the effect of an Act of Parliament. One of the dangers of the elaboration of town planning law in Great Britain is that it will make the art of town planning subordinate, in general practice, to the procedure of preparing and giving effect to what are known as planning schemes.

It should be noted that much planning of highways, and of architectural developments and major street improvements in cities, is done in England independently of the town planning acts.

PRINCIPAL PHASES OF TOWN PLANNING

Generally in European countries six phases of town planning have been most prominent in their influence on law and practice. These come under the usual headings of: (1) means of communication; (2) architectural design and control; (3) open spaces and preservation of natural beauty; (4) control of suburban expansion; (5) zoning; (6) housing and sanitation. In England what is known as the Garden City Movement may be added as representing a seventh phase.

MEANS OF COMMUNICATION

Railroads, Harbors, and Airports. In European countries, even more than in America, railroads and harbors have been planned, as their extensions now are, independently of other features connected with the development of land. In the United States a closer alliance was created between railroad and land development, as a result of the system of land grants to railroad companies, than in countries like Great Britain where railroad companies have had to purchase all land they required from private owners. In general, those in control of railroads and harbors have not taken kindly to co-ordination of the planning of their systems with the general planning of towns; and, partly as a consequence of this independent attitude, there has never been much effort made to link railroad and harbor planning with town planning. However, at Frankfort-on-Main, Cologne, and elsewhere in Germany, planning of railroads, harbors, industrial and housing areas has been dealt with in a comprehensive way.

As a result of the development of motor transport and the consequent transference of much traffic from railroads to highways, serious problems have arisen affecting the continued prosperity of railroads. These involve necessarily adjustment of taxation and co-ordinated planning and organization of railroad and motor transport. Efforts are being made both to increase the efficiency of the railroads and to obtain the needed co-ordination of all transport facilities.

National surveys followed by regional planning are especially needed to show the way toward effective co-ordination. The most

difficult replanning problems are those connected with the terminal facilities of railroads in large cities.

Conditions affecting the location and planning of aerodromes (airports) in European cities are similar to those that exist in American cities. The nature of air travel imposes a high degree of public control over air transport and the terminal arrangements connected with it. Of necessity the semi-public corporations that operate air services have to obtain collaboration of the national and local governments in selecting and planning sites for landing fields.

The chief difficulty has been to obtain convenient locations owing to the absence of available areas in proximity to the centers of cities. Berlin has been particularly fortunate. Its aerodrome is at Tempelhof, a fifteen-minute drive from Unter-den-Linden.

Highways and Streets. The prominence given to highways and streets in all town planning has, on occasion, led to related features of importance being disregarded.

In Great Britain the standards adopted for street widths have been generally narrower than in some other European countries and in America. The 60-foot standard used at the beginning of the nineteenth century for turnpike roads in England was not maintained in later periods of the century. It became a common practice in towns to make these principal roads and streets 50 and even 40 feet wide. The standard for ordinary residential streets has been 36 to 40 feet. To a large extent the resistance against permitting high buildings in English towns has been due to the narrowness of streets.

Wider spaces for principal streets were reserved in French, German, and Swedish towns, but usually this movement was accompanied by greater densities of building on private land. London has not followed Germany in emulating the wide Parisian boulevards in central areas; and it has no central thoroughfare of the dimensions of Unter-den-Linden in Berlin, or the Champs Élysées in Paris. Recently the tendency in England has been toward wider roads for main thoroughfares and many new arterial roads have been built of a width of 100 feet or more.

The importance of planning streets of varied widths to suit different purposes, thereby avoiding extravagance in road construc-

tion, was carefully noted by Baron Pierre Dupin, a distinguished French visitor to England early in the nineteenth century. In a book describing his observations of commercial progress in Great Britain, he says:

It is absurd to allow roads, in the least frequented districts, to preserve the same dimensions as those which lead to the capital and great towns. Many persons, however, regard this excessive width of the public roads as a sign, and almost as an emblem, of moral and political greatness.¹

Incidentally, it may be noted that as early as 1839 streets, with their "fast wheeled traffic," were declared to be more dangerous for travelers than railroads.

The greater widths of business streets in continental cities have made it possible to provide adequate space for sidewalks. The modern English city is most deficient in this respect, although it appears that its sidewalks were a subject of admiration on the occasion of Baron Dupin's visit. He noted that:

In the best parts of the principal towns in England, the fronts of the houses are separated from the street by an area, surrounded by an iron railing; and this railing is separated from the horse-road by a broad foot-pavement. Thus the walls of the houses are not disfigured by dirt and splashes, as is the case in the towns of France.²

In London private areas between the foot-pavement and the walls of buildings have been mostly built upon, usually on the occasion when business premises have been erected in place of houses. In Paris and Berlin the public right-of-way was more generally established at the original building lines, with the advantage this offered to secure wide sidewalks.

It has long been realized in Germany that it is a wasteful practice to have uniform widths for all streets. This has been recognized in Prussian law and town planning practice. When Reinhard Baumeister made a street plan for the extension of Mannheim, he provided for main avenues 72 to 109 feet in width and ordinary streets 25 to 65 feet in width.

Since the development of the modern town planning movement in several European countries, much study has been given and ex-

¹ The Commercial Power of Great Britain. (Translation.) Charles Knight, London, 1825, pp. 171-172.

² *Ibid.*, p. 147.

perience gained in fitting roads and streets to the functions they have to perform, either as through-traffic streets or as minor roads confined in their use to local services in residential areas. This has resulted in great economy to local governments. In England particularly there has been much successful planning of minor streets in connection with municipal housing developments.

In the matter of planning new highways in England the central control is divided between the Ministry of Health and the Ministry of Transport, the local administration being divided between the County Council and municipal authorities. The Ministry of Transport, as the dispenser of large funds, exercises considerable influence over the planning of principal roads, and aims at the development of a national system. Both departments collaborate in securing some degree of co-ordination of road planning and town planning.

ARCHITECTURAL DESIGN AND CONTROL

The attention given to architectural design and control varies in different European countries.

In the architectural phase, town planning in England has made most advances in connection with the grouping and arrangement of small houses in municipal housing schemes. During the past fifteen years many large housing estates in different parts of England have been planned and developed under skilled architectural supervision, resulting in a striking improvement in the design and ground planning of workmen's dwellings. On the other hand, Germany, Sweden, and Holland have led in the attention given to civic architecture and the planning of block (apartment) dwellings.

Some of the best examples in Europe of modern street design—comprising streets and buildings together—are to be found in German cities; although in some, notably in Berlin, ostentatious treatment of public thoroughfares has been accompanied by dense crowding of block dwellings on dark inner courts behind the splendid street façades.

Examples of Civic Architecture. Many government and civic centers have been designed for European cities either as distinct projects or as parts of general town development plans. Some have

been carried out in whole or in part but many have failed of realization.

One of the most important of these projects, carried out in the latter half of the nineteenth century, was the Government Center of Stockholm, Sweden. This was designed during the reign of Oscar II (1872 to 1907) by the architect Aron Johansson, who at the same time prepared designs for the restoration of the Royal Palace. The government buildings are on the Riddarholm (Nobles' Island) and consist chiefly of the parliament buildings and the law courts. They, and the restoration of the Palace, were completed in 1898. In other parts of the city, chiefly in the districts known as the Norrmalm, various other public buildings—the National Museum, Hop Garden, and Royal Library, and the Museum of Northern Antiquities—were erected between 1850 and 1873.

A project is now under consideration to develop an area in central Stockholm. It is known as Lower Norrmalm and is situated to the east of the central station of Stockholm, which is included in the site, and to the north of the Riddarholm occupied by the government buildings with which it is connected by bridges. The Stockholm Town Planning Board obtained competitive plans for this area in 1933.

The Government and University Center of Oslo, the capital of Norway, was developed between 1841 and 1905 from the designs of various architects, and plans for a new civic center have recently been prepared.¹

Between the years 1894 and 1910, the Civic Center of Strasbourg was constructed around an open square laid out with gardens and fountains, while the famous Friedrichsplatz at Mannheim, designed by Bruno Schmitz in 1898 in the modern Baroque style, was executed during the period 1899 to 1911. A noteworthy German station plaza is that at Frankfort-on-Main, which was regarded by Daniel H. Burnham as one of the best examples of a terminal development.

The Station and Station Square at Helsingfors, Finland, is combined with a civic center and was recently completed in accordance with plans by Eliel Saarinen.

¹ See illustration facing p. 261.



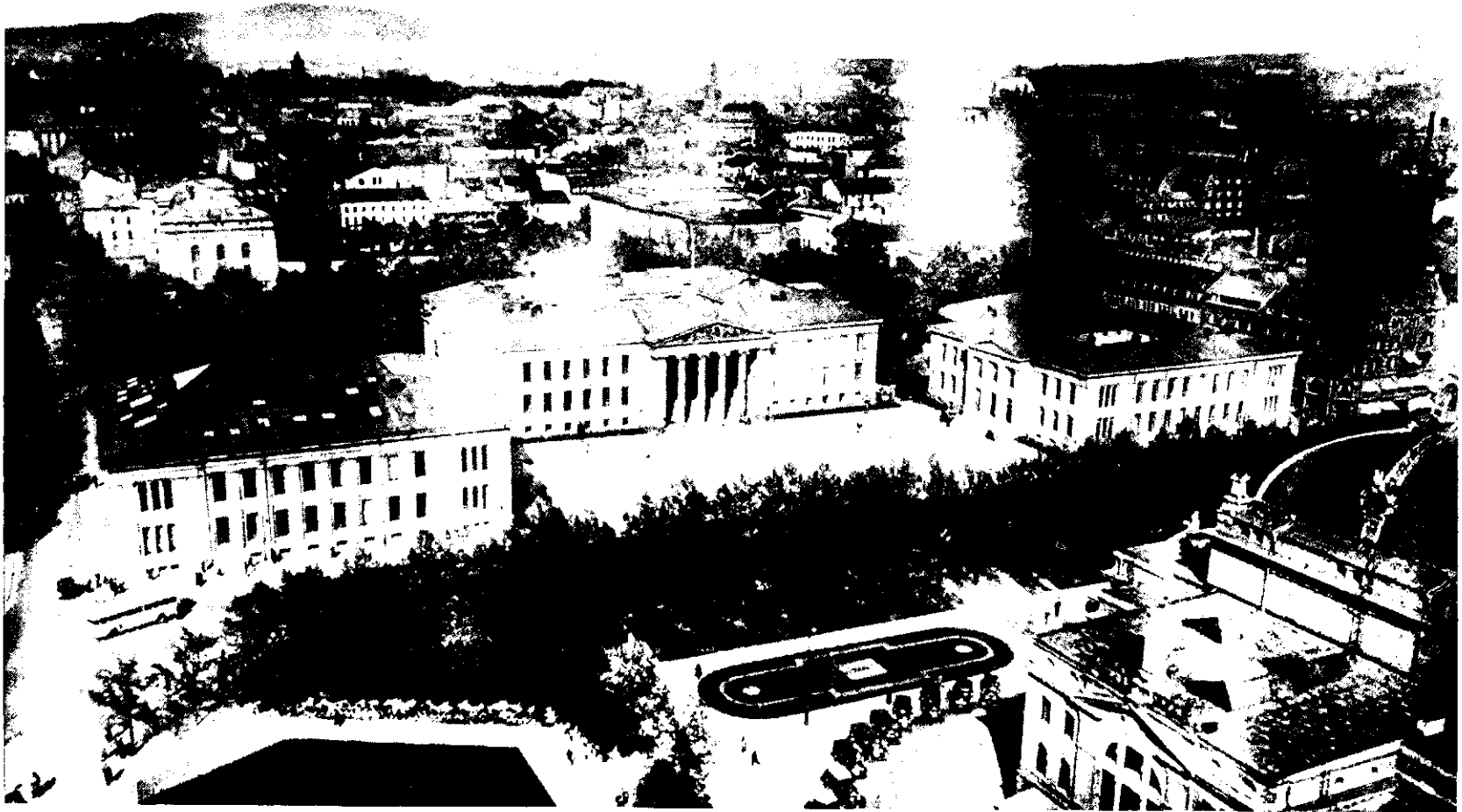
Courtesy of the Italian Tourist Information Office

VIEW OF VIA DELL' IMPERO, ROME



Courtesy of the Italian Tourist Information Office

EXCAVATIONS IN CONNECTION WITH THE REPLANNING OF ROME



VIEW OF OSLO, NORWAY

A well-planned city, mostly modern, showing the Fredericiana University and National Theatre facing the principal street—the Karl-Johans-gade. Other buildings facing this street include the Parliament Buildings. The Royal Palace stands at one end in the Slotspark. Oslo has attractive garden suburbs at Ullevaal and Tören

gigantic cut has been made through an intensively built-up area formerly occupied by slum dwellings for the purpose of constructing a new street, the *Via dell'Impero*, which links the *Piazza di Venezia* to the *Colosseum*.¹ The surroundings of the *Theatre of Marcellus* are being cleared, bringing to light architectural features that have long been hidden; and the *Mausoleum of Augustus* is being excavated after having been used at one period as a fortress and at another as a circus.

In a paper dealing with recent improvements in Rome, Dr. Guido Calza states that the central part of the city was planned by Sixtus V "in so admirable a fashion that even today, after three and a half centuries, it answers perfectly the needs of a modern city."² Yet the beauty of the city has been impaired by the clumsiness of modern additions and what *Il Duce* has called "mediocre disfigurement" of ancient and mediaeval Rome.

One thinks of Rome as a great imperial capital rather than as a city of homes, but Dr. Calza credits Goethe as paying the Eternal City the greatest of compliments in the following words: "In Rome every man finds his ideal home."

London affords some good and some bad examples of the architectural arrangement of streets and the grouping of public buildings carried out since the middle of the nineteenth century. The construction in 1862 to 1870 of a fine riverfront avenue, the *Thames Embankment*, was noteworthy in showing the benefits of the well-conceived planning of a waterfront highway.

The great *Kingsway* reconstruction scheme has been the most ambitious example of replanning. It involved the cutting of a wide thoroughfare from the *Strand* to *Holborn*, affording spacious sites for new commercial buildings in what was previously a blighted area. The *University of London* has inaugurated a scheme for extension on a site adjacent to the *British Museum*, and when this is completed it will likely constitute one of the finest examples of civic architecture in London.

The railroad terminals in London are mostly lacking in good approaches and spacious surroundings. The high standard set by

¹ See plan on p. 260 and illustration facing p. 260.

² "The *Via dell'Impero* and the *Imperial Fora*." In *Journal of the Royal Institute of British Architects*, March, 1934.

Euston Station, built by Philip Hardwick in 1846 to 1848, has not been followed in more modern developments. A recent effort was made to secure the removal of the ugly Charing Cross Railway Bridge which crosses the River Thames close to Westminster and to replace it with a monumental traffic bridge. The scheme failed chiefly for reasons of national economy, but, in part, from lack of appreciation of the opportunity for monumental treatment and the value of carrying out a fine architectural conception. While London has been well planned in parts it has not been so spaciouly and completely planned as Paris and Berlin. Like Rome it is ripe for the replanning of a great part of its central areas and for reconsideration of its open spaces, bridges, main thoroughfares, and railway developments in relation to its buildings.

Architectural Control. Attempts have been made in most countries to exercise control, or rather guidance, of architecture.

As has been indicated, the British Town and Country Planning Act of 1932 gave increased powers to local authorities to deal with control of appearance of buildings, the preservation of existing buildings, or other objects of architectural, historic or artistic interest, as well as of places of natural interest or beauty. Usually public buildings are well designed, and the greatest need is for architectural guidance of buildings erected under private enterprise. In Great Britain, while the appearance of buildings may be controlled to some extent by means of provisions in planning schemes, the practical application of this power is widely opposed in practice as interference in a matter of taste and only justifiable under special conditions.

Even in connection with the preservation of public structures of architectural and historic interest, political expediency often overrules the sentiment of those who desire to preserve aesthetic features. For example, political expediency, rather than necessity, has dictated the policy behind the destruction of the famous Waterloo Bridge, which was one of the most distinguished architectural monuments in London.

It has not been found practicable to employ skilled architects to examine every plan submitted to each municipal authority, except in large cities that have permanent architectural advisers. As a rule, control of the appearance of buildings is effected by



W. P. Robinson, M. Inst., C. E. County Engineer, Adams, Thompson and Fry, Town Planning Consultants to West Surrey Regional Plan

GUILDFORD BY-PASS ROAD, SURREY, ENGLAND

Bird's-eye view of an arterial highway, by-passing the town of Guildford, Surrey. This road was opened on July 27, 1934. It runs through beautiful country for a distance of nine miles and considerable parts of its frontages are preserved against building

the supervision of plans by a committee of the local (municipal) authority, which is without expert knowledge of architectural design. It is questionable whether much is gained from this kind of supervision, although it is made partly effective in places by the appointment of an advisory committee or a panel of architects to guide the local authority in its decisions.

Before 1932 several cities and some rural authorities in England had obtained special powers to approve designs of buildings and control amenities. For example, the city of Bath was authorized to require designs to be submitted to the council, and to refer questions relating to design and materials to an advisory committee for decision; while the county of Surrey was empowered to prohibit the erection or require the removal of temporary buildings, to prevent developments along highways, to acquire land for the preservation of rural amenities, and to control the location and design of gas stations.

The need of preserving existing buildings of historic or artistic interest is greatest in old centers where such buildings are in danger of being destroyed or injured by incongruous developments. It was to meet this need that the Oxford and Cambridge Preservation Trusts were established in 1927. The city of Edinburgh somewhat later received approval of a scheme to preserve the architectural quality of old buildings designed by the brothers Robert and James Adam and others in Charlotte Square.

Some attention is being given in England to controlling the design of structures in public places. The Fine Arts Commission of England advises the government in regard to the location and design of statues, fountains, and monuments in public squares, streets, and parks. Among the matters referred to the Commission are designs for new bridges, telephone kiosks, and post office signs; the architectural style, height, projection, and orientation of important additions to public buildings; and the layout of cemeteries. Civic art committees exist in Birmingham, Sheffield, and several other cities.

In Germany architectural control is secured to a large extent by model building ordinances. Provision is made in some ordinances, for instance in Leipzig, for the control of rear as well as of front

elevations of buildings. Dr. R. Heiligenthal of Berlin has pointed out that architectural control, to be effective, must always be in the hands of architects of high artistic qualifications, but that even in architecture good traditions and customs are better than strong laws.¹

In Swedish cities building boards control the situation and design of buildings. Stockholm has an Advisory Committee on Civic Art which was appointed by the city council in 1918.

Some degree of architectural control is exercised in the central parts of Paris, but mainly in regard to heights of buildings. Certain buildings are required to conform to a particular architectural style; for example, the reconstruction of the Place des Vosges is required to be in stylistic harmony with existing buildings. On the whole, reliance is placed on guidance and encouragement to build well rather than on control.

OPEN SPACES AND PRESERVATION OF NATURAL BEAUTY

Most of the large European cities have had a heritage of parks and other open spaces. The principal parks in many cities have formerly been pleasure grounds reserved by kings and princes for their private enjoyment, being subsequently dedicated to public use. This is particularly true of the capital cities, such as London, in which large royal parks have been made available for public use.

Less initiative has been shown by European, as compared with American, municipalities in the development of new park systems; cities that have not inherited parks have often left the acquisition of open spaces until too late to secure them where they would be of most value.

On the European continent, extensive areas in the environs of cities and within the fortifications have been converted into parks and playgrounds, although in some cities these publicly owned lands include large areas available for building development. Stockholm is probably unique in the extent to which the land in the city is owned by the state, and in the facility this ownership gives for controlling building development and for selecting reservations of open spaces.

¹ See section on "Architectural Control" in *Regional Survey of New York and Its Environs*, 1931, vol. 6, pp. 167-176.

In Germany public ownership of land in the environs of cities is much favored, partly with the object of securing reservation of appropriate areas for recreation. As early as 1845, the Duchy of Saxe-Meiningen inaugurated compulsory acquisition of land in connection with the policy of controlling town extension. At the present time the city of Ulm in Württemberg owns 3,705 acres within the city, and about an equal acreage outside. The land owned in the city represents about 75 per cent of the total building land. It is held partly to control building speculation and partly to secure a proper proportion of open space about dwellings. It also enables the municipality to preserve public open spaces in the most desirable locations. Acts were passed in Prussia in 1907, and in Saxony in 1909 to prevent the disfigurement of districts and the destruction of natural beauty.

Cities in Great Britain, as in the United States, have difficulties in obtaining the permanent reservation of private open spaces such as golf courses. However, the fact that local taxation in Britain is assessed on income values for existing use tends to ease the difficulties of reserving private open space permanently for recreation uses.

Since the motor car has come into common use, straggling and haphazard developments have occurred along the edges of arterial highways. These have come to be designated as "ribbon" developments, and extend into what were formerly remote country districts with unspoiled natural beauty. In recent years they have given rise to much agitation in favor of the preservation of the countryside, and brought extensive public support to a body known as the Council for the Preservation of Rural England. It was mainly with the object of providing legal machinery to control developments that were causing injury to natural beauty that the Planning Act was extended to include country as well as town planning. It is recognized that even on purely utilitarian grounds a great deal of the ugliness of ribbon development is unnecessary. The fact that it is permitted has resulted in highway travel being more destructive of rural amenities than existed with railroad travel. Many of the structures erected on the frontages of highways are offensive from the point of view of design only, but most injury is done by reason of wrong location. Until, however,

effective control is obtained over ribbon development in the suburbs of cities, where it exists in its most intensive forms, efforts to control it in country areas will be largely futile.

CONTROL OF SUBURBAN EXPANSION

The urban ribbons or tentacles that extend outside the boundaries of cities are not a new phenomenon. They are an inevitable form of development in growing cities. They cannot be arrested but need to be planned and regulated. On occasion there have been attempts made to stop the expansion of cities. For instance, Queen Elizabeth endeavored to prevent it in London in the latter part of the sixteenth century. Again, Daniel Defoe, after describing some characteristics in the same city in the early eighteenth century, proposed the "Forbidding and Extending of the Buildings in some particular Places where they too much run it *out of shape*."¹ Defoe, however, recognized the real evil in the lack of shaping or planning rather than in the extension itself. Charles Dickens also mentioned it in *Hard Times*, already referred to, where he wrote of "the neutral ground upon the outskirts of the town, which was neither town nor country and yet was either spoiled."

What is happening now is that an enormous increase is taking place in the number and size of disorderly ribbons, because cities are becoming much larger and their suburban excrescences more widespread as a result of rapid means of communication. The control of haphazard town extension, aggravated now by its greater extent, is a major object in all town planning legislation.

The achievement of the same object is sought in the United States by the combination of city planning with subdivisional control and the acquisition of land for parkways, the latter particularly along river valleys extending through and beyond the environs of cities.

ZONING

Germany may be regarded as the country in which modern zoning, as carried out in modified forms in the United States, not only originated but has been most scientifically and vigorously applied during the past fifty years.

¹ *A Tour Through the Whole Island of Great Britain, 1724-1727.*

The zoning provisions in the building ordinances of Mannheim and Frankfort-on-Main are typical of the character of German regulations. In these cities there are four classes of zones, with four types of restrictions regulating the area of plots that may be covered with buildings, and the height and number of stories of these in relation to the widths of streets. The area of plot that may be covered varies from as low as 10 per cent in outlying districts in Frankfort up to 70 and 85 per cent, respectively, in the downtown districts of Frankfort and Mannheim. Heights vary from two stories in outlying districts to five stories in central districts. Both cities have areas specifically zoned for industry. Frankfort also controls height by a "use ratio," this being the maximum floor space of all stories added together. Special provision is made in German zoning ordinances for securing elasticity in zoning and in fixing building lines.

In Frankfort a special law known as "Lex Adickes" provides for replanning the division of private property into shapes to suit a proper arrangement of streets. Properties are pooled and re-divided, but subject to a reduction of 35 per cent of the total area so affected in order to provide adequate public open space. This requirement of a 35 per cent reservation for open uses accords with German practice, and the existing street law of Baden is based on the principle that modern hygiene requires 30 to 35 per cent of the total building area to be set aside as open space in the form of streets or parks.

In Great Britain building by-laws have controlled heights of buildings and more indirectly building density for over fifty years. However, as already explained, the town planning acts (1909 to 1932) have given more power to deal with these matters, and the model clauses issued under these acts set forth the character of regulations that may be applied to control uses, heights, and densities of buildings in town planning schemes. Different character zones are suggested, comprising two residential, one general business, one special business, one industrial, one general, and one intermediate or undetermined.

The tendency in Great Britain is to make zoning elastic and to allow a good deal of discretion to municipal authorities in giving or withholding consent to variation in regulations.

Under the 1932 Act a new type of use zone may be created, namely, that in which land is restricted against general development, with the object of preventing sporadic development, premature expenditure of public money for public utilities, or serious detriment to local amenities.

Zoning is never carried out in Great Britain independently of town planning schemes, and prior to 1932 was applied only to undeveloped land. This was in contrast to the general practice in the United States. However, as already pointed out, the British law now provides for the planning and zoning of built-up areas.

In Russia the attempt to create a different political and social structure has been accompanied by a change in approach to planning and zoning. Berthold Lubetkin recently¹ has pointed out that the dominating factor influencing town planning schemes in that country is industry rather than business; and that in zoning, the industrial zone determines the position of the other zones. He refers to proposals for planning new communities in linear zones providing for industry, housing, parks and agriculture, and intersected by a railway and arterial highway.

HOUSING AND SANITATION

In Great Britain more than in any other country, town planning has been closely identified with movements for the improvement of housing and sanitary conditions. As already stated, the British Public Health Act of 1875 has had a considerable influence on the layout and building of towns. It contained provisions for authorizing and enforcing control, by local authorities, of the layout of land for building, especially in connection with the construction of streets and the provision of water supplies, sewers, and drains. Public health by-laws have been beneficial in improving sanitation and building construction, but they resulted in an ugly uniformity of building because they contained no provision for guidance in design.

The efforts made in the latter part of the nineteenth century to improve sanitary conditions were accompanied by efforts to rehabilitate slum areas and widen streets in large cities, and also to

¹"The Russian Scene." In the *Architectural Review* (London), May, 1932, p. 210.

increase open spaces for recreation. The evils of slums, and the injury to health caused by lack of recreation space, had been pictured as being both unnecessary and economically injurious by Carlyle, Ruskin, Kingsley, and Lord Shaftesbury. Their writings bore much fruit in producing a sentiment of revulsion against bad housing and industrial conditions.

However, probably no efforts in social reconstruction in Britain have been more barren in results than those applied to the removal of slum conditions in large cities. There have been differences of opinion with regard to the value of attacking the slum problem indirectly by building cottages in the suburbs, or directly by building tenement flats in the central areas. In a book written by Cambridge graduates,¹ some of whom subsequently became ministers of the national government, it was argued that the housing problem could not be solved by rebuilding in slum areas but by new and well-planned building in the suburbs. The model tenement block of dwellings was referred to as having both advantages and disadvantages, but as being essentially undesirable because it created vested interests in overcrowding and made it more expensive for future generations to deal with the problem. These views have been widely held and have influenced the character of housing developments in England for thirty years, but recently strong public support has been given to a revision of policy in favor of building more and higher tenements in central districts of large cities.

Industrial Villages. The effectiveness of any scheme for securing improvement of housing conditions for industrial workers depends to a large extent on securing the dispersal of industries as well as of population from central to suburban or rural areas. The Garden City Movement, referred to later,² was based largely on the securing of this combined dispersal. However, before 1900, many manufacturers had both moved their factories to new sites and provided dwellings in model villages for their workpeople.

Housing improvement in Great Britain, France, Germany, and other European countries was greatly stimulated by the work of these large manufacturers in planning and developing model towns

¹ *The Heart of the Empire.* T. Fisher Unwin, London, 1902, pp. 80-81.

² See p. 273.

and villages for their workers. A number of villages were planned and partly erected before 1900, and these were more productive of good results than the idealistic conceptions of model communities put forward by housing reformers. One example of the latter was the plan evolved by James Silk Buckingham for building a model town in England. This was described in his book on *National Evils and Practical Remedies*.¹ The plan called for the arrangement of structures in a series of squares and included a proposal for a covered arcade 100 feet wide. Each residence was to be provided with good sanitary equipment and garden space. The scheme was utopian and led to no satisfactory result.

A practical effort, which was the forerunner of garden village developments in England, was carried out at Saltaire by Sir Titus Salt in 1853. It provided homes for between 3,000 and 4,000 workers in his woolen mills. Seven years earlier, in 1846, Messrs. Richardson had built a model town named Bessbrook, near Newry in Ireland, for the 2,500 workers in their linen mills. Originally better designed than Saltaire, it was noteworthy for its social institutions and prohibition of liquor. Both Saltaire and Bessbrook have greatly deteriorated.

In 1879 George Cadbury, the chocolate manufacturer, purchased a site for the erection of his works and a model village for his workers and other residents in the rural environs of Birmingham where he established the famous garden village of Bournville. Bournville now consists of 2,000 houses, has an exceptionally high standard of associated community life, and has improved in character and stability as it has grown in size. Ten years later W. H. Lever (later Lord Leverhulme), manufacturer of soap, began the development of the model village of Port Sunlight, Cheshire, which has been specially noteworthy for its high standard of domestic architecture. From 1904 onward Messrs. Rowntree planned and constructed a model village for their cocoa workers at Earswick, near York.

In France, M. Menier, another chocolate manufacturer, built, after 1874, a model village for his workers at Noisiel-sur-Seine, near Paris. Each pair of cottages was so arranged that they stood opposite the garden space of their neighbors. Other village colonies

¹ Peter Jackson, London, 1849.

established in France included a garden "cit " near Fontainebleau, constructed by MM. Schneider et Cie of the Creusot Steel Mills, and a mining village near Valenciennes constructed by the Anzin Mining Company.

An Italian example of industrial community development is a village with small gardens and ample open spaces at Crespi, near Capriate, Lombardy, connected with the Crespi Cotton Mills. A picturesque industrial village was erected in mountainous country at Dornbirn, Austria, the houses having open verandas and artistically arranged gardens. In Holland, Agneta Park, near Delft, was developed in 1883 in connection with the Van Marken Yeast and Spirit Works.

Germany was comparatively prolific in the establishment of housing colonies by manufacturers toward the end of the nineteenth century. In some instances, as in connection with the Prussian State Mines at Saarbr ck, the workers were encouraged by loans to build their own houses. Budgett Meakin drew attention to several examples, including a garden village of 425 houses erected at Gustafsburg near Mayence by the United Machine Building Company of Nuremberg; and a model town named Ludwigshafen (3,500 population), planned for the workers in the Badische Anilin-und Soda-Fabrik in Bavaria.¹ However, what are known as the Krupp Colonies for munition workers near Essen, which consist of about 4,300 dwellings, are the best types of German industrial villages. Messrs. Krupp began by erecting multiple or "barrack" dwellings before 1890, and subsequently, about 1894, built cottages detached or in small groups in what may properly be called the model villages of Alfredshof and Altenhof. These villages comprise picturesque houses in gardens. More recently Messrs. Krupp have reverted to building tenement blocks in the town of Friedrichshof.

State and Municipal Housing. A constant problem in all countries is how to house the lowest wage-earners in healthful homes of adequate accommodation at a price or rent which they can pay. Private enterprise appears to be unable to provide houses within the means of a great part of the population. The three most obvious methods of solving this problem are: first, to raise wages; second,

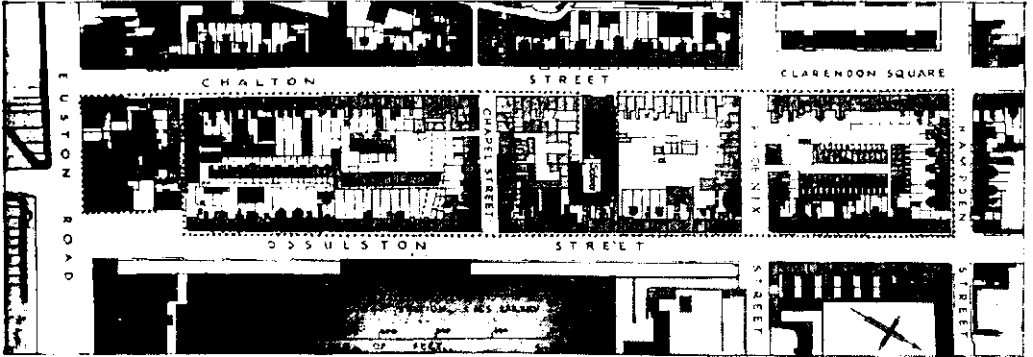
¹ Model Factories and Villages. T. Fisher Unwin, London, 1905, pp. 359-375.

to reduce cost of building with wages at the existing level; and, third, for governments to provide financial assistance to meet the difference between the cost of dwellings and the amount wage-earners are able to pay for them. No serious effort has been made to solve the problem by the first or the second of these methods, probably because the difficulties are insurmountable. The first would require that wages outside the building trades would have to be raised as high as those in the building trades, for which there would be some justification, were it practicable. The second would require such improvement in the efficiency of building and reduction of costs of land for housing as has not yet been attained.

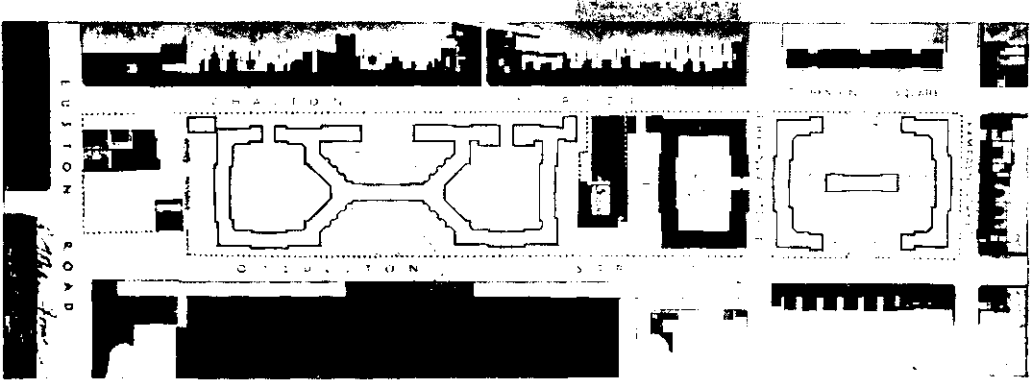
Because it is most practicable the third method has been much tried, but it is the least desirable in its social effects. It results in one part of the population's having to pay part of the cost of housing the other part, and in making the part which is helped suffer from being made dependent on state assistance. The problem of housing the poor overlaps with the problem of general poverty, and cannot be separated from the question of providing state aid for food and clothing.

While the problem is constant there are periods of emergency when both the need for its solution and the justification of state aid are much greater than at other periods. Such a period was during and immediately after the World War, when a housing shortage was artificially created by the stoppage of new construction. During and subsequent to the war extensive state and municipal aid has been given to housing of workers in England. Officials of the Ministries of Health and Public Works collaborated in designing housing colonies at Well Hall and Roehampton, London, Gretna in Scotland, and elsewhere. These reached a high standard in architectural design.

In the post-war period, and especially between 1919 and 1930, many millions of pounds were spent in Great Britain in subsidizing the erection of houses. For the most part the houses have been erected in large groups or "garden suburbs" and financed by municipalities with state aid. On the whole these developments are superior to those carried out by private enterprise, both in regard to spaciousness about the buildings and to the design and arrangement of the groups of buildings.



BEFORE



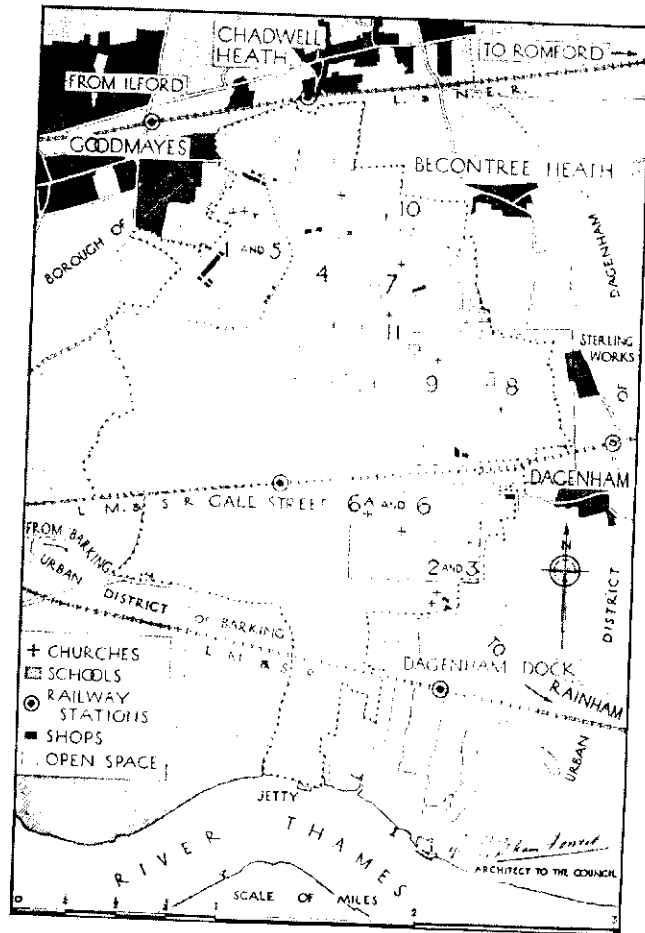
G. Topham Forrest, Architect

AFTER

Courtesy of the London County Council

OSSULSTON STREET IMPROVEMENT, LONDON

Comparing plan for reconstruction of a narrow block with the former layout



PLAN OF BECONTREE NEAR LONDON

Estate comprising 2,770 acres developed by London County Council for a population of 190,000. The population in 1932 was 103,328. Ten years earlier it had been only 2,086. The Dagenham Industrial Area is shown between Becontree and the River Thames



*Courtesy of the London County Council
G. Topham Forrest, Architect*

HOUSES IN BECONTREE NEAR LONDON



*Courtesy of the London County Council
G. Topham Forrest, Architect*

THREE-STORY FLATS

In a Suburban Housing Scheme, Downham, London

From an architectural point of view, some of the best housing developments have been carried out by the London County Council. These have included the replanning of blighted areas and the erection of modern tenements, as well as the building of garden suburbs and self-contained communities in suburban and semi-rural areas. Becontree in Essex, one of the towns built by the Council outside its own administrative area, provides for an ultimate population of 145,000.

Recently, since 1932, the tendency in public opinion and in the sphere of government action has been toward the encouragement of private enterprise in providing new housing in undeveloped areas and toward the provision of state aid for the rehabilitation of slum areas.

In Germany, Austria, and Russia the housing of workers has become a regular function of state and local governments. The problem of providing suitable accommodation at low rents is met in Germany and Austria by a system of subsidies and rent-fixing regulations—the cost being met, in whole or in part, by the imposition of taxes on homes commanding higher rents.¹ In Russia Marxian principles are applied to the problems of planning and housing, resulting in a standardization of house types and methods of planning. The tendency is toward a complete elimination of the family as a domestic unit, and the official program includes the gradual decentralization of all urban areas to a point where industrial life and agricultural life exist side by side under conditions of equality.

THE GARDEN CITY MOVEMENT

What is known as the Garden City Movement had its origin in England and is related to all phases of town planning. In 1898 Ebenezer Howard (later knighted for his public service) published a book, *To-Morrow*,² in which he suggested the acquisition of large estates for the development of entirely new towns. The towns were to be so laid out as to secure the most efficient arrangement for carrying on manufactures in a spacious and otherwise healthful

¹ See illustrations facing p. 279.

² *To-Morrow*. Swan Sonnenschein and Company, London, 1898. A third edition was published in 1902 under the title, *Garden Cities of To-morrow*.

environment for the homes of the industrial workers. The increment of value to be created by the conversion of agricultural into building land was to provide the economic basis for the scheme.

The practical experiments of George Cadbury and W. H. Lever, already referred to, gave an impetus to the movement for building a garden city, and in 1903 a company was formed for this purpose and raised sufficient capital to acquire a site of 3,800 acres (later increased to 4,500) at Letchworth, 34 miles from London. The new town was planned by Barry Parker and Sir Raymond Unwin.

Another garden city has been developed on a site of 2,400 acres at Welwyn, 17 miles from London, in accordance with a plan prepared by Louis de Soissons and Arthur W. Kenyon.

Both Letchworth and Welwyn have many industries, including branches of American factories. Their respective populations in 1933 were about 15,000 and 9,000. They are equipped with all modern facilities for manufacturing, and with conveniences and amenities for healthful and agreeable living conditions. A feature of both towns is the preservation of a permanent agricultural belt around them which has the effect of limiting their size. This limitation, however, need not prevent future expansion into satellite communities on the outer edges of the open belt. The principle of surrounding a city with a permanent open space was demonstrated in the planning of Adelaide, South Australia, although the open space in this instance was reserved as a pleasure park and not as agricultural land. Adelaide was planned in 1836 by William Light, the first Surveyor General of South Australia. The central city was laid out in the form of a square and surrounded by a circular park, a mile wide, beyond which suburbs have been developed. Although this ring park has been encroached upon for sites of public buildings, it remains in a good state of preservation as a whole, and proves the wisdom of its planner.¹

Garden cities have demonstrated, among other things: (a) the desirability and practicability of removing industries from crowded cities to new sites; (b) the economic and social values of providing ample space about buildings and of having a permanent agricultural belt surrounding towns; (c) the advantage of planning com-

¹ See illustration facing p. 278.

OUTLINE OF TOWN AND CITY PLANNING

munities in all their features from the beginning; (d) the saving that can be effected in time and money by having industries and the homes of workers in proximity; and (e) the benefits to be obtained from ownership of the site and public services of the town by a limited-dividend company operating for the benefit of the inhabitants. They also had considerable influence in securing the introduction into British town planning legislation of the provisions that prevent socially undesirable crowding of buildings in new housing developments.

Shortly after the building of Letchworth was begun (in 1903), a number of new garden suburbs were established in Hampstead, Ealing, and other places. These were carefully planned and built under good architectural supervision. The Hampstead Garden Suburb, designed by Sir Raymond Unwin, co-planner of Letchworth, in association with leading English architects, was and still remains the best example of these suburbs. The plan of this suburb is distinguished for its fine arrangement of roads, streets, places, culs-de-sac, and open spaces. Its community center is located on the highest point of the site, with commanding views and fine positions for its churches and public buildings. Its business district is on the edge of the suburb.¹

An extensive area is being developed at Wythenshawe near Manchester as a municipal garden suburb in accordance with plans prepared by Barry Parker.

ADVISORY AND STATUTORY PLANNING

In European countries the distinction between advisory plans and statutory planning schemes or statutory zoning is more marked than in the United States. Although tentative master plans have been prepared for towns, in advance of statutory plans, most advisory planning has been done for areas of regional character.

PROGRESS IN REGIONAL PLANNING

It is somewhere recorded that the idea that towns should be planned in relation to surrounding areas was advanced by an Italian writer as far back as 1588, and there are other indications

¹ The Hampstead Garden Suburb plan is shown on p. 26 of vol. 6 of the Regional Survey of New York and Its Environs.

that regional planning has received consideration in early times. However, we have definite knowledge that Italian, German, Swedish, and British town planning was all based on controlling extensions of cities outside as well as inside their boundaries. What is known as the "regionalisme" movement in France has embraced the concept of regions as economic units, although more concerned with problems of local government than with physical planning. Civic developments in France have been influenced in a high degree by the character of local government with its dependence on central control. In his book entitled *Regionalism in France*, R. K. Gooch, professor of political science at the University of Virginia, says that J. Paul-Boncour at the opening of the present century insisted that economic and syndical decentralization was more opportune than regional decentralization and that E. Clémentel, described as the "future father of the Economic Regions," declared in Parliament that "It is because the regionalist movement has an economic foundation that we consider it irresistible."¹ Efforts have been made to organize regions in France in connection with intra-urban activities. Discussion of these activities has taken place under the leadership of the Union des Villes et Communes de France and Union Internationale des Villes.

In Great Britain the regional idea has been developed in connection with town planning and also with the distribution of electrical power and light. Up to 1932 about 60 advisory regional plans had been prepared and these have been particularly beneficial in providing the skeleton basis for town planning schemes. By June 30, 1934, 47 joint committees in England and Wales had taken some action to prepare statutory joint schemes, which are executive regional schemes. On the other hand, the whole of England, Wales, and Scotland has been divided in recent years into a series of special regions in order to secure economies in the large-scale production of electricity.

The 1932 Act gave enlarged powers for joint or regional bodies to prepare official plans for definite application. Most regional plans are now likely to be statutory instead of advisory plans. By June 30, 1934, only two executive schemes of a regional character had been approved in England. In three regions the Minister

¹ The Century Company, New York, 1931, p. 107.

OUTLINE OF TOWN AND CITY PLANNING

of Health has made an order compelling a local authority to become a member of a joint committee.

Some of the regional plans in England are being prepared with the special object of preserving places of historic interest and natural beauty—an example being the plan made for the region known as the Peak District, a mountainous area in Derbyshire, Yorkshire, Lancashire, Cheshire, and Staffordshire.

Regional planning has taken a strong hold in Germany also. Since 1920 some 24 Landesplanungen organizations have been created in German states to promote advisory regional plans. Organizations for planning industrial regions have been set up in Saxony, Thuringia, Westphalia, the Rhine Province, Upper Silesia, Hamburg, and Bremen. While in Germany, as compared with Great Britain, there is no general legislation to give official sanction to regional planning, a few official plans have been prepared, the most important being that of the Ruhr District. The Ruhr plan was directed by the late Dr. Robert Schmidt for the Ruhr Regional Planning Federation, which controls an area of 1,470 square miles under the jurisdiction of 268 municipal authorities. It has full statutory and executive power behind it. On the other hand, the plan being made for the Berlin region is advisory. The tendency of the inhabitants of Berlin to move out to the open country in the province of Brandenburg was one of the reasons for the formation of the Regional Planning Federation of Brandenburg-Mitte in 1930. The region extends for a radius of 31 miles from the city proper. The proposals of the Federation include the reservation of large areas for outdoor recreation, agriculture, water supply, and the centralization of urban growth in compact units.

PROGRESS IN TOWN PLANNING

All problems pertaining to the future development of a city or town in its entirety are considered in making advisory town development plans, which, like master plans in the United States, are not restricted to proposals that can be immediately carried out.

Since 1900 many advisory town plans have been prepared in Europe under a great variety of conditions. They include re-planning projects made for Paris, Berlin, Vienna, Helsingfors,



VIEW OF ADELAIDE, SOUTH AUSTRALIA, SHOWING PART OF PARK WHICH SURROUNDS THE CITY



PLAN OF MODERN ATHENS



Courtesy of Joseph H. Fink

VIENNA—MODEL TENEMENTS WITH ATTRACTIVE FOREGROUNDS



Courtesy of Joseph H. Fink

VIENNA—MODEL TENEMENTS SHOWING ARCHES OVER STREET APPROACH

Athens,¹ and parts of London. In some instances they are more official in character than in others. A plan for Nuremberg in 1907 was an official extension plan, while one of more academic character was a proposal for developing the environs of Munich with 18 subordinate civic centers. Comprehensive advisory plans have also been made for Hamburg and Cologne in Germany, Salonika in Macedonia, Dublin in Ireland, and Sheffield, Northampton, Hastings, Bexhill, and other towns in England.

In Italy, apart from the work of reconstruction being carried out in Rome, the embellishment and renovation of towns have become almost a national craze. There is a widespread movement to build new streets and houses in a vigorous, modern style, and to lay out spacious piazzas and parks. The planning efforts are mainly concerned with the reshaping of old cities. Park zones and parkways are being developed in the environs of cities to link up with their centers.

Since the World War numerous advisory town development plans have been prepared for towns in France. The late George B. Ford collaborated in preparing a plan for the city of Rheims and many other projects were conceived and put partly into effect in connection with the restoration of towns in the devastated areas. In the important Mediterranean and Atlantic seaports of Marseilles and Bordeaux extensive works are now under way, including the construction of new deep-water basins in accordance with comprehensive plans. The intention of the authorities is to make Marseilles the greatest port in Europe, and greatly to strengthen Bordeaux, on the River Gironde, as the river gateway of southwest France.

In 1929 a plan was prepared for remodeling Madrid, the Spanish capital. The state and city are now joining to develop the city in conformity with an ambitious program of civic improvement. The state has planned railroad improvements and a new Republican Center, a Square of the Nation, a new Presidential Palace, and departmental and university buildings. Madrid is a much concentrated city, but the nationalization of the crown lands will enable

¹ The plan for the improvement of modern Athens was made by Thomas H. Mawson in 1913. The general arrangement of its street system is shown in the illustration facing p. 278.

it to spread outward. The former *Caça de Campo* and *El Pardo*, consisting of a great open domain extending over hill and dale through 30 miles, have become a people's park of great natural beauty. A linear city laid out thirty years ago by Don Arturo Soria was partly developed, but other projects to build garden cities have not taken form.

Advisory town plans of special architectural interest have been prepared for several Canadian cities. These include plans presented in published reports, between the years 1913 and 1915, for Prince Rupert, Calgary, and Regina by Thomas H. Mawson and Sons, and for Ottawa by Edward H. Bennett. Although no complete plan has been made for Toronto, a number of important projects have been initiated for parts of the city. A great waterfront improvement comprising a harbor, beach, foreshore park, and some parkway developments has been well designed and executed. The city of Halifax was partly replanned after a great explosion in 1917, and, more recently, plans have been made for Kitchener and Windsor, Ontario, and for Greater Vancouver, British Columbia.

Under the Metropolitan Town Planning Commission Acts of 1922 and 1929 an elaborate report was issued in the latter year, presenting a plan for Melbourne, Australia.

Calcutta and other cities in India have been the subject of comprehensive planning, particularly from an engineering and sociological point of view. Plans have also been made for the modern cities of Alexandria and Khartoum in Egypt, and Singapore, Jerusalem, and Tokyo, the last after the great earthquake in September, 1923. In China comprehensive planning has been undertaken in Canton and Nanking, and partial planning in Greater Shanghai and Tientsin.

The Nanking plan was prepared during 1928 to 1929 pursuant to an order of the national government of China. It contained proposals for a national government center, a municipal center, improvement of transportation and transit facilities, port and industrial development, and zoning.

Reference has been made to the advances gained in the laws of town planning in Great Britain. Under these laws considerable progress has been made in statutory town planning in England and Wales. This is indicated by the fact that 643 local authorities

had reached some definite stage of action in preparing schemes in addition to the 47 joint committees that, as already stated, had also taken action. However, the fact that only 82 schemes have been approved and are in operation justifies the criticism that the completion of schemes is unduly retarded. There has been truth also in the criticism of the late Sir Patrick Geddes that town planning in England has consisted of "planning suburbs here and there." Yet notwithstanding the delays in completing schemes and the tendency to make town planning a stereotyped process under a model code of regulations, town planning is taken with sufficient seriousness in Great Britain to justify the expectation that there will be a gradual improvement in public appreciation of comprehensive planning and in the opportunities which will be given for more constructive efforts in the future.

Methods of town planning in different countries vary according to differences in laws, as well as in administrative practice. As already stated, the British law is most comprehensive, suffering to some extent from its virtue in this respect because of the elaborate procedure involved in preparing and carrying out schemes. In Germany, Sweden, and Holland, town planning powers are contained in their building and housing laws and are continually being enlarged. For example, Sweden passed amending acts between 1907 and 1917, and in 1919. Every large German and Swedish city has a permanent town planning department, which is a great aid in securing effective administration.

A town planning law was passed in France in 1919 requiring communities of a certain size to prepare schemes, but regulatory planning of undeveloped areas does not seem to be carried out in France to as great an extent as elsewhere.

Other European countries that have legislation designed to facilitate town planning are Czechoslovakia and Russia. Mr. Lubetkin, in an article in the *Architectural Review*, already referred to,¹ states that "The Communist Academy of Russia, which deals with the problem of socialist distribution of the population, has evolved a concrete program of town-planning which takes into account all technical and social factors characteristic in the present period of building."

¹ See p. 268.

Town planning laws exist in many of the British dominions. Provincial or state legislation in Canada and in Australia follow the lines of the British laws, with variations in scope. Town planning is compulsory for some towns in Saskatchewan. In certain respects, however, Canadian legislation is based on United States rather than British precedent. In the province of Quebec municipalities have been given power to control architecture.

In South Africa the Cape Province and The Transvaal have town planning ordinances. In The Transvaal it is compulsory for municipalities to prepare town planning schemes. A comprehensive plan is being prepared for Johannesburg by F. Longstreth Thompson of Adams, Thompson and Fry of London.

Some form of town planning legislation exists in New Zealand, India, the Federated Malay States, Ceylon, Kenya, and elsewhere in the British Empire, and in Egypt and Mexico.

NEW TOWN AND VILLAGE PLANS

Among the plans for development of new towns and villages that have been prepared during the past thirty years and to which some reference has already been made are those for the capital cities of New Delhi, in India, and Canberra in Australia. Delhi is famous for its new public buildings, designed by Sir Edwin L. Lutyens and Sir Herbert Baker between 1913 and the present time. The plan of Canberra was prepared by W. B. Griffin of Chicago, Illinois, in an international competition in 1913. The latter has been found to be faulty in practical application because its elaborate plan has not proved adaptable to the conditions under which the city has had to be developed. The government and municipal centers of Canberra are shown on page 283.

Smaller cities that have been planned *de novo* are the garden cities of Letchworth and Welwyn, developed by private enterprise, and the satellite town of Becontree built by the London County Council. Some large landowners in England have had development plans made for new towns which have been partly built; these include Knebworth in Hertfordshire and Alkrington¹ near Man-

¹ Plans of Knebworth and Alkrington were made in 1908 and are shown opposite p. 311 of *The Planning of the Modern City* by Nelson P. Lewis, John Wiley and Sons, Inc., New York, 1916.

chester. Among the noteworthy industrial villages in England are Kemsley in Kent and Corby in Northamptonshire. New towns have been planned also at Corner Brook in Newfoundland and Kippewa in Canada, but development only partly carried out.



W. B. Griffin, City Planner
**PLAN OF GOVERNMENT AND MUNICIPAL
 CENTERS, CANBERRA, AUSTRALIA**

A number of original designs for new towns that have been presented in publications are interesting as theoretical conceptions, but have comparatively little practical value. H. Inigo Triggs, in his book on Town Planning, gives illustrations of two hexagonal patterns.¹ One is the design by Rudolf Müller and shows triangular

¹ Town Planning, Past, Present and Possible. Methuen, London, 1909, pp. 113, 117.

spaces used for open land and ornamental structures between hexagonally shaped blocks, providing park or garden prospects to all buildings. The other is the design by Charles R. Lamb, based on an artificial distribution of the functions of administration, learning, pleasure, medicine, business, and so forth, into different and somewhat self-contained zones. Hexagonal planning has also been proposed by A. R. Sennett,¹ and by Noulan Cauchon.² The conceptions of Le Corbusier developed in his book, *Urbanisme*,³ are of unusual interest as theoretical speculations and have educational value.

EDUCATIONAL AGENCIES AND PROFESSIONAL PRACTICE

During the past twenty years education in town planning has made great advances in European countries. Parallel with the growth of teaching of the art and science of civic design there has been much extension of research into civic problems.

In 1910 a School of Civic Design was established at Liverpool University in England, and in later years courses in town planning were organized at the Universities of London, Cambridge, Birmingham, Durham, and Edinburgh.

Instruction in town planning is given in the Sorbonne and other French universities and in architectural and engineering departments of German and Scandinavian universities. In Norway the Technical University at Trondhjem offers a course in town planning which must be attended by students of architecture and engineering. As the building law of Norway requires that town plans must be prepared by trained experts, education in town planning is thereby much encouraged.

Professional town planning institutes have been formed in several countries. The first institute was founded in Great Britain in 1914 and has now 500 members, comprising architects, surveyors, landscape architects and engineers who have had experience in town planning, as well as lawyers who have practiced in its legal phases. It collaborates with the town planning departments of universities

¹ *Garden Cities in Theory and Practice*. Bemrose & Sons, Ltd., London, 1905.

² *Journal of Town Planning Institute of Canada*, August-October, 1928.

³ *The City of To-morrow and Its Planning*. John Rodker, London; Payson Clarke, New York, 1929 (Translated from the 8th edition of *Urbanisme*).

in giving instruction and it gives support to an annual summer school of town planning. The first of these schools was held at Welwyn in 1933 and the second at Oxford in 1934. The Institute also holds annual examinations for the admission of new members, conducts meetings, and issues publications, all of which are of considerable educational value.

One of the earliest meetings that had a great influence in town planning thought and practice was an international conference convened in London in 1910 by the Royal Institute of British Architects. The Transactions of this conference is a valuable document for study by city planners and architects.

Town planning organizations on the continent of Europe include the Société Française des Urbanistes; the Société des Urbanistes Belges; and the Deutsche Akademie des Städtebaues. Interchange of ideas in town planning between citizens of different countries is promoted by the International Federation for Housing and Town Planning, with headquarters in London. Town planning institutes and societies exist to promote town planning in several other countries. Between 1914 and 1919 Canada made a strong effort to promote town planning in its various provinces through the agency of the Commission of Conservation. The Commission has been abolished, and federal leadership in town planning suspended.

CONCLUDING OBSERVATIONS

As has been indicated, Great Britain ranks first among European nations in making provision under its town planning laws for securing spaciousness in residential developments. It continues to hold a place of pre-eminence for high standards of sanitation, and for the simple beauty of much of its domestic architecture.

Germany has been particularly noteworthy for its methods of scientific zoning, for the extent of its public acquisition of land, and for the embellishment of its city thoroughfares. Recently it has followed Great Britain in making the housing of the people and the provision of open spaces for outdoor recreation primary instead of secondary aims in its town planning policies. Town planning technique has undergone more changes in Germany than in other countries. Twenty years ago the method of the town

planner was much influenced by imitation of the picturesque arrangement of streets and buildings in its comparatively well preserved mediaeval cities. Camillo Sitte of Vienna, Dr. Joseph Stübben, and other architects were prominent leaders in the movement to introduce into street planning a logical variety and picturesque arrangement, with the avoidance of the rigidity of geometrical patterns. Recently there has been a reversion to more formal planning associated with the modernistic or "rational" conception of building which has taken a strong hold in Germany, as well as in Italy, France, Holland, and England.

As has been described, great developments in civic architecture are being carried out in Italy in response to vigorous leadership.

France has not gone so far as other countries in promoting town planning legislation, but it is active in large-scale planning operations in some of its cities. While it has not taken effective measures to control the haphazard developments outside the ramparts of Paris, it remains one of the richest countries in the possession of object lessons in civic architecture.

The tempo of traffic that has arisen in the cities of all countries has caused traffic problems to be overemphasized in town plans; but it is being more and more realized that solution of the evils of congestion by means of communication cannot be achieved without orderly control of building designs, uses and densities, and the provision of ample spaciousness for health and recreation in the surroundings of homes and places of work.

CHAPTER XI

AIMS AND METHODS OF MODERN CITY PLANNING IN AMERICA

THE general purpose and scope of city planning as a science and as an art of civic design are broadly defined in the introductory chapter, while the subsequent chapters present an outline of conditions and events that have been associated with past efforts in planning regions, cities, towns, and villages. In this chapter there will be presented a brief discussion of the aims, methods, and trends of modern city planning in America; the term "city planning" being here used in the generic sense, designating all planning that is directly related to cities. In order to give a properly connected statement, it will be necessary to repeat some references to matters dealt with in earlier chapters.

NATIONAL AND STATE POLICIES

The special directions in which it is desirable for national and state governments to continue to promote and assist city planning are in the making of national and state surveys, in creating object lessons in the planning of capital cities, in the carrying out of research in civic problems, and in strengthening laws relating to planning and zoning.

National and state surveys need to be amplified and co-ordinated in order to provide basic information regarding those physical and social conditions that are, respectively, nation-wide and state-wide in their ramifications and that have a bearing on the development of urban and rural communities.

Under ideal conditions a national survey should, inter alia, comprise the studying and mapping of general topographical conditions; watersheds and river valleys and their relation to problems of urban growth; soil conditions and facilities for marketing agricultural products; and the distribution of population

and industries at different periods. It should include an analysis of trends and influences governing location of industries. The national framework of communications by water, rail, highway and air, and the existing and potential power supplies and areas accessible to them, should also be outlined in the survey. In the United States many data exist in some form with regard to all these matters, but there is a lack of co-ordination and of analysis of the information available in different departments of government.

In the matter of creating an object lesson in the planning of its national capital no country has done more than the United States, in the development of Washington. Further, what the departments of the government have done in the past in promoting research, in suggesting model forms of state laws, and in pointing out the need for organization of state planning bureaus, is the best guide for developing national policies on similar matters in future. In 1933, as already indicated, a National Planning Board was established to assist in the organization of planning in the different states.¹ Its functions have been transferred to the National Resources Board appointed by the President in 1934.

It is advisable that each state have a department of civic affairs, with experts in city planning to guide and help counties, cities, towns, and villages.

The survey of each state should deal with questions similar to those that have been suggested for national investigation but in more detail, and it should enable a state to determine the boundaries of its urban and rural regions suitable for planning, with special attention to topography, soil, distribution of industry, means of communication, and water and power supplies.

Questions to be dealt with by nation and state should conform to a broad and simple program, confined to those essentials that cannot be effectively studied in a regional or purely local aspect.

The state program will properly include the passing of enabling laws to facilitate the making and execution of regional and city plans, a legislative function that lies outside the sphere of the federal government. Again, because the state is more directly in touch with local governments and its territory is relatively small

¹ See p. 229.

in size, its program will normally proceed farther in the direction of actual planning than will the national program.

The division of the state into regions, as proposed, is in itself a preliminary planning operation involving consideration of technical problems. Because boundaries of counties and cities are often meaningless, in relation to the location and distribution of industry and population and the major network of communications, county and municipal areas have to be grouped together and planned in what are called regions. Simply stated, a region is an area comprising the territory of adjacent communities that have common problems, closely interrelated systems of communications, and an appreciation of the value of collaborating in making a joint plan. It is proper that the state should take the initiative in suggesting appropriate regions, but it should do so only in close co-operation with county and municipal authorities. Although a region in itself is not a political structure, when officially organized it is a combination of political units and may, in the highest sense, be an expression of local autonomy, as well as of state and municipal co-operation.

While regional planning has been considered mainly in connection with metropolitan districts, examples of which are referred to in Chapter IX, there are important reasons for planning regions where the dominant industry is mining or agriculture. For example, the wide area surrounding and including Scranton and Wilkes-Barre, Pennsylvania, should be planned with special regard to the dominance of the mining industry; while the Boise Valley, Idaho, with its small group of towns and its unified services of hydro-electric energy and irrigation works, is a well-defined agricultural area that should be planned as a whole.

Another factor that may affect the appropriate size of a region is the degree of complexity of the urban growth within it. The more complex the conditions, the smaller the area that can be effectively planned. Where complex urban conditions exist, 1,000 to 1,200 square miles should be the maximum area.¹ The New York Region of 5,528 square miles was abnormal owing to the exceptional size and sphere of influence of New York City.

¹ The state of Rhode Island covers an area of 1,250 square miles.

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There are, however, great national regions which may comprise much larger territories than state or local regions. These need to be surveyed and tentatively planned in the broadest outline under federal direction. One example of these has already been referred to, namely the Tennessee Valley Region.¹ Another is the Mississippi Valley Region, an extensive drainage area which the federal Public Works Administrator has selected for study and the development of regional plans for various tributary basins. Still others are the New England and the Pacific North West regions which are being studied as large units under federal leadership.

But these great regions should be divided into subregions, preferably including a section of one state, for more detailed study and planning.

REGIONAL AND CIVIC SURVEYS

When the data provided by a state survey enable the state, in collaboration with its constituent communities, to decide what areas are appropriate for planning as regions, the next step should be to make a study of each of these regional units with a view to determining the scope of the proposed plan. In the absence of a state survey, adjacent communities having common problems may either organize themselves to make a regional survey and plan, or decide to prepare independent city plans. In special instances a private body of citizens may prepare the regional plan.

Normally, city planning operations that deal with a region, city, or neighborhood and their various civic problems are divided into stages of survey, tentative plan, and complete plan.

The summary of the specific aspects of these problems in the Appendix illustrates the great number of matters that come within the scope of city planning. Which of these aspects should receive consideration, and which should be more or less emphasized in any particular project, is a matter for diagnosis by the city planner. The success of any plan will depend very largely on the soundness of the diagnosis made at the outset, and on the extent to which the planner concentrates on essential problems.

The general aim in planning, namely, the establishment of such conditions in the physical arrangement of communities as will

¹ See p. 228.

secure health, safety, and general welfare, should be constant in relation to all areas and aspects. Methods will differ with the variations in types of area and local conditions and requirements.

STUDIES OF ELEMENTS

Whatever state or other preliminary surveys have already been made it is important to follow them with a complete regional or civic survey in order to obtain intimate knowledge of overlapping physical, economic, and social features or elements. The chief elements to be considered may be summarized in three groups that are interwoven with each other and have overlapping connections. They are as follows:

1. *Physical.* Geographical position; topography; climatic conditions; natural resources; sanitation, including water supply, sewage disposal, and other services; existing ways of communication, including waterways, railways and highways; character, distribution and uses of buildings.

2. *Economic.* Problems of transportation in relation to industry, business and housing accommodations for workers including convenience of travel between places of work and residence; space requirements for industry; distribution of different types of industry and tendencies toward decentralization; land values and system of taxation; availability of power supply to manufacturers; facilities for expansion of works, and access to raw materials and markets; relation of urban to rural industries and of city to country life.

3. *Social.* Relation of state and local governments to control of social conditions and public health; trends in growth of population; arrangement of land and building uses; densities and heights of buildings; degrees and extent of open and close development; provision of housing accommodations, of parks and playgrounds for recreation, and of facilities for education and amusement; preservation of places of natural beauty and of buildings of architectural and historic interest, and prevention of the abuses in public advertising.

In approaching the study of these elements we shall find that certain broad considerations may be taken for granted at the outset, and brief reference will now be made to some of these considerations.

We must begin by recognizing that natural situation and topography have the greatest influence in creating and giving direction

to the growth of communities. As a rule the differences in character of cities—whether, for example, they are seaports, railroad centers, or cross-road towns—are largely the result of location. Harbors are usually connected with estuaries and railroads follow low-lying land, often river valleys. The supply of fresh water is brought along the valleys from surrounding watersheds. Where valleys meet the coast and rivers meet the tide, drainage and sewage disposal are facilitated, as in London and New York. Other great cities distant from the sea are situated on a river, as, for example, Paris, on the Seine, or on a lake, as Chicago on Lake Michigan.

Next to the natural situation, certain physical developments of an artificial kind—the consequences of man's attempt to harness nature and to facilitate communications—have the greatest influence on urban growth. Of primary importance in this connection are the extent, character, and distribution of transportation and transit facilities.

Usually the least efficient of the transportation services, in their broad application, are those relating to street traffic. Congestion of means of travel, of industry, and of residence are all related and need to be studied together. Modern problems of congestion in central areas are largely the result of defective arrangement of transportation facilities plus excessive concentration of buildings. Every city that has congested centers contains outlying areas where development is too widely scattered. Overcentralization may be lessened by planning extensions of the transportation services so as to encourage decentralization, for instance, by extending railroad, transit, and highway facilities into open territory. However, it is as necessary to avoid haphazard and unplanned decentralization as it is to remedy the evils of unplanned and congested centers.

The industries related to transportation, manufacturing, and power supply are the chief economic forces for providing modern cities with wealth-making activities. Those connected with building, marketing, food supplies, government, education, and all professional services are also part of the economic structure.

The stability of a community depends on the efficiency and economy of the services it provides for its dominant activities;

whether they be manufacture, wholesale distribution, marketing, education, government, or recreation. Just as an industrial community is dependent on its factories, so is Washington on the activities and expenditures associated with government, and Atlantic City on the maintenance of its facilities for health and recreation.

Concentration of population combined with public and private expenditures in civic improvements and services creates values in land, and these values become part of the economic foundations of the community. They represent the prices which persons are prepared to pay for the right to use land for their industry, business, or residence.

Sites that are most accessible to the largest number of inhabitants of a city have the highest value, while those that are inaccessible to the population, particularly if they cannot be made accessible, have little or no building value.

The collection and analysis of data regarding land values and their relation to land and building uses is essential in a civic survey. It is of special importance to distinguish between proper and improper values and prices. City planning should aid in stabilizing values that arise from healthful and otherwise legitimate uses of property, but should have the effect of eliminating those based on anti-social uses, by preventing overcrowding of building and other defective conditions in land development.

Important economic considerations arise by reason of the existence of blighted areas which, whatever their origin, are a financial burden to communities. The causes of deterioration and the measures needed to prevent or arrest it should be investigated.

The study of social elements presents the greatest difficulty because they are so much interwoven with human relationships. The problem of the poverty of a section of a community overlaps that of housing, and cannot be solved by the most perfect machinery of planning or the regulation of building construction. However, it is not only the poor who suffer from bad housing in cities. There are few communities in which there are not defective housing conditions for considerable numbers of persons who have sufficient earnings to pay for healthful accommodations. This is a housing problem that can more easily be solved than

that of rehousing the very poor. The presence or absence of good sanitary services, of adequate facilities for recreation and culture, and of ample spaciousness about buildings raises social questions of the highest importance.

Aesthetic aspects may have as important a bearing on the economic stability as on the social welfare of a community. The preservation of an agreeable environment about homes, of natural beauty in public parks and places, of buildings of architectural and historic interest, and of the pleasing character of neighborhoods may add to its material as well as to its spiritual wealth.

It is essential to recognize that the space about houses required for light, air, and private recreation should be considered together with public open spaces as part of the problem of the distribution of buildings in relation to all open areas. Provision of public parks and playgrounds does not lessen the need for private gardens or yards as the ideal playground for small children.

MAPPING

One of the mechanical tasks to be undertaken in connection with a city-planning study is to prepare basic maps of existing features with as much accuracy as is possible. There are two kinds of basic map that are particularly valuable. One is an accurate topographical map prepared at a scale of 200 to 400 feet to one inch, showing both natural and artificial features, including existing railways, streets, and buildings. The other kind is an aerial map which gives a view of all features in the most graphic way. Both maps are desirable, but an accurate topographical map is most essential to enable proper planning to be done.

In regional planning the desirable type of map is that used in the New York and Philadelphia regional plans—an enlargement of the federal government's Geodetic Survey Map from a scale of one inch to the mile to a scale of one inch to 2,000 feet.

IMPORTANCE OF ANALYSIS

The desirable degree of thoroughness of a survey will be that which yields only those results that are pertinent to the object in view, it being borne in mind that the mere collection of facts will



AN EXAMPLE OF AERIAL MAPPING, WHEATLEY HILLS, LONG ISLAND, NEW YORK

be of little service unless time and ability are available to analyze them and put them to effective use in the planning operations. Great advances have been made during the last twenty years in surveys. These have occurred both in the extended realization of their necessity and in the quality of their technique. In comprehensiveness and analytical quality the survey of the New York Region referred to in Chapter IX¹ is acknowledged to have reached the highest standard.

THREE TYPES OF PLAN

As has been indicated in the outline of planning efforts in preceding chapters, the three types of plan most commonly prepared are:

1. *The Regional Plan.* A skeleton and usually advisory type of plan for an area of large geographical extent comprising different municipal units, in whole or part, or one or more counties; and confined to broad outline proposals affecting land uses and ways of communication and recommendations of principles for guidance in city and neighborhood plans. It should deal largely with possibilities and not contain definite proposals for demarcation of zones.

2. *Master City, Town, or Village Plan.* A more definite and detailed type than the regional plan, containing proposals for planning or replanning an existing municipal area or a new town. Although most city plans have been wholly or partly advisory it is desirable that they should be as definite as is practicable, and prescribe the precise positions and widths of proposed highways and streets and definite boundaries of proposed use areas for zoning.

Its proposals relating to new streets should be definite enough to permit of their being adopted as parts of an official street map, and those relating to zoning regulations should be suitable for incorporation in a zoning ordinance.

It should contain proposals for the control of subdivisions and suggest areas for local development plans, although on occasion it may be expedient to embody detailed local plans, as parts of a city plan.

3. *Local Development Plan.*² The most detailed type of plan containing specific proposals for (a) design of streets, blocks and lots, and sometimes of buildings, in a subdivision or neighborhood

¹ See p. 223.

² The term "local development plan" is introduced here to designate all projects that relate to sections of a city, town or village, and that enter into more detailed development than other plans.

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unit, usually called the subdivision plan; (b) complete project for a civic, educational, or other group of buildings; or (c) reconstruction scheme for a blighted or overcrowded area.

In each of these three types of plan it is practicable and desirable to deal in different degrees of definiteness with the related problems connected with the uses of land and buildings and all means of communication. While, in the main, regional plans should be advisory, master and local development plans should be prepared for the purpose of official adoption and enforcement.

Although under special circumstances it may be necessary to prepare partial plans (that is, those limited to separate aspects of civic problems such as zoning regulations or the planning of the thoroughfare system), it is here assumed that these are subordinate parts of master plans.

SCOPE OF REGIONAL AND MASTER CITY PLANS

The foregoing brief statement of the distinctions between, first, the regional plan and, second, the master city, town or village plan, indicates that these distinctions are mainly in geographical and political scope and in the relative degree of definiteness of proposals. Otherwise both types of plan deal with the same aspects of community growth relating to means of communication, land uses, and building development.

Before giving a summary of matters that have to be considered in both types, it is desirable to make further reference to their differences. These are fundamental in the respect that the regional plan, as here understood, is concerned with an area over which several local governments, and perhaps two or more state governments, have jurisdiction, whereas the city plan is concerned with an area administered by one controlling and taxing authority. This is one of the chief reasons why the regional plan should be an advisory plan and why the city plan can, and therefore should, be carried out and enforced to the extent that is legally practicable. The regional plan cannot take the place of a city plan. It should be a plan for general guidance of the administrative authorities within the region, each division of which should prepare its own plan for adoption and application.

From a technical point of view, also, it is highly desirable that both an advisory and a statutory plan should be prepared for all urban areas; the first being free of those hampering effects on design and presentation of ideas which are imposed by legal requirements, and the second being immediately practical because it is restricted within the limits of what will be permitted under the law.

Therefore the objective in each state should be advisory outline plans prepared for selected regions, followed by more specific and legally enforceable plans for each municipal area. Two special values of a regional plan are: first, that it affords guidance to each community in the region with regard to the planning of its own area in harmony with surrounding districts; and, second, that it encourages joint action between adjacent communities.

Due consideration being given to the difference between the regional and master city plan, either plan will deal, in varying degrees of emphasis, with the same problems. Usually, the chief emphasis in both plans will be on the following matters, most of which have been referred to in previous pages.

1. Ways of Communication

a. Railroad extensions and terminals; harbors and waterfronts; airplane landing fields; transit lines and street railroads.

b. New highways, speedways, parkways and streets; improvement of alignment, width and connections of existing highways and streets; approaches to and from the center of towns and to and from railroad terminals; bridges and subways; by-pass roads; treatment of intersections of main thoroughfares.

c. Co-ordination of transportation, transit, and traffic facilities.

2. Zoning and Land Uses

a. Designation of areas for different uses such as residence, industry, business, and open development uses (agriculture, and so forth).

b. Designation of parts of residential areas for different types of dwelling such as single family (detached), two-family (semi-detached or one above the other), groups or rows, and apartment dwellings.

c. Restrictions affecting heights and densities of buildings, degrees of coverage (area of occupancy) of lots, building setbacks and court space, and position of building lines.

3. *Open Spaces and Preservation of Amenities*

a. Designation of areas for regional and city parks, athletic fields, playgrounds and other open spaces, public and private.

b. Preservation of historic buildings and places of natural beauty and proposals for architectural control.

c. Regulation of the erection of temporary structures, including billboards and gasoline filling-stations.

4. *Control of Land Subdivision and Determination of Sites for Civic Centers and other Local Developments*

a. Restrictions affecting the subdivision of land into streets, blocks and lots.

b. Selection of sites for supplementary planning as neighborhood units or residential estates and civic or transportation centers.

c. Proposals for the development of satellite communities.

The more important of these matters will now be briefly referred to.

RAILWAYS, HARBORS, AND TRANSIT LINES

Systems of railroad transportation usually have been planned independently of regional and city plans. This will continue to be so, to a large extent at least, because municipalities are rarely responsible for their transit facilities. Proposals for their improvement have to be prepared by, or in collaboration with, the engineers of the companies which own or operate them. There can be no proper understanding of the civic structure, or satisfactory design for improving or developing it, unless consideration is given to the existing and prospective needs of transportation. This applies not only to improvements for passenger travel, but also to those connected with the carrying, handling, and distribution of freight.

Railroads and harbors have received a great deal of attention in regional and city plans. In modern cities it is especially desirable to improve terminal and distributing facilities in central areas and to co-ordinate the different types. The connections of railroads to wharves and the relation of railroads to waterfront improvements are of major interest in port cities. Where the location of railroads is obstructive to the development of road communications and the expansion of industrial districts, drastic changes may be necessary.

Projects for the improvement of railroad transportation—including the further development of electrification and of gasoline engines, and the construction of lighter trains of new material—are being tested by experiment. These may lead to revolutionary changes and require the replanning of transportation systems.

AIRPLANE LANDING FIELDS

The growth of air transportation makes it necessary for the city planner to give more and more attention to providing suitable sites for airports and landing fields. Trends in this phase are discussed in several recent books, including that on Airports by Henry V. Hubbard and others.¹

Aerial transportation has suffered from the failure to acquire sites in anticipation of its needs, although perhaps some extravagance has been shown in the actual development of airports before air service could be made commercially successful. The airplane cannot take the place of the railroad for carrying large numbers of people and great bulk, but where numbers and bulk are small, and where speed is important, it must become an essential part of the transportation system.

HIGHWAYS, PARKWAYS, AND STREETS

Whatever variation there may have been in the emphasis given to different aspects of planning in past times there has always been a strong emphasis on that of highways and streets. It has already been said that many so-called city plans have been nothing more than street plans, and that, relatively speaking, exaggerated importance has been attached to highway and street planning.

Highways have now to be much wider and better paved than formerly; and parkway thoroughfares for pleasure traffic and speedways or freeways for mixed traffic have to be constructed to supplement existing highways. The most efficient main highway is the one that provides for four streams of fast traffic only and such additional lanes as are necessary for local movement and standing traffic. Every main highway should have planted strips, or "islands," and those that form approaches to or pass through

¹ Hubbard, Henry V., in collaboration with Miller McClintock and Frank B. Williams. Harvard University Press, Cambridge, Massachusetts, 1930.

residential districts, or connect park systems, should be developed as parkways with wide park strips on both sides.

The parkway is a quite distinct form of way from the highway or boulevard. It is a way through a park having a special legal quality that denies to it the unlimited right of access that exists in the case of the highway. Most parkways, however, are partly highways; that is, they have private land fronting upon them for part of their length. But the ideal parkway is separated by wide park strips from land that can be built upon, and, while accessible to traffic at reasonable intervals, has all main crossings on a separate level.

Local streets should be planned so as to segregate through traffic from purely local traffic in the interest both of vehicles and of pedestrians; for instance, a considerable proportion of such streets should be designed as cul-de-sac or one-way streets so as to prevent or reduce through traffic.

ZONING AND LAND USES

The subject of zoning requires more extended reference than other aspects because its character and importance are less understood. Legal questions and standards are fully discussed in many books.¹

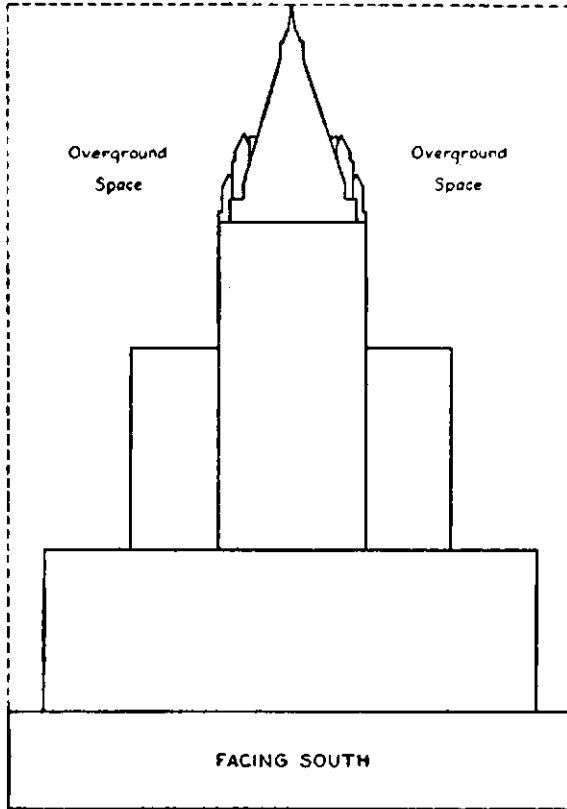
The object of zoning, as already explained, is the promotion of health, safety, morals, and the general welfare, in connection with which the police power can be invoked. It cannot be applied for the specific purposes of securing more space in streets for traffic, open spaces for recreation, or for aesthetic effects. But indirectly it contributes to securing these things; for example, by requiring more space about buildings for light and air.

No property, public or private, in an American community may be exempted from zoning regulations. These must be applied to complete administrative areas, be general in their application to

¹ Books that contain authoritative information on practice and experience in zoning are: *The Law of City Planning and Zoning*, by Frank B. Williams, 1922; *Building Height, Bulk and Form*, by George B. Ford, Harvard University Press, 1931; *Urban Land Uses*, by Harland Bartholomew, Harvard University Press, 1932; "Zoning Principles and Proposals," in *The Regional Plan of New York*, vol. 2, chap. 7; and *Transition Zoning*, by Arthur C. Comey, Harvard University Press, 1933.

MODERN AIMS AND METHODS IN AMERICA

each district, and not be discriminatory in their effect on property. Where zoning is carried out in advance of city planning, it is advisable to put into operation what is known as an interim zoning ordinance, which ultimately will be superseded by final and more detailed zoning regulations after the completion of the city plan.



SECTION OF NEW YORK LIFE BUILDING, NEW YORK, SHOWING "OVERGROUND SPACE" WHICH MAY BE SECURED BY SETTING BACK THE HIGHER STORIES OF BUILDINGS UNDER ZONING REGULATIONS

Normally, zoning regulations deal with: the use of building and land; the bulk and height of buildings; and the space about buildings. Although they are mainly restrictive they have constructive results.

A major purpose in zoning should be the securing of a sufficiency of light and direct access of outer air to all buildings. As heights

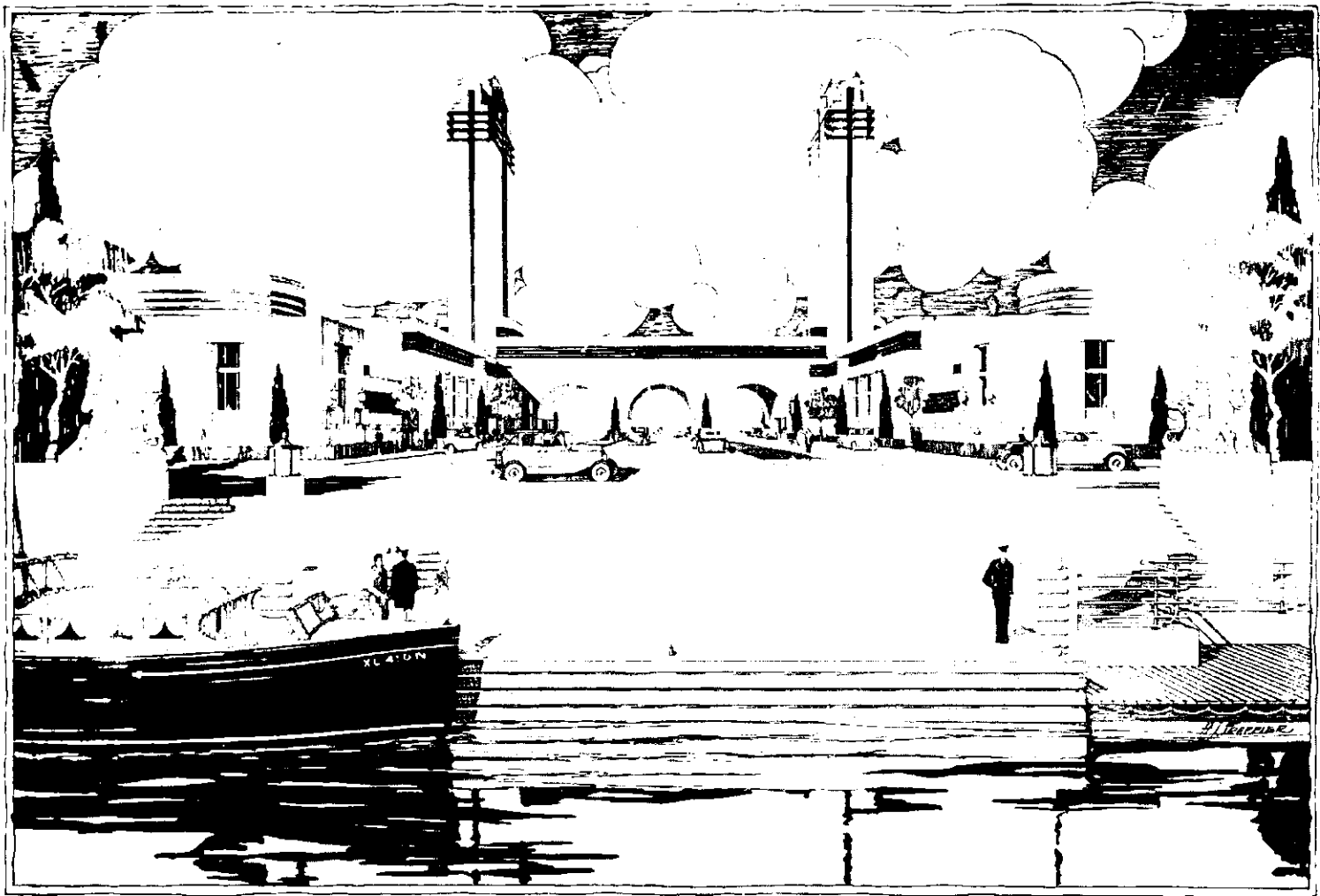
increase, the space about buildings should be increased. Open space should be provided on the ground—and also above ground—in the form of setbacks on different levels of the building.

Zoning of use areas has become more increasingly necessary in recent years because of the continued rapid growth of cities, tendencies to scatter business and industrial uses indiscriminately, and the lack of adequate protection of the amenities of residential areas. With proper city planning and architectural control, business and residential uses may sometimes exist side by side without injury to either and perhaps with benefit to both. But, chiefly owing to the tendencies to use business premises for advertising, to extend the walls of business buildings in front of the line for residences, and to use sidewalks for displaying goods, business use has become undesirable in residential streets. The habit of using vacant lots for ugly temporary structures or for junk-yards has been a particularly objectionable feature. These and other nuisance features in business developments have caused injuries to residential property and much depreciation of values in all cities.

The recent development of the public garage and its erection in wrong places have made it essential to control its location and character. The development of the apartment house as a place of residence, and the tendency to erect large and bulky buildings in areas previously devoted to single-family dwellings, have been increasing causes of much injury to certain districts. The sites best adapted to create profit for builders of high apartment houses are in neighborhoods in which most injury can be done to the amenities, particularly those neighborhoods that contain houses with large garden space, tree-planted streets, and boulevards and parks.

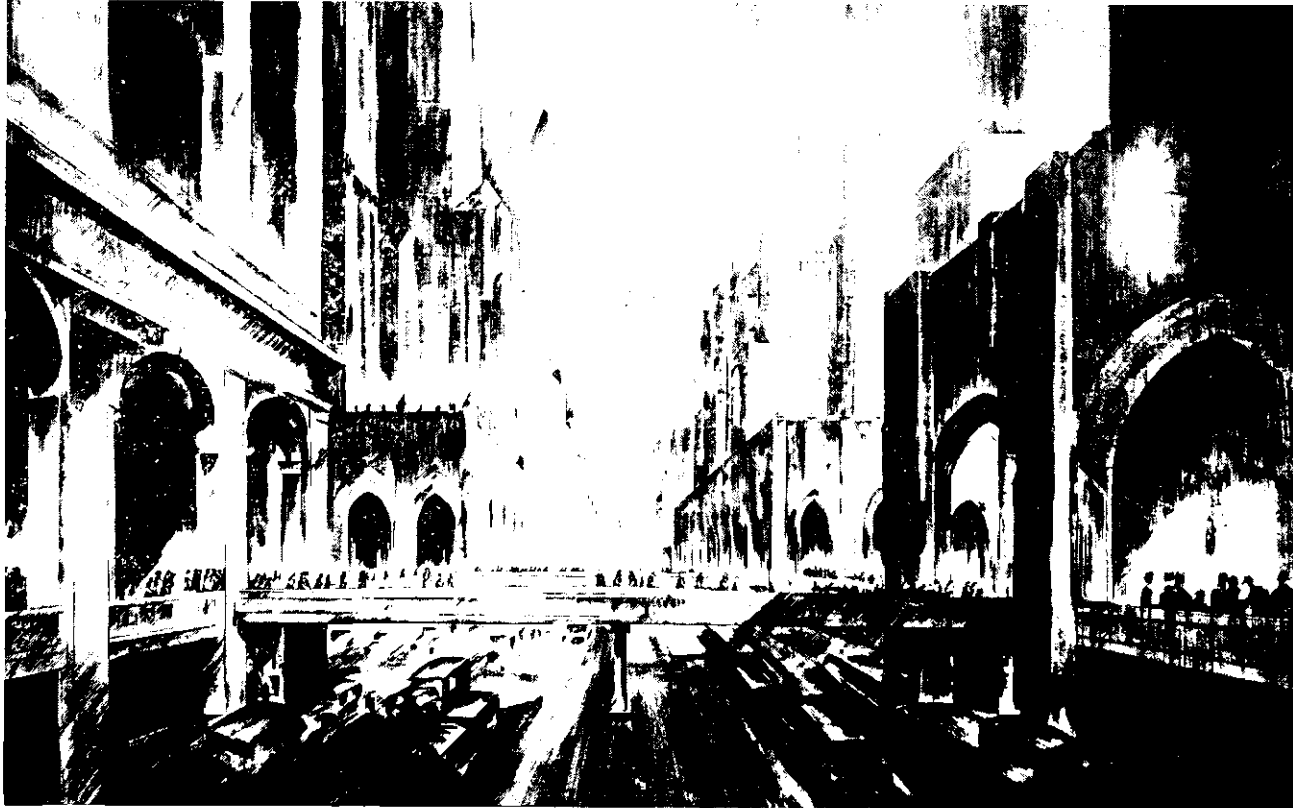
Early zoning ordinances consisted of a number of sections dealing with use, height, density, space about buildings, non-conforming uses, and provision for appeals. Recent practice has been to increase the number of use districts but to apply uniform height and density regulations in each.

It has been found desirable to have four classes of residential district, and to provide one zone for a major shopping center and other zones for neighborhood shops. Industrial districts are separated into light and heavy zones. Area and density regula-



The Regional Plan of New York

PERSPECTIVE OF BUSINESS AND CIVIC CENTER AT END OF BASIN FORMED BY STRAIGHTENING
HACKENSACK RIVER



Committee of Architects, Regional Plan of New York

BRIDGES CONNECTING ARCADES
Example of design for fitting streets to buildings

tions may include provisions as to space about buildings and regulations of density in terms of square feet per family or families per acre. In addition, they may include provisions as to percentage of lot that may be occupied by building and minimum lot frontage.

It is important, wherever possible, to provide space for the loading and unloading of vehicles and for parking on private property; for example, in apartment developments for the parking of private vehicles.

Zoning regulations are not generally made retroactive, and a business use existing in what is to be in future an exclusively residential area cannot be interfered with except upon payment of compensation. It is, however, possible and usual in practice to prohibit the extension of an existing non-conforming use, or a change from one non-conforming use to another.

Interpreting the intention of zoning ordinances with regard to specification of use is a question that arises in administration. Regulations should be made as simple as possible and free from ambiguity. Local boards of appeal should be provided for securing elasticity in administration.

City planners should work in collaboration with lawyers versed in the legal technicalities of zoning. They should take steps to secure an adequate measure of co-operation with owners of property, and public hearings and informal meetings of citizens should be held to discuss proposals before they are finally submitted to the city council for approval.

One of the effects of the provisions for setbacks in zoning ordinances has been to give a distinctive architectural character to buildings. High buildings in recent years have tended to become more like towers, and great improvement has resulted in their design because of the requirements for open space on and above the ground.

While zoning regulations must provide adequate space about buildings for good light and ventilation, they should be so framed and applied as to give as much freedom as possible to architects in designing buildings for a particular use.

While it is doubtful if zoning can ever be enlarged to permit full control over architectural design of permanent buildings, it may be practicable in the future to control the design and location of

temporary structures. But this limited control, together with more guidance from advisory committees of architects in regard to the design of comparatively permanent structures, will be obtained only after much public education. In the future, as in the past, the courts will be guided by public demand in determining the degree and extent to which artistic qualities of buildings and their environment should be considered as being essential to the general welfare.

Another direction in which it is desirable to extend zoning is in the prohibiting of building upon certain land, either temporarily or permanently, in the interest of public health and general welfare. This prohibition, at present unconstitutional in the United States but now legally possible in Great Britain, should be applied where the development of land for building purposes leads to insanitary uses, and excessive expenditure of public money, or destruction of amenities to an extent that will be publicly offensive. The serious financial conditions that have been created as a result of premature subdivision should impress public opinion in America with the necessity, both in the public and in private interest, of obtaining an extension of power that would permit municipal and county authorities to prevent unhealthful and premature building on land.¹

Zoning does not deal with construction and sanitation of buildings. When a city plan and zoning ordinance are completed the building code should be revised so that regulation of the details of building construction may be co-ordinated with the proposals and regulations of the city plan.

OPEN SPACES AND THE PRESERVATION OF AMENITIES

The trends in city planning are toward giving more emphasis to the provision of adequate spaces for rest and active recreation. With the increase of leisure time of workers the need for more opportunities for activities in the open air has greatly increased. The modern practice is to provide public open space in three categories. These are:

¹ For discussion on this subject see *The Design of Residential Areas* by Thomas Adams, Harvard City Planning Studies, no. 6, Harvard University Press, Cambridge, 1934.

1. The regional park system, consisting of large reservations of forest and wild areas that are accessible by road under modern conditions of motor travel, connected with the city by parkways;
2. The city park system, consisting of pleasure parks and large athletic fields; and
3. The neighborhood park and playground system.

No space requirements can be indicated for regional parks, but the minimum space provided for city and neighborhood parks should be not less than 15 per cent of any urban area—generally 10 per cent in the city park system and an additional 5 per cent in the neighborhood system.

Public spaces in cities are rarely adequate to meet the needs of the community. Regional and city plans may render great service in showing the most appropriate locations for parks and the best system of distribution for the different kinds.

As has been pointed out in previous pages, the need for preserving the amenities in country districts, and particularly along the fringes of main highways, has grown with the increased demand of the public for means of access to the natural beauty of the countryside. Unfortunately, the public has shown inconsistency by combining a desire to enjoy access to natural beauty with a careless treatment of beautiful places.

CONTROL OF LAND SUBDIVISION

The question of the control of subdivisions by municipal regulations is a different question from that of constructive planning of the land comprised in particular subdivisions, to which reference is made under the heading, Scope of Local Development Plans.

In considering both control and planning it has to be borne in mind that parts of the sites of all cities have been developed in accordance with subdivision plans that have been based on some form of regulation, and on divisions of land originally made for purposes of settlement. It has not been conducive to good subdivision that most land has been laid out for building purposes while it is still in rural areas, where the public authority is without experience as to what needs to be done to control urban development and is without responsibility for the ultimate results of bad planning.

The original process of the division of land naturally has had much influence on the manner in which the land was subdivided into streets, blocks, and lots, and therefore on the general growth of cities. In converting land from farm to building use, the developer usually plans the streets and the sizes and shapes of lots so as to obtain profit for himself. But in rare instances only is he able, even when willing, to consider the public interest adequately or to relate his sectional plan to that of the whole community. Invariably he has no guidance from a master plan that has been prepared early enough to deal with land still in acreage, and with rural areas outside city boundaries that are not yet subdivided. For want of this master plan he cannot, if he wishes, adjust the subdivision to the city plan, except to a limited extent where there exists an official street map to which he must conform. He can justify his failure to employ skilled advice on the ground that there is no master plan to guide him, and therefore he is concerned only with the straightforward task of parceling out the land in the way that will best serve his immediate financial interest.

The regional and the master city plan should embody statements of principles to govern the control of new subdivisions. This control should aim to prevent land in urban areas from being sold in lots for the erection of dwellings until it is served with an adequate supply of water, with necessary drains and sewers, as well as with convenient means of access by road; or under a guaranty of the vendor that these utilities will be provided within a specified period. No new subdivisions or modifications of existing subdivisions should be permitted without approval of an expert department of the city planning board of each community.

Perhaps no aspect of planning is more important than that relating to the control and planning of subdivisions because the original layout of land affects all subsequent developments.

SITES FOR SATELLITE TOWNS AND LOCAL DEVELOPMENTS

In the regional plan an indication should be given of the most suitable locations for the establishment of new towns and villages. The master city plan should embody a pattern of centers and neighborhoods that have some local unity and that need to be

dealt with by supplementary planning. This pattern should show the general position and boundaries of all sections which it is advisable to plan in detail.

PLANNING NEW TOWNS

In regard to aims, and largely in regard to methods, similar considerations apply to the planning of new towns as to the replanning or extension-planning of existing cities or towns. Naturally the opportunity to plan a town *de novo* (which comes very rarely) provides the city planner with the greatest scope for exercising the art of design, but even when he gets this opportunity he may be hampered by having to compromise with some existing features. An established nucleus of buildings on the site, or a disorderly development in juxtaposition to it, or a narrow point of view on the part of those who have financial control of the prospective development, may impose limitations on the planner in making a completely satisfactory plan.

On the whole, however, the plan of a new town may be approached without the limitations which affect replanning. Much that can merely be mended in the existing community can be prevented by foresight in the new community. The same problems in street planning arise, but all the streets can be planned together and co-ordinated in relation to the prospective building uses of the land in advance of development. The design of blocks and lots can be adjusted to the type of residential and industrial development so as to make the design constructive from an economic as well as an aesthetic point of view.

If a plan is well conceived, comparatively little zoning regulation will be necessary because the principles governing the layout of streets, blocks, and lots will largely predetermine how the land can be used and what are the appropriate heights and densities of building. In new towns zoning restrictions are not favored, for example, at Radburn, New Jersey, in the United States and at Letchworth in England. This is partly due to the fact that the plans and the private restrictions in these new towns secure nearly all that is obtained elsewhere by zoning; and in the early stages of complete new developments the effect of zoning regulations may be

to introduce an undesirable degree of rigidity into the execution of plans.

The absence of artificial features on the site of a new town means that the planner is more free to consider the opportunities presented by topography. He should make thorough studies of the site and prepare accurate topographical and aerial maps before preparing a plan. It is important also to avoid the temptation of trying to make the site fit a preconceived pattern, or alternatively to permit some natural feature to interfere unduly with the convenience of traffic circulation or of the unity of the design. He has to consider together the general outline of principal streets, the elements of minor streets, blocks, and lots; the location of centers for community buildings, stores, schools, and churches; and the areas to be reserved as open spaces. But the adopted plan should be limited to the general outline and the remainder of the plan should be considered as an elastic pattern for gradual adoption as the process of development proceeds. Every town planner should, as part of his training, go through the mental exercise of planning a town *ab initio*, according to a program of practical requirements, in order to understand the proper approach to any branch of city planning.

SCOPE OF LOCAL DEVELOPMENT PLANS

The desirability of considering what are here called local development plans separately from regional and city plans is owing to the fact that the planning of local developments necessitates a more detailed study than is usually advisable or practicable in the treatment of large areas. But, as has been already stated, the regional and master city plan should determine what sites or sections of a city should be dealt with in supplementary local plans of subdivisions, neighborhood units, and civic, transportation and other centers.

SUBDIVISION PLANS

Residential subdivisions should be carefully planned in relation, first, to the whole city of which they are a part; and, second, to the home unit consisting of the individual house and lot or the separate apartment house. In planning residential areas it has to

be borne in mind that a house is more than a mere building. Its constituents are (a) the building; (b) the site on which the building stands; and (c) the local and general improvements, consisting particularly of the roadways that provide access, the sewerage system, and the water and lighting supplies. On the other hand, a home, in the sense of its external features only, is more than a complete house, for its good or bad qualities are dependent to a large degree on the good or bad qualities of a whole neighborhood.

In other words, the value of a house depends very largely on its environment. A good house in a bad neighborhood may be half the market value of a similar house in a good neighborhood. By proper planning of residential subdivisions the good quality of neighborhoods may be secured and the blighting which destroys property values and does social and economic injury to communities may be prevented.

The contents of a subdivision plan will include proposals for the layout of principal and secondary streets not included in the city plan; all minor and cul-de-sac streets; the grading of streets and approaches to lots; access to sites and projected buildings; location of neighborhood center and public buildings; demarcation of zones for different types of residences and for local business districts; sizes and shapes of blocks; and the width and depth of lots. On occasion it may include the partial or complete conception of the building development. In all residential subdivisions, even where the proposed development is predominantly of an open character, sites should be selected for compact urban units of apartments, group houses, stores, and places of amusement.

CIVIC, CULTURAL, TRANSPORTATION, AND MARKETING CENTERS

The adornment of cities by the monumental treatment of centers and public buildings must continue to be one of the chief aims in city planning. Such adornment has always been the dominant consideration in the planning of capital cities by powerful rulers; but in democratic countries it is, or should be, secondary to the aim of securing healthfulness and efficiency in living and working conditions. The civic ardor that is necessary to create beautiful building in a democracy must have its roots in healthful homes,

and a community that is well housed will grow in that pride and love of city that produces order and beauty in public places and in buildings devoted to art, education, and associated community life in all its forms.

The creation and preservation of beauty are possible without extravagance. Ugliness and disorder usually follow from the wrong use of money, not from saving it.

Every city gives expression to the character of its civic life in its centers. The aim should be to make these dignified and spacious, with the architecture appropriate for the functions of the buildings and embodying the distinction that comes from simple outlines and good proportions rather than from ostentatious ornament.

Unlike the small city of earlier times, the large modern city has many centers and subcenters devoted primarily to institutions related to government administration, art, education or amusement, and others devoted primarily to transportation terminals and markets. For the most part these centers have developed haphazardly and are badly distributed and arranged. Close collaboration between the city planner and the architect is essential to the proper solution of problems in design of these centers. Obviously the design will depend much upon the topography and extent of the site and the character of the surroundings and approaches, as well as on the uses and sizes of the proposed buildings.

It is not always best to combine civic and art buildings in one center. The question of whether it is advisable to do so depends upon the size of the city—separate sites for groups of public buildings being desirable in large cities and a more unified grouping in small cities. In well-conceived plans such centers will be related to and near business areas and transportation centers, but not part of them.

An open type of community center connected with parks may be provided in residential and rural counties. An example of this type is at White Plains, Westchester, New York, where a large auditorium has been built adjacent to the Bronx River Parkway as the principal civic building in Westchester County. Many recent city plans include proposals for civic and art centers, but more restraint has been shown than formerly in their elabora-

tion. Facts have been faced as to the necessity of confining the scope and character of such proposals to what can be undertaken without imposing an excessive financial burden on the community.

Opportunities for planning or replanning great universities as independent local developments sometimes occur and give scope for both architectural and landscape design. It is especially important that university groups should have spacious surroundings and a high degree of unity in design and arrangement.

Small colleges, high schools, and churches may be appropriately grouped with libraries and other community buildings, subject to their being on sufficiently large sites to permit of adequate recreation space; but elementary schools should not be grouped with other buildings and they should be set apart from main highways and provided with ample playground space.

The planning of the surroundings of terminals involves collaboration with railroad companies. Opportunities sometimes occur for designing these with spacious plazas at the entrance to stations. Railroad stations, which are the portals of a city, do not generally conform in dignity of appearance to the requirements of such portals.

In addition to the consideration that is given in zoning regulations to the location and arrangement of business districts, constructive proposals should be made in all city plans for the development of a system of markets. Market-places should be well organized and efficiently planned for the distribution of food. This question has been dealt with in a bold way in Chicago, where a great new wholesale market has been organized in recent years.

Wholesale regional and city markets, buildings used for the slaughtering of animals, and kindred structures should be located near the main transportation centers; retail markets should be convenient to local transit facilities. Street marketing is a mediæval practice that requires extravagant use of space and should be abolished after adequate provision has been made for local retail markets.

WATERFRONTS

Opportunities occur for the improvement of waterfronts in every city that has frontage on an ocean, a lake, or a river. Usually the most prominent part of a city is its face toward the open areas of water, and no location offers a better opportunity for the display of architecture. In most cities that have extensive waterfronts, such as New York and Boston, prominent sites on the waterfrontage are wastefully used for temporary structures or junk-yards. However, in the two cities mentioned, and in many others, splendid improvements have been planned and carried out along the river sides. These afford an excellent contrast in beauty and economic value with the ugliness and depressed values of the parts that have not been properly planned.

Dignified and pleasing developments on a waterfront may be composed of commercial buildings, but excessive reservation of such frontage for commerce causes extensive areas to be blighted.

REMODELING BLIGHTED AREAS

Local development plans should be prepared for the blighted areas that are present in every city. These areas are different in character. Some are in the nature of slums that must be cleared out and rebuilt for the same kind of residential use; some are residential areas that have deteriorated because of the encroachment of business uses; and some are business areas that have undergone decay owing to their business having been attracted elsewhere, thus leading to the problem of finding a new use.

The remodeling of blighted areas is one of the most expensive of civic improvements. It involves the acquisition of high priced land and also the acquisition of existing buildings that have no value in the scheme of reconstruction. Parts of the blighted districts so acquired should be reserved for public open space, without which the development of private property in a district cannot be carried out in such a way as to secure a desirable reduction of building density. Unless part of the cost of such operations is met out of the public purse, it is almost impossible under average circumstances to achieve the satisfactory rebuilding of blighted areas. This has become one of the most urgent problems in the United

States, because of the need of improved housing in the old parts of cities. In recent years there has been a general public awakening to the economic and social folly of permitting slum conditions to become established in cities. Incidentally, the financial difficulty of remedying these conditions is one of the most powerful arguments for preventing shoddy building and haphazard planning in new developments.

CIVIC ART AND THE HOME

In describing origins and developments of city and town planning emphasis has been placed on the relative degrees of importance which have been given in different countries to housing and sanitation. These subjects have not been referred to in this discussion of aims and methods as distinctive phases of city planning because it is appreciated that they are not separate aspects but enter into every other aspect, into every part of the whole. Every proposal in a city plan should be considered from the point of view of its effect on housing.

The houses of a city constitute about three-fourths of its buildings and the value of a city plan may be gauged, in large measure, by the effect which its proposals will have in improving housing conditions. Whatever suggestions the plan contains for the extension of transit facilities, the development of main highways, parkways and park systems, and for general organization of the means of communication and arrangement of land uses, all have an indirect bearing on the distribution and character of housing accommodations. It has been seen that, to a large extent, zoning regulations have for their purpose the securing of healthful and safe conditions in houses and protection of the amenities of residential neighborhoods. Good qualities in the home and its surroundings are essential in order to secure human happiness and efficiency and the stability of communities.

No city can have a high standard of civic art that has defective housing conditions on an extensive scale. In this matter no distinctions can be drawn between communities. The things that are most necessary in order to secure health in the home and to provide it with agreeable surroundings are the same things that are

OUTLINE OF TOWN AND CITY PLANNING

necessary to give a pleasing artistic quality to its public structures. Primarily these depend on the reservation of open space; sufficient space about each building for light, air, and family recreation; space in the street to permit of trees and verdure and the free movement of traffic; and space in playgrounds and parks to enable recreation to be obtained off the streets and to allow vegetation to live and grow. In proportion as each home enjoys the advantages of these elements of spaciousness, the city will enjoy the same advantages, and be better able to meet all utilitarian demands as a civic structure.

CHAPTER XII

THE FUTURE OF CITY PLANNING

AN INTELLIGENT reading of the past helps to illuminate the future. But a proper appraisal of possibilities depends upon our ability to appreciate present tendencies as well as past conditions, also on the soundness of our appraisal of values of comparisons between different cities and different methods of city planning.

Looking back first on what has been said regarding the objects, achievements, and scope of city planning, we can perceive that no two cities in any one period and country are alike; and the dissimilarity between cities in diverse periods and countries is even more marked. Each city needs to be studied and planned separately. Yet there is much in the origin and forms of growth in all that is the same; much in the technique of planning that never changes.

Any attempt fully and accurately to appraise the comparative value, in terms of human welfare, of the results achieved by different methods of planning would involve extensive studies that few could undertake, and would require a gift of perception that few possess. Nevertheless there is much of interest in such studies as can be made. Both the best and the worst of modern civic conditions have their counterpart in past times, and perhaps the modern city has less to fear from comparison with older cities than is sometimes realized.

There is a common tendency for persons in one period to picture past conditions under a sort of glamour of romance. One is likely to see the ills of the present in a stronger light than the good, and to narrow one's vision of the past to those things that have been most interesting, most enduring. It must be acknowledged, however, in spite of many defects, that this age has produced much that is noble and great in architecture and engineering. As compared with previous ages it has a high conception of social welfare. For

the sake of the future, designers and craftsmen of today should direct their purpose and apply their skill to the more widespread realization of this conception in practice.

In civic improvements people also have a tendency to underestimate the attainments of their own country in comparison with those of others. Whatever may be the drawbacks in city planning methods, or in slowness of realization of ideals, in the United States, they have their equivalents in some form in other countries. Those who compare the bad at home with the good abroad too often fail to take account of all relevant factors, and therefore fail to make just comparisons.

More can be done to improve conditions by creating examples of good planning than by criticizing or attempting to ameliorate those features and undertakings that have been badly conceived. If attention is confined to limiting the effects of what has been wrongly done, it will in the long run achieve but little.

In the Introduction stress was laid on the importance of leadership in promoting city planning as a policy. Studies of city planning in the past reveal the extent to which architects and city planners had to rely on the leadership of rulers. The ancient architects of Greece were able to produce their works of classical beauty only because of the patronage of those in control of public affairs. Pisistratus, who gained control of Athens in the middle of the sixth century B.C., was a great patron of the arts; Lorenzo de Medici of Florence was a guiding spirit in the fifteenth century; while the achievements of Rome in civic art were made possible only because men of prominence used their power and wealth to promote noble architecture. Many princes and nobles during the Middle Ages and the Renaissance were patrons of art.

When despotic rule is intelligently exercised it attains results more quickly and with simpler safeguards than is possible under democratic rule. Leaders in democracies must educate and persuade if they wish to guide in a particular direction, and the inevitable result is that improvements have to be slow and gradual.

In democratic countries there is greater difficulty in getting the right action in those spheres in which artistic taste enters than in those where sanitary improvement or financial interest is the sole consideration. Whatever impatience one may have with the slow

working of democracy in developing refinement in taste and appreciation of civic art, there is always the satisfaction that the condition of freedom, when accompanied by leadership of the most intelligent citizens, is an essential foundation for a civic art that will endure.

Washington is an example of a modern city that has enjoyed the advantage of much wise leadership. Architecturally it is now becoming one among a choice few that constitute the most beautiful cities in the world. But Washington is a capital, and comparisons should be avoided between cities that are national or state capitals and the majority of cities and towns that are neither. The greatest need for civic art is in the self-contained industrial community that depends entirely upon its own resources. Washington is an inspiration to smaller cities in values to be obtained from planning and fine architecture, but not a model that they can imitate.

What are the difficulties that prevent comparatively high standards of civic art from being obtained in most American cities? A partial answer is that the American city expresses individualism and a certain antagonism in its attitude toward control or restriction of private property and actions. Because of the social habits of its citizens and the character of its political organization the American city differs from cities in older countries, whatever resemblance may exist in the technique of making plans for it. Nevertheless, there is the belief that the strength of individualism will remain and become so disciplined that higher standards of civic art may be realized. Changes are taking place that indicate an awakening to the need of collective or co-operative action in securing more healthful, more spacious, and more convenient living and working conditions and improvements in the art of city building.

It is through the awakening of public consciousness that any hope of improvement in the law of city planning must be found. In no respect has city planning made more progress than in the field of law, yet much remains to be done to put it on a sound and authoritative legal basis.

More powers are required to make the enforcement of plans more certain, to secure for communities part of the increased value given to land or buildings as a result of wise plans, to make zoning

regulations more permanent without lessening reasonable elasticity, and to extend zoning so as to permit the restriction of certain areas for agriculture, afforestation, and other open uses. There are no powers necessary to secure effective city and regional planning but can be obtained in the United States if and when public opinion is prepared to recognize their value.

Distinctions between older cities were greater than between modern cities because of the former's being more isolated and more independent of each other. Modern facilities for transportation have drawn the world closer together and thereby promoted uniformity of ideas and methods of development. Uniformity is also promoted in America by reason of the tendency of citizens to express themselves in standardized forms.

As already said, the city planner has to consider the distinctive character of the community he is planning and to adjust his plan to serve the primary purpose for which it exists. In planning a region he will have the double task of encouraging unity in each constituent community, and of promoting co-operation between adjacent communities so that they will work for common ends without losing their individuality. He will continue to be mainly concerned with cities that do not have the benefits of national or state aid in erecting public buildings and providing public parks, or in the creation of monuments, cathedrals, and national institutions.

Divergences in the structural form of cities may be due to nothing more than natural situation. Still more striking divergences are because of variations in the economic forces connected with transportation and industry that have been mainly responsible for the establishment and development of large cities.

However, the real distinction that exists between communities is in spiritual rather than in topographical or economic conditions. The distinction is spiritual in the sense that it is the product of forces connected with different ideas and levels of intelligence, in which culture, social habits, public spirit, and traditions have different values.

The diverse sense of values that exists between one city and another may have its origin in the habits or beliefs of their founders or in the leadership of prominent individuals. Salt Lake City,

Utah, and the New England towns are examples of distinct types because each has had a very different spiritual foundation.

CITY PLANNING AS A MOVEMENT

As a movement, city planning depends on the leadership of statesmen and on the public policies in each country and city; it is therefore impossible to predict what its future will be. There are too many unforeseen elements in the field of public policy of both nations and cities and too much uncertainty as to the quality of leadership to make such predictions worthwhile.

The changes during the next fifty years may or may not be greater than those of the past fifty years; but according to authoritative interpretation of political and social events, mankind is at the crossroads, and how the present civilization, especially as expressed in the modern city, is likely to direct its progress cannot be foretold. Probably there has never been a time when man could have less cocksureness as to the future, partly because he was never more aggressive in the search for truth and more active in undermining structures that earlier generations thought were permanent. This is acknowledged to be so in all scientific fields, including those relating to the economics of industry and social life.

Sir Alfred Ewing, in his presidential address recently delivered to the British Association for the Advancement of Science, said that in scientific matters the only dogma is that there is no dogma. He expressed a sense of disillusion as he watched the sweeping pageant of discovery and invention in which he used to take unbounded delight. Referring to the gifts of the engineer he said that they have been and may be grievously abused, and he reminded us that the command of Nature had been put into the hands of man before he knew how to command himself.¹

The modern city is the chief sufferer from and example of man's failure to control physical and economic forces so that his inventiveness will produce more good than ill. His inclination to blame things rather than his own inability to control his social environment is illustrated by the universal habit of laying the evils of modern society to machinery.

¹ Report of the British Association for the Advancement of Science, 1932, pp. 1-19.

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It has not been machinery that has caused the overcrowding and defective city development in the last hundred years, whether expressed in the form of steam engines, of motor cars, or skyscrapers. The main cause of these evils has been man's lack of willingness to adapt himself, his physical surroundings, and his methods of control to the changes brought about by these inventions. Today the motor car clogs the streets not alone because there are too many cars, but because of defective arrangement and distribution of spaces, buildings, and major transportation facilities. The skyscraper lacks air and light not because it is a skyscraper, but because of absence of provision of the greater space that is needed for high than for low buildings.

The lack of man's adaptability to changes is revealed in the depression he brought upon himself during 1929 and successive years. A feature of that depression has been a superabundance of both necessities and luxuries and yet so much unemployment that men could not get the wherewithal to purchase even the necessities. Modern society is committing the economic blunder of limiting its activities to things that give material satisfaction without recognizing that there is not enough work to go around when it artificially imposes this limit. Owing to the displacement of manual labor by machinery, countries must face the fact that fewer men are needed to produce given things, and that the only way to adjust production, consumption, and employment is either to increase work-free time and provide adequate facilities for workers to use that time in recreation, or to use a large proportion of that time in producing the things that minister to culture, such as beauty in building.

As has been pointed out by Adelbert Ames, Jr., of Dartmouth University,¹ one solution of the problem of unemployed labor is to divert more of it into such cultural fields as research, education, and the arts, and to supply adequate facilities for intelligent use of leisure time.

Another problem in modern society is the unbalanced condition of city and country life; the city is too congested, the country too depopulated. The city has been too much the prey of rapid growth

¹"Progress and Prosperity." In *A Suggested Program* by Adelbert Ames, Jr., Dartmouth Alumni Magazine, January, 1932.

and of consequent instability; and the country of a haphazard system of land settlement.

The measures that must be taken by public leaders to solve these fundamental problems will have a profound influence on the city planning movement.

THE ART AND SCIENCE OF CITY PLANNING

NECESSITY OF SCIENTIFIC APPROACH

The development of city planning as an art, as distinct from city planning as a movement, depends primarily on the men who practice it and on the value of their training. Quality of design will be of more importance than the quantity of designs prepared. Designs have to be judged not only by their artistic value, but as to whether they are based on the right social aims and on sound economic principles, and are just and practicable in their conception and application; also by their propriety in relation to conditions of time and place. In writing of landscape architecture, Frederick Law Olmsted, Jr., has said: "As in all art it is not the *name* of what you do that counts but how you do it in relation to time, place, and surroundings." Besides artistic and scientific training, a city planner must have in high degree intuition to meet the unique problems that exist in every community.

Up to the present, the planning of modern regions, cities, towns, villages, and rural areas has been in the nature of experimental studies, controlled to some extent by empirical legislation, and this experimental period has been too short to enable a sound art and science to be evolved.

It is difficult to foresee where the present-day experiments in practice and in the philosophy of planning will lead; whether to the gradual perfection of a policy based on an art of comprehensive civic architecture and civic engineering, or merely to a further expansion of forms of control based on a flexible system of regulations of the uses of land and the character of buildings. It cannot be too often said that unless planning evolves along lines that will give it the distinction of being an art, with a foundation of scientific analysis, and with a major objective of securing the social and economic well-being of whole communities, it will never bring that

degree of order, balance, and beauty to the urban creations of the future that is so essential and desirable. Its improvement as an art will be proportionate in large degree to its development as a science and, for this, adequate knowledge of facts and their relations is essential. On the whole, civilized nations have only the beginnings of a science of civics and city planning and no adequate scientific equipment. One must look to the research departments of universities for the accumulation and analysis of facts, and hope that intensive state surveys will be undertaken in order properly to investigate the social and political aspects of land development.

Practical men are convinced of the value of science within the factory; but too many of them still despise science in relation to the urbanized social organization which industry has created outside the factory. Yet science is as much needed to develop and build up that social organization as are the mechanical processes of industry.

GUIDANCE OF PUBLIC TASTE

To secure improvement in the art of city planning, public understanding of the relationship between art and economy must be promoted. Perhaps there is more reason for supposing that the average citizen lacks knowledge of how to attain what he wants than that he wants the wrong things. However, the need for improvement in public taste is evidenced by the fact that so much money is deliberately spent on public monuments, buildings, and other structures with results that are offensive both to trained artists and to the more highly educated groups of citizens.

The question arises as to who is to offer guidance in matters of taste, and how is it to be given? It is obvious that architects, landscape architects, and city planners have responsibilities for leadership in such matters. They should be organized and trained to give it. And yet, with the best organization and training, they will always have difficulties in determining principles or any code of doctrine as a basis for educating and guiding the public.

There is a fundamental difficulty in determining what is beautiful and what is ugly. It has been said that beauty is wholly in the eye that sees—it is a subjective fiction and not an objective fact. Yet the aesthetic emotion, much more highly developed in some

groups of persons than in others, may be so cultivated that these groups will arrive on common ground. It is to those who reach this common ground, and who have in addition the training of the architect or landscape architect, that we must look for guidance of public taste.

In the field of architecture it is not to be expected that sound or effective guidance can be given to the public as to what is beautiful or true when so much difference of opinion exists among architects. Modern controversies as to what constitutes real or unreal beauty in building are based largely on superficial premises. Difference in ideas as to the extent to which tradition should be respected in design, or to what extent original forms should be employed with adaptation to new materials and methods of construction, will continue to separate architects into different schools of thought; but while retaining their individual freedom to express themselves they should bring to the surface their points of agreement on essential matters. In fundamentals, architecture does not change, and the beauty of its forms will always depend on these fundamentals.

More agreement on basic factors among architects is needed in order to carry conviction as to what is desirable. Until the public obtains a greater appreciation of architecture, too many buildings will continue to be designed by untrained men, and until more architects are employed to design the smaller buildings, which constitute the greater part of cities, the standard of civic architecture will be low.

Not only the dwellings, but also the small commercial structures and erections on streets and public places, do much to make or mar a city. Many cities suffer much injury from defective designs of their utilitarian structures. Guidance of the public is needed to persuade it that certain commercial uses of buildings are offensive only because of the objectionable location or design of the structures that commonly goes with these uses. Improprieties in the uses of buildings are often resented by people without sufficient cause merely because an ugly type of design or some untidiness of arrangement is associated in their minds with these buildings. For example, they may object to the use of a site for a "hot-dog" stand without recognizing that it is the character of the structure in which business is done rather than the business that is offensive.

In most instances one's disapproval would probably disappear if the ugly structure were replaced by a well-constructed building of good design to be employed for the same purpose.

It may be possible to improve public taste, but not to attain uniform taste. Among citizens in general, as well as among architects, there will still be differences in ideas based on diverse conceptions and grades of understanding. Here we have the fundamental difficulty in securing what is called architectural control.

In attempting to apply higher standards in civic architecture no one person or group will obtain full satisfaction. There can be no such thing as the exercise of an artistic dictatorship by which a city planner can secure in an entire city the harmonious effect that an architect may secure in a single building. There must be a compromise between different individual ideals, and between these and collective ideals. It is not only necessary but desirable that cities should be built by men having dissimilar conceptions of design. The aim should be to secure co-ordination of ideas rather than uniformity.

On the whole, the public attitude toward art and created beauty has been improving in recent decades. A high percentage of commercial buildings are designed by architects, and some corporations, like the telephone companies, make a feature of the architectural style of their buildings. There is still lack of guidance from state and local governments, in spite of notable exceptions in planning and executing particular projects. But extension of the teaching of art and the employment of more art in the home both indicate a growing appreciation of aesthetic factors in city development.

ADVANCES AND WEAKNESSES IN TECHNICAL APPROACH

Great advances have been achieved in the technique of making plans and reports, but this has been more in the field of civic engineering than in civic architecture, although the landscape architect has made himself felt much more than the architect. There has been a tendency toward the over-elaboration of engineering features. Extravagances can be perceived in the concepts of some engineers' highway plans in regard to such matters as super-highways, which correspond to earlier extravagances of architects in de-

signing monumental civic centers. The balance in planning now weighs too much in the direction of providing services to the buildings, particularly facilities for communication, and too little in the direction of buildings themselves, particularly in the design and arrangement of dwellings.

A major difficulty in obtaining a well-balanced technical civic design is the financial one of not being able to secure sufficient funds to employ more than one city planning consultant. Yet, unless the engineer, the architect, and the landscape architect cooperate in the making of comprehensive plans, a certain degree of one-sidedness is inevitable.

A weakness of city planning in recent years has been the extent of uniformity in methods of dealing with communities different in character. This also has been partly due to financial limitations in not permitting adequate study, but mainly to the necessity for following lines laid down by legal requirements, a matter which encourages standardization, particularly in zoning.

It need not be regarded a defect in the administration of regional planning that plans are not made enforceable in their general outlines, although there is room for much improvement in connection with the official adoption of city plans and enforcement of parts after these are approved. Nor does there appear to be evidence of much value in mandatory planning. Compulsion can relate only to the act of planning, and where a community is compelled to do something rather than to rely upon its own initiative it may perform the act very badly.

Probably the greatest general needs in planning policy are the stimulation of voluntary initiative on the part of states and municipalities by making them realize that planning is worthwhile for economic as well as for other reasons; the maintaining of the social purpose of planning; the securing of proper balance in engineering and architectural features; and the giving of proof of the greater effectiveness of comprehensive over partial planning.

Some modern plans have been made too much in the form of rigid patterns, and framed too much to comply with a fixed set of rules. Flexibility in planning is essential, not only to permit adjustment to changes in social and economic conditions, but to allow compliance with varying public demands. The city planner must

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attempt to interpret the causes and effects of these changes and variations. In the matter of what may be called the climate of public opinion, he must recognize that variations occur not only between one time and another but on different levels at a given time. For his guidance he has to find the several levels on which a healthy condition of public opinion exists; that is, those levels on which, in different manner, public opinion is controlled by a common ideal to promote human well-being. Guided by principles which he will consider to be constant, he will have to vary the method of their application to suit a great variety of circumstances and a bewildering complexity of dynamic forces.

Hence, in a major degree, the successful technical approach to both the artistic and practical quality of designs depends on a city planner's initiative and foresight. In proportion as he possesses these qualities, strengthens them by use and experience, and obtains greater opportunities through improved methods of training to perfect himself in theory and practice, he will lay the foundations for a true art and technique of city planning.

In a field where so much skill and varied talents are required, adequate improvement of technique will be possible only after long-continued accumulation of experience by experts in different aspects, including those relating to sociology and economics. The success of this specialization will be attained only by means of much effort in co-ordination of this experience, a primary function of the city planner. Increase of opportunities also is necessary both to encourage men to enter the profession and to enable them to obtain the practical experience necessary to complete their training.

ACTION AND RESULTS

Equal in importance to the need of improving the quality of city planning is that of obtaining more action. Planning implies study and elaboration of designs based on study and, as has been shown in these pages, it has made remarkable progress; but in the field of action, which lies beyond planning and to which it leads, comparatively little progress has been made. To a large extent efforts have failed to produce sufficient results of a tangible character, within a reasonable period of time to justify the skill and money

that have been invested in making them. Too much planning has ended on paper and in pigeonholes. Modern as compared with earlier efforts have been too much divorced from action that has been prompt enough to achieve the objects of plans in a satisfactory degree. One of the chief needs of the future, in civic policy and civic design, is action; and methods of obtaining it must be simplified and more aggressively pursued.

There are three stages in planning, one of initiating, one of making, and one of giving effect to the plan.

Attention has been called in the Introduction to the fact that the first stage, the mere act of initiating a plan, may be valueless; that value begins with the employment of art in its making, and that when made it is only a means to an end. The achievement of this end through action is the most vital stage, although the regulatory procedure used in connection with it is often overdone to the injury of both the planning and its application. The practical qualities of a plan cannot be tested until it enters this stage, nor proved as to value until its results, often long delayed, are perceived and measured in terms of human welfare and efficiency. Thus it is in the third stage that planning gets in touch with reality, and gives to normal man that satisfaction in results which his nature demands as justification for his exertion to improve external circumstances. The fact that the Regional Plan of New York and Its Environs was in process of realization during and immediately after its preparation was even more gratifying to those who prepared it than that it embodied certain ideals that were sound in conception, yet not followed by action.

It is futile to dream of the possibility of a city made perfect by planning, and, except as a playful fancy, to picture some ideal that appeals to the imagination although not realizable in practice. It is equally fantastic to conceive the great city of the future as entirely consisting of skyscrapers with multi-storied streets, or at the other extreme, as having a garden to every home. Nor is it any less fantastic to visualize some middle course in scale of building and spaciousness if the attainment of the dream depends on the destruction of existing cities. To be of value the plan of the city must have the ingredients that will conform to probabilities.

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In American cities the probabilities are that changes in the character of civic growth and administrative policies will evolve gradually toward securing greater stability. Rapidity of growth interspersed with periods of slump will be less characteristic of the future than the past. Cities will continue to grow, although the rate of growth will be slower, particularly in the larger cities. Smaller cities are likely to increase in number. Means will be found by law, aided by planning, to prevent overcrowding of land with building and congestion of the means of communication, which are avoidable incidents of defective control rather than of size of cities.

Cities will be organized as city regions embracing much land permanently devoted to agriculture, horticulture, and other open uses. Within these regions comparatively self-contained and unified neighborhood units and satellite towns will have a distinctive and closely associated community life, and be separated from each other by great arterial highways and parkways.

On entirely new sites there will be planned and built new cities wherein every modern invention will be applied to secure a measure of economy, efficiency, health, and safety that cannot be obtained by any process of replanning and mending existing cities.

As knowledge accumulates with regard to the causes of failure of the modern city, these will be attacked more directly than hitherto and there will be less wasted effort applied to amelioration of effects. Some modern fallacies will be exploded; for example, that there is a scarcity of accessible land in and about cities for the needs of population and industry, and that dark rooms and restricted playgrounds and congested street traffic are anything more than artificial necessities due to defective planning and organization. Elements in producing greater stability will be greater spaciousness of cities, greater compactness of rural communities, and the better co-ordination of both.

The universality of education is the factor that is likely to count most in the spread of knowledge of truth and fallacy in civic affairs. This will provide the most effective remedy for slums since it will mean that most people will be above the level of ignorance on which slums are tolerated. Similarly a more educated public opinion will demand that no values will attach to land for unhealth-

ful or other unsocial uses. In all public policies it will be more and more recognized that the healthfulness of the home is the most vital consideration in city planning, that this has the most general and constant bearing on the promotion of human welfare and the economic stability of communities and nations. It will be perceived that past failures to secure healthful conditions in dwellings at reasonable cost has been chiefly noteworthy in those externals that are controllable only through city planning; for example, absence of pleasing surroundings to dwellings and of amplitude of space for traffic and recreation, defects of organization of residential neighborhoods and local centers of community life, existence of unnecessary travel and discomfort of necessary travel between homes and workplaces, and lack of adequate control over subdivision of land and of uses, heights, and densities of buildings.

Under conditions that prevail in the United States, with widespread belief in the virtue of municipal home rule, improvements in organization and administration will not take the form of highly centralized control of municipal affairs. Progress toward greater efficiency will be along evolutionary lines based on beginnings already made in several states. There will be increased state co-operation with municipalities, more co-ordination of certain activities, and larger contributions from the state of technical advice based on research and surveys. City and country regions in states will have their regional plan offices controlled by a commission or board consisting of state and municipal governments, but having no political or taxing power. They will have adequate, expert staffs to make plans, maintain records, advise constantly on modifications, and assist in detailed planning of cities, towns, and neighborhoods.

The growth and development of communities as well as the progress made in the execution of plans for areas within the region will be recorded on maps and in documents that will form an illustrated history of physical growth and change.

Municipalities will have their separate planning commissions or boards with officers acting in collaboration with the regional officers and directly responsible to the city, town or village councils which will continue to reserve full control over public expenditures. The combined regional and municipal offices will unite in securing

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continuity of regional and city planning with prompt action in carrying out plans. They will be constantly at work in making, modifying and carrying out planning projects; advising on the order of importance of specific projects and the relative degree of desirability or necessity for every improvement; conceiving and executing measures designed to secure economy in public expenditures.

To achieve such ends during the next fifty years, advances will have to be made soon, within the next ten or twenty years, in the art and science of city planning, and in its more efficient administration; and further progress in law and practice will largely depend on the extent and degree to which the public realizes that present problems cannot be solved except in conformity with a program of planning that makes wise provision for the future.

APPENDIX

SUMMARY OF ASPECTS OF CITY PLANNING PROBLEMS

APPENDIX

SUMMARY OF ASPECTS OF CITY PLANNING PROBLEMS

THE following is a summary of the many, varied, and complex aspects of problems to be considered in civic design. The utility of a city plan will depend largely on the degree and extent to which the city planner demonstrates his ability to determine which of these aspects are of importance to consider in a particular city and which may be ignored. It is appropriate to set them forth in groups which relate them to (1) Engineering; (2) Landscape Architecture; (3) Architecture; (4) Sociology; (5) Economics and Finance; and (6) Law. There are overlapping elements connected with all city planning problems and therefore some degree of repetition in presenting them is inevitable. No order of importance can be assigned to any group or aspect, and the classification is not intended to be complete or to indicate that a clear dividing line exists between different ones. Matters assigned to one group may, on occasion, be more appropriate in another.

It is necessary only to glance at the summary to realize how important in city planning it is to avoid diffusion of effort outside the field of essentials, to obtain collaboration of experts in the diverse fields of knowledge in preparing surveys and plans, and to have the guidance of wise leadership in policy and constant planning effort in every community.

1. ENGINEERING

1. Transportation of passengers and freight by rail, water, air, and road—systems of railroads, overhead and subway transit and rapid transit lines, and street railroads. Harbors and canals. Location and layout of airports. Highways and streets for traffic.

2. Improvement of railroad systems so as to secure (a) unified operation of railroad lines within cities and, as far as practicable, a diversion of lines around cities; (b) development of spurs and industrial tracks for common

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use and served by a belt line; (c) simplification of freight terminals and yards to facilitate ease and economy of shipment; (d) the adjustment of railroads to electrification and connections for passengers and freight between electrified railroads and transit lines.

3. Determination of widths, alignment, crossings and gradients of roads and of their position in relation to soils and levels of land, in collaboration with the landscape architect. Determination of surfaces of roads to suit different conditions of building and traffic use; and planning and development of local improvements.

4. Bridge heights and clearances required for road and rail crossings.

5. Consideration of the whole system of transportation as a single problem and the co-ordination of railroad, waterway, airway, and highway communications.

6. Development of industrial zones or districts with special regard to convenience in transport, need of heavy pavements on streets, high pressure of water for fire protection, and extra large sewers.

7. Water supply, sources and distribution. Drainage, sewerage and disposal of waste. General distribution of services and of public utilities and their relation to roads and streets.

II. LANDSCAPE ARCHITECTURE

1. The location and arrangement of places, avenues, terraces, decorative and other parks, playgrounds, and promenades. Decorative value of trees, shrubs and flowers, and of suitable places and conditions of their use.

2. Selection of sites for regional and city parks and design of parks, athletic fields, and playgrounds.

3. The landscape treatment of civic and subsidiary centers, surroundings of terminals, places of resort, airports, and so forth.

4. Planning of subdivisions and adjustment of plans to topography and imaginative treatment of undulating sites; including grading of streets in relation to lots and public utilities.

5. Design of streets and roads in relation to landscape and building development; cross-sections; entrances to buildings; location of garages and parking spaces.

6. Preservation of amenities along highways; design of slopes, retaining walls, planting of trees, and so forth, and adaptation to existing trees and streams.

7. Determination of areas for close and open development including areas for cemeteries and their design; and prevention of building on areas most suitable for cultivation or forest land. Determination of sizes and shapes of blocks and lots and of building lines in relation to road widths.

SUMMARY OF CITY PLANNING PROBLEMS

8. Protection of amenity or agreeableness in the surroundings of buildings, especially those devoted to residence, and selection and design of public and private spaces for recreation.

9. Improvement of design of railroad property abutting upon highways and parks and surrounding stations and terminals.

III. ARCHITECTURE

1. The number, placing, and grouping of different types of buildings (public and private) in relation to one another, to the site and contours, to their own requirements, and to the communities they serve. Relation of horizontal to vertical development.

2. Formal and informal, and functional or organic elements in general design.

3. The usual elements in design related to the approach, the vista, the climax; to scale, proportion and appropriate background, and to harmony and contrast—as they affect groups of buildings.

4. Preservation of existing character of cities and towns and of historic features and monuments, and the degree to which new work should be conditioned by historic or interesting places and buildings.

5. The layout and design of squares, places, bridge approaches, and embankments. Architectural treatment of streets, waterfronts, and bridges. The placing and character of monuments, fountains, sculpture, seats, lamp-posts, and other street furnishings.

6. The distribution, arrangement and design of civic, cultural, and transportation centers, including considerations affecting the placing of such centers at converging points in the system of local transportation.

7. The relation of sites and designs of public buildings to areas used for business and to main thoroughfares and focal points in the street system; uses of "island sites" of different size and character, and of frontage overlooking public parks for public buildings; and the relation of administrative and cultural buildings to fire stations and market buildings.

8. The acquisition of sites for public buildings sufficiently in advance of needs to secure adequate space for display of buildings and protection of surroundings.

IV. SOCIOLOGY

1. Growth, distribution, and movement of population as affecting the amount of land required for building use in particular localities, and the transit and transportation services.

2. Control of heights and densities of building, of separation of residential from other uses, and prevention of offensive uses of land in the interests of health and safety.

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3. Housing conditions and standards, sizes of lots and space for light, air, and sunshine.
4. Convenience of travel between homes and places of work.
5. Provision of adequate facilities for recreation, including public space and private space adjacent to buildings.
6. Organization of neighborhood communities and community life.
7. The location of school buildings; their environment and spaces for recreation.
8. Prevention of slums, including habitation of cellars and building on the rear ends of lots and remodeling of slum districts.

V. ECONOMICS AND FINANCE

1. Distribution of economic activities in relation to transportation and for securing efficiency in production. Encouragement of planned recentralization in large cities.
2. Economy in construction of local improvements in relation to types of building use.
3. Economic problems involved in connection with land tenure and public land ownership in relation to land and building development.
4. Maturity of land for development and prevention of premature subdivision.
5. Economic use of land for building in different situations and in consideration of public demands. Value of land for cultivation and cost of conversion into building land, including overhead costs during conversion.
6. Relative values of property affecting planning and improvement schemes and the sequence of proposed operations, taking into account nature of ownerships and the character, condition, and shapes of lots.
7. Finance of building estate development; cost of money and security of investments; time factor in relation to profit and loss.
8. Distribution of land values; relation of market to assessed values for taxation; and effects of taxation on the use and development of land.

VI. LAW

1. State and municipal government in relation to community organizations and the protection and control of property.
2. Planning and zoning legislation, and powers and duties of municipalities in regard to city plans, zones, subdivision control, highways, bridges, local improvement services, acquisition of open spaces, condemnation and excess condemnation of land for public purposes, erection of public buildings, and so forth.

SUMMARY OF CITY PLANNING PROBLEMS

3. Determination in city plans of qualities of areas to be fixed by law, including qualities that relate to (a) publicly owned land comprising streets, parks and other reservations, foreshores, land under water, sites for public buildings and utilities; (b) privately owned land comprising public utility land impressed with a private use (such as railroads and company water-works), and the extensive areas used for residences, factories, offices, churches, and farms.

BIBLIOGRAPHICAL NOTES

BIBLIOGRAPHICAL NOTES

THIS book has been written for two audiences: first, that comprising citizens interested in civic improvement who desire some knowledge regarding basic principles in civic growth and the objects, scope, and practical applications of city planning; second, that comprising students of city planning who intend to pursue one of its branches as a profession. To the second of these audiences an outline such as this provides merely the introduction to the study of the subject essential to enable students to obtain that general grasp which they should have before proceeding to more specific and detailed studies. What books are appropriate for reading or reference on these subsequent studies is a matter about which they should know or receive guidance. Theoretically, this means that it would have been desirable to include a bibliography in these pages. However, in practice, lists of books on a subject that has so many aspects as town and city planning are more misleading than helpful, even when the contents of each publication is described.

Students should look to their instructors for guidance in reading because intelligent selection based on careful study of the comparative values of different books and on the consideration of when and where specialization should begin are essential to prevent serious waste of time.

All that will be done here is to give a list of a few recent works that are peculiarly appropriate for reading as sequels to this outline, recognizing that other books may be equally valuable, particularly those that describe conditions and practice in other than the English language.

I. PROGRESS AND PRACTICE

Our Cities To-day and To-morrow by Theodora Kimball Hubbard and Henry Vincent Hubbard, assisted by Howard K. Menhinick. Harvard University Press, Cambridge, 1929.

An analysis of efforts and experiences in city planning in the United States based on special investigations.

OUTLINE OF TOWN AND CITY PLANNING

Recent Advances in Town Planning by Thomas Adams in collaboration with F. Longstreth Thompson, E. Maxwell Fry, and James W. R. Adams. The Macmillan Company, New York, 1932.

A discussion of recent advances and tendencies in law, practice, and design in Great Britain and other countries.

The Graphic Regional Plan (Plan vol. 1 of the Regional Plan of New York and Its Environs), prepared by the staff of the Regional Plan, New York, 1929.

The Building of the City (Plan vol. 2 of the Regional Plan of New York and Its Environs) by Thomas Adams, assisted by Harold M. Lewis and Lawrence M. Orton, New York, 1931.

II. PRINCIPLES AND TECHNIQUE

An Introduction to the Study of Landscape Design by Theodora Kimball Hubbard and Henry Vincent Hubbard. The Macmillan Company, New York, 1929.

Planning for the Small American City by Russell V. Black in collaboration with M. V. Black. Public Administration Service, Chicago, 1933.

The Design of Residential Areas by Thomas Adams. Harvard University Press, Cambridge, 1934.

Town Planning in Practice by Raymond Unwin. T. Fisher Unwin, Ltd., London, 1909.

An introduction to the art of designing cities and suburbs.

III. LAW

Outlines of the Law of Housing and Planning, Including Public Health, Highways and the Acquisition of Land, by John J. Clarke. Sir Isaac Pitman and Sons, Ltd., London, 1933; also Pitman Publishing Corporation, New York.

This book is useful for reference by students interested in legal phases of planning and describes the Town and Country Planning Act of 1932, the Model Clauses used in preparation of town planning schemes, and the elaborate town planning procedure in Great Britain.

The Law of City Planning and Zoning by Frank Backus Williams. The Macmillan Company, New York, 1922.

IV. SOCIOLOGY

Urban Society by N. P. Gist and L. A. Halbert. Crowell Publishing Company, New York, 1934.

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NOTE: References to cities, towns, and villages not entered separately in the index will be found under the name of the country or state, or under Garden cities and suburbs; Industrial towns and villages; New towns; Residential developments.

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