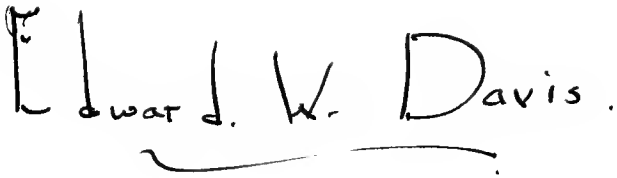

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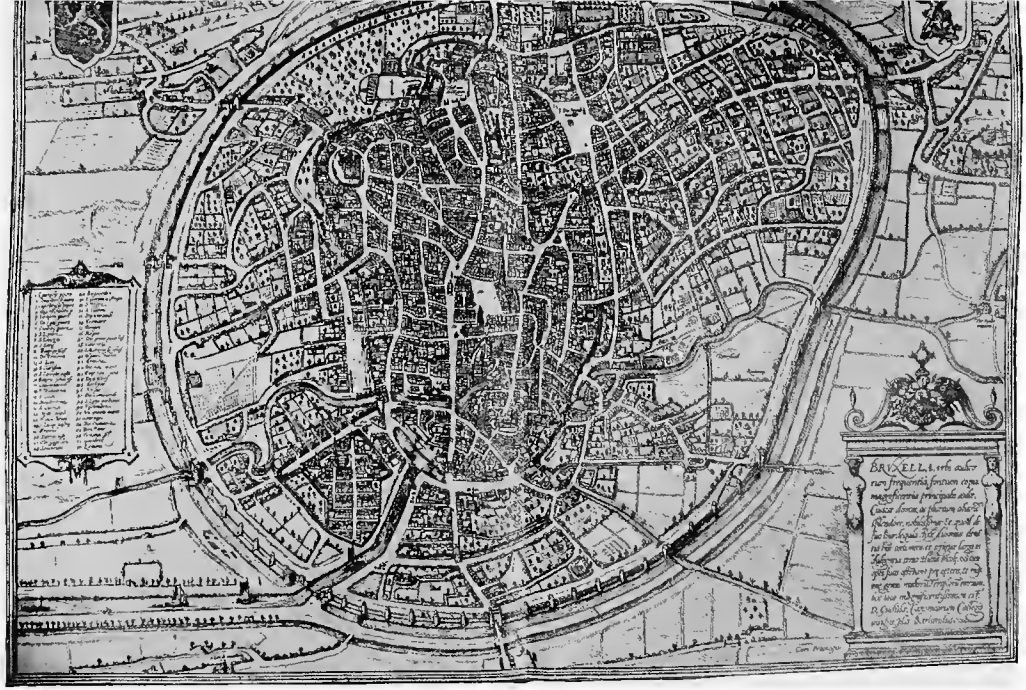


PLAN OF BRUSSELS IN 1572

Taken from the work entitled *Civitates Orbis Terrarum*, published by Braun, with plates by Hogenberg.

This fairly typical street map of an important, prosperous old walled-city, which happily had not yet commenced to press against its walls, is interesting from many points of view. The distinction between major and minor streets is marked; there will scarcely be failure to note how rare is the straight line, every thoroughfare taking graceful curves and varying in width. The form and function of the open space, the orderly water bank treatment, the civic centre, the absence of country

CITY PLANNING

WITH SPECIAL REFERENCE TO THE

PLANNING OF STREETS AND LOTS

BY

CHARLES MULFORD ROBINSON

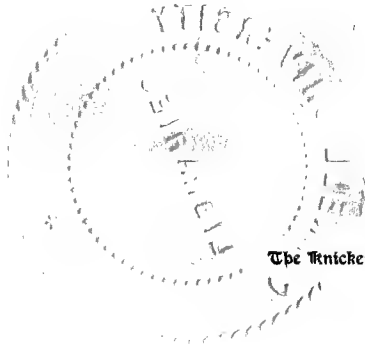
AUTHOR OF "MODERN CIVIC ART," "THE IMPROVEMENT OF TOWNS AND CITIES," ETC.

A reissue, revised, with much additional material, of the work originally published under the title of

"The Width and Arrangement of Streets"

With 70 Illustrations

G. P. PUTNAM'S SONS
NEW YORK AND LONDON
The Knickerbocker Press
1916



The Knickerbocker Press, New York

"Town planning is the art of laying out cities to serve the business requirements, convenience, health and comfort of the public. It is guiding the growth of a village or city in conformity with a scientific design. It is adapting the physical form of the city to the peculiar needs of its parts."

From a leaflet issued by the Minneapolis Civic and Commerce Association.

PREFACE

A BOOK of this kind, whatever its other deficiencies, must not be one of fine-spun theory. It must be practical, if it is to be serviceable. It must depend for value upon what it can draw from the experience of many cities in many nations, and from the thoughts of many practitioners. It must represent the slow fruition of years devoted, not to introspective study, but to research in places and books and records—and among the men who are doing the actual work of city building. There seems, accordingly, to be special need of making at the outset an acknowledgment of the principal sources of its inspiration.

The author would be glad if he could make that acknowledgment complete. To some extent the reader, in noting the authorities quoted and some of the pictures used, will perceive where thanks are especially due. But even so he will not know how hearty and generous, and how regardless of international boundaries, has been the co-operation extended.

For the rest, the writer is indebted to five special sources of information, suggestion, and stimulus. One has been the peculiar opportunity for intensive observation which has come from the fact that during recent years some thirty cities and towns, scattered from the Atlantic coast to the mid-Pacific, have called upon him to diagnose their particular needs as regards the city plan. A second source was Harvard University, where an invitation to be the university's guest, for the prosecution of post-graduate research work in city planning, through its School of Landscape Architecture, gave an opportunity for more systematic reading than the distractions of professional life normally afford. A third source was a European trip which differed from its predecessors and successors in that, immediately following the course of reading, it made its special objective an international town planning conference in London, where the general thesis of the volume, having been formally presented, was subjected to international criticism. That discussion was as stimulating and helpful as it was kind.

A fourth source of assistance, as regards the present volume, proved to be those college classrooms where the first edition of the book came into use. This has been especially true at the University of Illinois, the author having himself been privileged to conduct regular classes in it there. The questions and

discussions of the classroom during several years have done at least as much for the author as they could have done for the students.

Finally, and doubtless of more importance than all the rest, has been the splendid and inspiring progress which everywhere is taking place in the fast unfolding science and eager practice of city building —progress in reasonableness, beauty, and fitness.

As a result of all this, the original book—published in 1911 as *The Width and Arrangement of Streets*, in an edition which has been since exhausted—has been so amplified, revised, and rearranged that a reader will not be impressed by the presence of the old material. Yet it is all here—though buried under the new.

The book, as an exponent of the cause of more rational methods of street platting, has definite mission. But it is hoped that it will prove more than simply propagandist. It is designed, in insistence upon the less spectacular but more efficient phases of city planning, to help in a practical way the real estate platter—be he owner, dealer, city engineer, or landscape architect. Its theme is that in the platting of streets he will best serve himself who best serves his community. Thus it would promote good housing.

Two words of explanation must be added, as to the text. (1), The term "street" is used, it is hoped

uniformly throughout the book, to refer to the whole public space between the lines of the abutting property on either side—not to the roadway only. This is in accordance with dictionary definitions and with the ruling of American courts that "the street" is understood to include the sidewalks. (2), The section on City Planning Legislation, which is practically all new, seemed to be necessitated by the very rapid growth in the United States of that phase of the movement, and by the effectiveness of the machinery which this phase is now making available, not only for carrying out the city plan but for insuring better plans. When *The Width and Arrangement of Streets* was published, only four years ago, very little could be said on the subject of legislation. Laws on the subject have now so multiplied that their discussion here cannot be exhaustive. Yet it is believed that the section touches upon the most essential and suggestive of those measures which are a product of the present town planning movement.

C. M. R.

Rochester, N. Y.
July 30, 1915.

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CHAPTER I

THE PURPOSE AND SCOPE OF THE BOOK

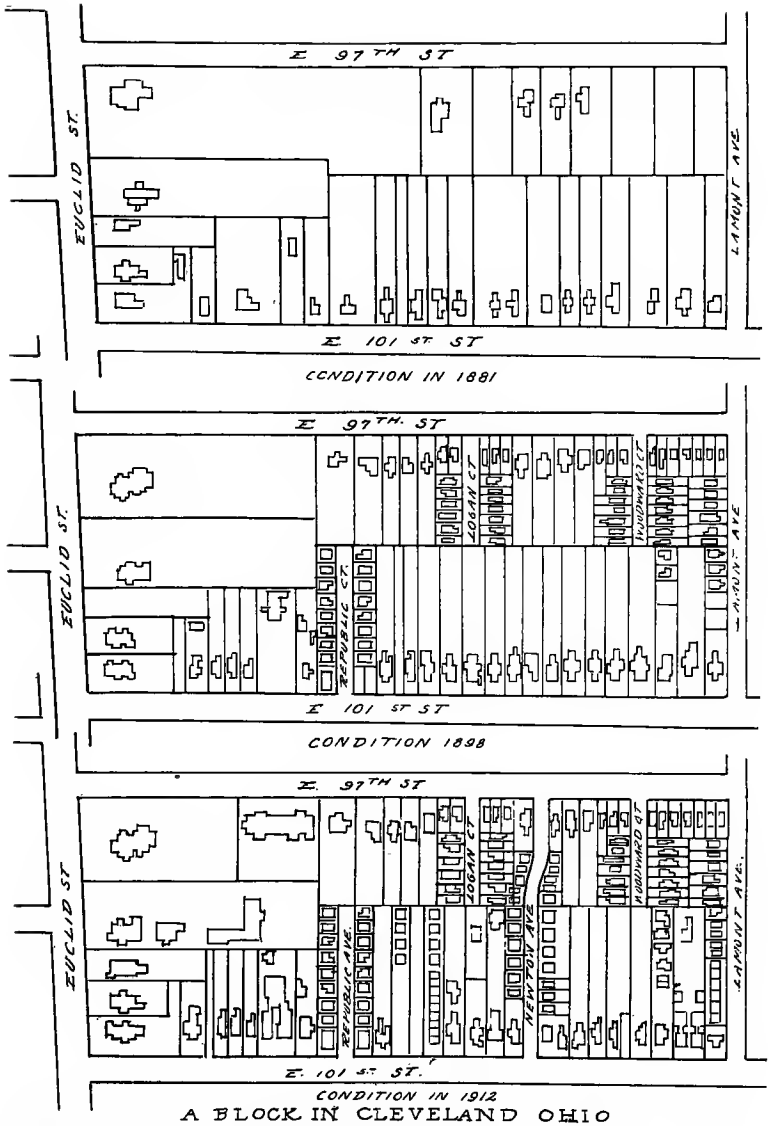
TOWN planning includes three operations. The term is applied to the replanning of existing cities and towns, to the planning of new towns, and to a scientific platting of new sections of existing towns. The benefits that are sought by it are, in their turn, speaking broadly, three in number. They are an improvement in those circulatory conditions created by indirect streets and congested traffic, the betterment of social conditions in many directions—notably in that of housing, and an increase in the visible beauty and splendour of cities. Under these headings, gains are anticipated in economy, efficiency, health, comfort, and looks.

Of the three town planning operations, those which have to do with the planning of new towns and with the scientific platting of new sections of existing towns, are so akin that they are usually grouped. Their purpose, as respects typical urban evils, is preventive. Thus we have city planning's two main divisions: The remedial effort, in town replanning;

and the preventive. Because of the many benefits expected from city planning, the demand for it has become far spread and vigorous. The belief is that in anticipatory work the proverbial ounce of prevention may be reasonably expected to be worth at least the pound of cure.

The typical conditions which are to be corrected or forestalled by scientific planning include, specifically, those of streets filled with a traffic which they are unable to carry with safety and speed; are the housing of the poor amid surroundings injurious to moral, physical, and civic well-being; are the loss of opportunities for free and healthful recreation, on the part of adults as well as of children; are the lessening of industrial and commercial efficiency; the inconvenient location and the undignified crowding of public buildings; the higher cost of corrective as compared with preventive measures, and an economic waste resulting from instability in the character of neighbourhoods. To do away with such conditions as these is the high purpose of the replanning of cities and towns, or of their careful planning at the start, and of a platting of their outlying sections which deals with those sections not as isolated units but as parts of a whole.

It is clear that all these plans, town or city plans as they have come to be known, have to do with the urban framework, as this is made up of streets,



A BLOCK IN CLEVELAND OHIO

TYPICAL INCREASE IN THE INTENSIVENESS OF THE USE OF CITY LAND—A BLOCK IN CLEVELAND, AT DIFFERENT PERIODS.

avenues, and open spaces of one sort and another. They may be said to treat of the skeleton of the city, of that which gives to the city its constructional form; and the expectation is that they will be determined by the needs, not of districts, but of the whole community. With such details as billboards, overhead wires, even with the exact makes of pavement, such plans primarily have little to do.

The advantages, which the plans are intended to bring to the community as a whole, should accrue to individuals of the community, irrespective of whether they are owners of land or are tenants. In the present state of society, land division projects which might do injury to landowners and home builders are not worth considering, even though they should be, conceivably, for the good of a non-property-owning class. To be practical, town planning projects must be reasonable and considerate of all proper interests, whether they deal with the built-up portions of the city or with its outer fringe. We have to remember that "the idealism which is not practical is not ideal."

It is with plans that have to do with the outer circuit of the city, with that belt which the influence of the city's growth is transforming into suburban property and absorbing for residence purposes, that this book will attempt particularly to deal. The subject may seem restricted, but it is to be observed

that the city has no financial investment so large as that represented in its streets—usually twenty-five to forty per cent. of the whole land area—and that no items in its expenses reach a larger total than those for the construction and maintenance of streets.[1] Still more important, the streets' location and development touch closely the life of every person who lives in town. In fact,

> the most important features of city planning, [it has been well said,][2] are not the public buildings, not the railroad approaches, not even the parks and playgrounds. They are the location of streets, the establishment of block lines, the subdivision of property into lots, the regulations of buildings, and the housing of the people.

In discussing the platting of streets, it has seemed necessary to plead for less standardization, for wider main streets, and for the narrowing of those which have little traffic value. As the first and third points of the discussion have received in the past but scant popular consideration, the author has thought best to focus particular attention upon them. No claim is made to originality in the ideas, or that the arguments of economy and of social and functional adjustment will be novel to those who most have

[1] In New York City, where the typical platting devotes but 30% of the total area to streets, it was stated in 1913 that there were, in that one city, "2677 miles of streets," of which the estimated value, including the improvements, "was $9,469,000,000—one-fourth of the value of all the farm land in the United States."

[2] John Nolen in *Madison: A Model City.*

studied town and city planning. It is hoped, however, that they may prove helpful in suggestion to some who, without previous opportunity for extended study, are taking in hand, in the platting of subdivisions, the actual work of city extension.

An attempt has been made, while presenting the matter simply, to look at the problem broadly and honestly. This has rendered it impossible to disregard widely prevailing methods or to consider the residence street alone. In the outer rim of cities the minor street is dependent for its life upon transportation facilities, and these must be offered by main highways. Thus, in order to take the broad view, much must be considered besides the problem of a street by itself. One street, though every perfection were given to it, would bear only such relation to the whole street system as would a patch on an old-fashioned and outgrown garment.

It might be said, indeed, that the average modern city has in its street system a garment so restricting it as to need entire replanning and recutting to make it comfortably serviceable and really up-to-date. Until this fact is recognized, all civic improvement work can be hardly more than an attempt to adapt an ancient and wornout city form to new and tremendously insistent municipal requirements. Most significant is such a reflection. It means that however important civic improvement may be, it

does not strike at fundamentals until it deals with the street plan. The same is true of slum eradication and of housing reform. "To place housing before town planning," a writer has said, "is to sew on your buttons before you cut out your cloth."[1]

While all this is strongly believed, there is no wish to emphasize unduly the current widespread town planning movement. The book is presented, on the contrary, with the hope that it may be of value in the course of normal and ordinary city development. Hence the purpose of the volume is not to give the history of town planning, not to contrast the romantic and classical schools of it, but simply to help in a practical way regarding one important phase of it—a phase which concerns not merely every owner of real estate but every citizen. And since the main arguments represent not the faith and theory of one man only, but the belief of the students of town and city planning in all nations which are considering the subject, the book's message is given with abounding confidence.

It is not surprising that there is need for a book on the platting of streets. In the last fifty years cities have undergone more change than in the preceding two thousand. This is partly due to the removal of the encircling walls with which old-world cities were encompassed for defense. It is more largely due to

[1] Editorial in *The Town Planning Review*, July, 1912.

the rise of manufacturing, to the growth of traffic, and to that development in the means of transportation which has permitted the cities' wide extension. George Washington, it has been pointed out, had no other means of transport than had Homer—the legs of man and horse, oars, and the sail. One is impressed by contrasting a busy street of modern London with the same street of a hundred years ago, when once a week the lumbering stage coach woke echoes that had slept for many days and then would sleep again. A new, insistent, and complicated demand has been made upon the streets of cities; and it is little wonder that there has developed a possibility of improving on the first impulsive attempt at its satisfaction.

Yet, though the author has endeavoured to make his criticisms constructive, he realizes that rules to govern generally town development are most difficult to enunciate. In recent years, the curse of city building has been too much adherence to fixed rules. In cities of different purposes—as industrial, commercial, capital, or residential—different groups of considerations deserve most deference; in cities of like purpose, no one street pattern should be generally applied. To impose on a site, without regard to its topography, any preconceived system, is to be false to the true principle of design.

So, finally, the book is presented with no illusion

as to its providing a panacea for every anatomical ill that towns are heir to. But perhaps—to stretch the patent medicine simile a little further—it may have an invigorating tonic value. There are some things as to street platting which it were better for the city, better for the tract developer, and better for the lot buyer or tenant to have more clearly understood. The author has endeavoured to state these. With that purpose, Chapters III–VI, inclusive, consider the defects appertaining to the usual present practice of street design and the advantages that must accrue from a closer adjustment to function. Thereafter come constructive suggestions, and then there is a *résumé* of the legal devices to promote wiser planning.

The latter is a record of achievement, and to that extent is full of encouragement. Not only shall we see that the common manner of street platting is wasteful and irrational, but we shall find that gradually a better system has been evolved, and that in law and ordinance we are swiftly gaining the power to realize it. In these facts, as will be some day better appreciated, there are good tidings for millions of people.

Standardization in Street Platting

CHAPTER II

RECTANGULAR STREET PLATTING: ITS ORIGIN AND JUSTIFICATION

BEFORE we theorize as to an ideal system of street platting, it is proper to consider the very widely accepted present plan of streets that cross each other at right angles in a monotonous and regular pattern. Presumption must be strongly in favour of such a plan. It is simple, is easy to design, is readily understandable, and is capable of indefinite extension. Furthermore, and this is exceedingly important, it is economical of building area—both in the amount which is rendered available and in the shape of the plats. Finally, the plan has been in use so long that its origin is lost in the uncertain dawn of history. If there were a plan that is better, would not the world have discovered it long ago?

When one considers the tremendous stakes—financial, social, and civic—that are at issue in determining the street plan of a city, is it not reasonable to think that the problem must have had earnest study? May we not feel sure that the plan which the old

world started and which the new world, accepting, applied with intenser rigour, is the best plan practicable? Clearly, the burden of proof is upon those who would criticize it.

The origin of the rectangular plan goes back, it has been said, to the dawn of history. Rectangular, though an unusual descriptive term, is a better one than gridiron or checkerboard, because more inclusive. The gridiron plan is a rectangular pattern in which the blocks are long and narrow, as typified by much of the street system of New York; while the checkerboard (called in England the chessboard plan) is a rectangular pattern in which the blocks are square, as typified by parts of the plan of Philadelphia and Chicago.

Herodotus states that Babylon was built four-square, with straight streets that were either parallel or at right angles to one another. The adoption of its plan is said to have been due to a woman, Queen Semiramis; but even this may not have been the origin of the rectangular street system. Some Chinese towns, that are presumably two or three thousand years old, show rectangular platting; and a comparatively recent excavation, revealing traces of the village occupied by the workmen who built the pyramid of Illahun, indicate that it also was "laid out symmetrically, on rectangular lines."

In short, without going now into the history of

town planning, without noting the oft recurring interest in it which has marked the course of civilization, or the special developments which different nations and different times have contributed to the science, or art, of civic design, it is enough to say that its dominant principle has been the straight line and the right angle. The origin of these need not much concern us. They constitute so simple and obvious a device that any child might have made use of it. Doubtless, therefore, its ancestry goes back to the childhood of the human race, when people first began to dwell together in companies.

More important, consequently, than the origin of the rectangular street plan is the persistence in its use. Long after Babylon, but five centuries before the Christian era, a group of Grecian architects, under Hippodamus, made use of the rectangular method when platting the streets of Pirenne, Piræus, Alexandria, Antioch, and other cities. In the colonizing of conquered territory, we are told that parties were conducted by State officials to a selected spot in the new country where each was given "a numbered square." Later still, under the Roman empire, the military origin of many towns predestined them to a regular platting. They were laid out like camps—sometimes, indeed, as camps—by soldiers whose natural impulse was to arrange the people in serial rows.

During the Middle Ages the few towns built were generally small. But

> in the thirteenth century, [says Inigo Triggs,] no less than fifty towns were founded by the English in Aquitaine and Guienne, within the same number of years, all of which were laid out, wherever practicable, upon a definite system, and formed an essential part of the wise and far sighted policy of Edward I. . . . These towns were regular and symmetrical; the streets were wide, open and straight, crossing each other at right angles only. . . . By this means each plat of ground was of a uniform size and shape, a parallelogram with one end facing a principal street and another a lane.

When the revival of classical architecture came, the rectangular plat made by right-angled streets was found best adapted to the classic façades, and the plan received a further impetus.

But it is in America that the persistence of uniform right-angled streets has been most marked. Here the universality of the plan's adoption, and the rigidity of adherence to it, has been such that Europeans, forgetting the long history of rectangular street planning, refer to it now as "the American method." What is the reason for the respect which Americans have shown for this system, when planning innumerable new towns on all kinds of sites?

At the beginning of American history, William Penn may be found making a checkerboard plan for Philadelphia. This was in 1682. As Penn laid out his city on a site of which he himself said, "Of all

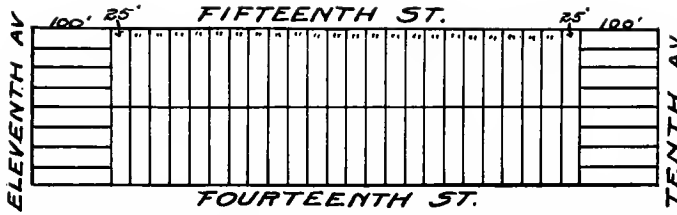
places in the world I remember not one better seated," the typical blocks were four hundred feet square—*i. e.*, the boundary streets enclosed a tract four hundred feet each way. These boundary streets were fifty feet in width. The only variation was that an extra width was given to the two streets which intersected in the middle of the tract—the Broad and Market Streets of today; and that a comparatively large number of squares were reserved for parks—a costly procedure, owing to its absorption of good building land. Accordingly, that practice was not long continued by the growing city.[1]

As the city grew, other changes took place. The large square blocks were frequently subdivided. This was usually done by carrying two streets through them, from north to south, so changing the checkerboard to a gridiron and establishing that shallowness of lot which is today the special peculiarity of Philadelphia platting. Other variations developed; but through them all the rectangular system, either as checkerboard or gridiron, has persisted. The plan was adopted also by the thirty or more outlying towns and villages, which gradually arose around the city and which have been since absorbed by it. Yet these were located in picturesque country of

[1] Had the proportion of open space to building plats been continued at the same rate as in Penn's scheme, there would have been two hundred and eighty small parks in the city plan of Philadelphia at the beginning of the twentieth century, instead of the forty-five which it actually contained.

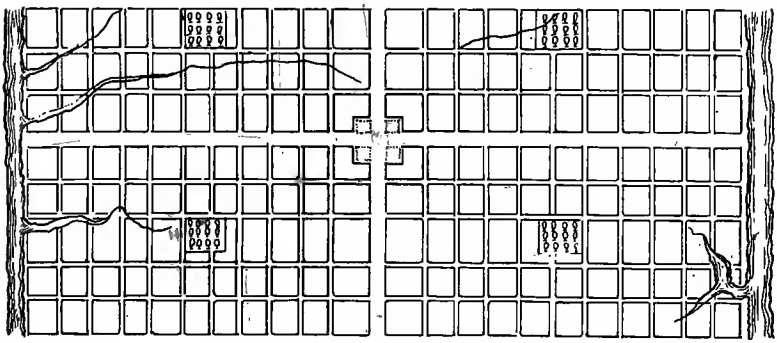
greatly varied topography. Thus, as an example, the plan of Philadelphia, made as it was by one of the greatest men of his day for a town that became the largest in the country, exerted a widespread and tremendous influence.

In 1807 it became necessary to plan for the extension of New York north of Fourteenth Street. At that time the United States contained only two other cities of considerable size—Philadelphia and Boston. Between the convenience of the straight streets and regular pattern of Philadelphia, and the narrow, winding, cow-path streets of Boston, no comparison was possible. It was practically certain that a regular plan would be adopted. A commission was appointed to make the street extension plan—the first City Plan Commission in the United States—and though it included eminent men, the tradition is that finally, wearied with long discussion and the pleadings of special interests, one of the commissioners picked up a mason's wire screen—for the Commission met in an unfinished building—placed it on the large map of Manhattan that lay upon the table, and said, "Here is a plan. Let the larger, vertical wires represent the north and south avenues, and the frequent small cross wires the streets that go east and west"; and that with no more to-do the plan was adopted. The avenues were made a hundred feet wide; the cross streets, sixty feet; and the



THE LOT SUBDIVISION OF A TYPICAL NEW YORK CITY BLOCK, IN THE BOROUGH OF MANHATTAN.

"The gridiron plan."



Reproduced from a Report of the City Parks Association, Philadelphia

PLAN BY WILLIAM PENN FOR THE CITY OF PHILADELPHIA

"The checkerboard plan"

blocks, two hundred by eight hundred feet with the narrow dimension on the avenues. So, it is said, was created the typical gridiron plan and the deep lot of New York.[1]

It is true that Major L'Enfant had at this time made for Washington a plan worked out in "the grand manner," but the City of Washington was still a wilderness, its street arrangement was only a paper plan, and New York and Philadelphia—real cities, rich and prosperous—set the fashions. Not unnaturally, thereafter, nearly all real-estate promoters who saw visions of future cities in a clustering of houses at a crossroads, platted their surrounding acres with right-angled streets.

But another influence, even more powerful and far reaching, was at work to stamp America with

[1] The New York plan commission of 1807 was created by act of the Legislature and was vested with exclusive power to lay out streets, roads, and public squares for the entire area north and east of Gansevoort Street, Greenwich Avenue, Waverly Place, Astor Place, the Bowery, and East Houston Street. The Common Council, in petitioning the Legislature to take this action, asked that a commission be appointed to lay out the undeveloped area "in such manner as to unite regularity and order with the public convenience and benefit, and in particular to promote the health of the city." It stated that "the diversity of sentiments and opinions which has hitherto existed, and will probably always exist, among the members of the Common Council, the incessant remonstrances of proprietors against plans, however well devised or beneficial, wherein their individual interests do not concur, with the impossibility of completing those plans thus approved, but by a tedious and expensive course of law, are obstacles of a serious and very perplexing nature." The commissioners appointed were Gouverneur Morris, Simeon DeWitt and John Rutherford. Their plan, filed March 22, 1811, and confirmed by the Legislature the same year, covered the area as far north as 155th Street.

right-angled, "cubist," cities. This was the system of land surveying which had been adopted by the Federal Government.

In 1785, on the suggestion of Thomas Jefferson, Congress passed a land ordinance, which 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. John Fiske, in his *Civil Government in the United States*, describes it, briefly, as follows:

> The Government surveyors first mark out a north and south line which is called the *principal meridian*. Twenty-four such meridians have been established. The first was the dividing line between Ohio and Indiana; the last one runs through Oregon a little to the west of Portland. On each side of the principal meridian there are marked off subordinate meridians called *range lines*, six miles apart, and numbered east and west from their principal. Then a true parallel of latitude is drawn, crossing these meridians at right angles. It is called the *base line*, or standard parallel. Eleven such base lines, for example, run across the great State of Oregon. Finally, on each side of the base line are drawn subordinate parallels called *township lines*, six miles apart, and numbered north and south from their base line. By these range lines and township lines the whole land is thus divided into townships just six miles square, and the townships are all numbered. Take, for example, the township of Deerfield in Michigan. That is the fourth township north of the base line, and it is in the fifth range east of the first principal meridian. It would be called township number 4 north range 5 east, and was so called before it was settled and received a name. Evidently one must go 24 miles from the principal meridian, or 18 miles from the base line, in order to enter this township.

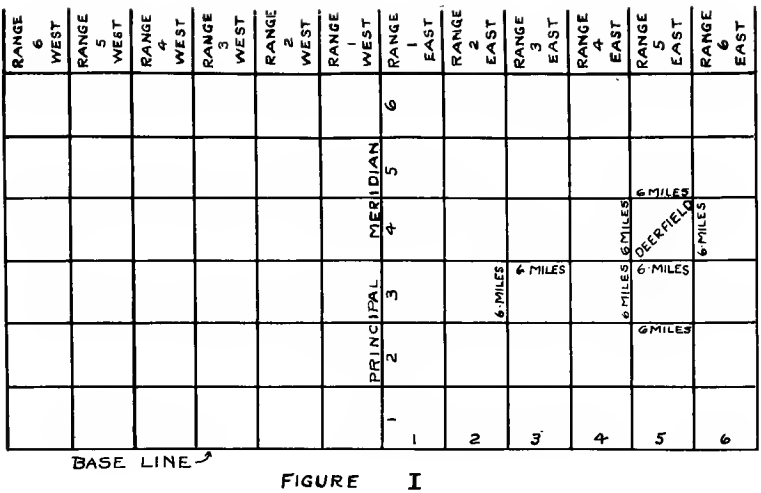


FIGURE I

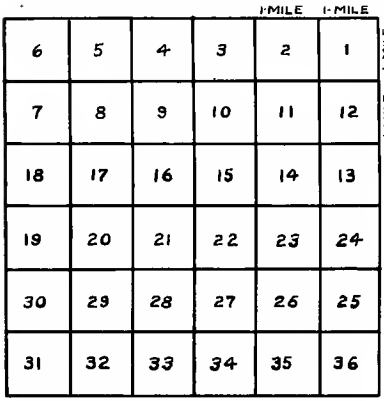


FIGURE II

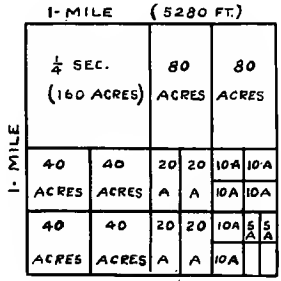


FIGURE III

THE CHECKERBOARD PLAN WHICH WAS STAMPED ON THE UNITED STATES BY THE GOVERNMENT SYSTEM OF LAND SURVEYS

Base lines and principal meridians, platted 36 miles apart, enclose an area which is cut into 36 squares, or townships, each six miles square (*Figure I*).

Each township is then divided into 36 sections, one mile square and numbered as shown. Country roads are often platted on these sectional lines (*Figure II*).

Each section, when later subdivided into acreage, tends to retain the original form in its subdivisions (*Figure III*).

When one realizes that as a result of this method all the farms, all suburban areas, all virgin country north and west of the Ohio river, were bought and sold in rectangular plats, either in those of the Government's original survey or in subdivisions of its squares, it is clear that the landowner, whatever his inclinations, would find it difficult to get away from a rectangular platting. If his tract was small, and if his streets were to be direct extensions of the streets platted in adjoining tracts, he was almost compelled to adopt such an arrangement.

Thus it is not always lack of imagination, nor failure to appreciate the advantages of an adjustment of plan to contour, nor insensibility to beauties of nature or to the charm of the picturesque which is responsible for the fidelity of the typical American town to rectangular planning. Law and custom have entrenched a plan which by its own simplicity invited adoption.

Nor is the rectangular pattern without arguments in its favour. There has been note of its simplicity and of the ease of extending the pattern—desirable qualities in the street plan of a growing city. Of great weight also, as has been stated, is its economy of building area. To the landowner the streets of his subdivision are like the halls and corridors of a building—an expense in themselves, and a sacrifice, however necessary, of rental space. The plan which

leaves him the maximum area for tenancy, and arranges it in convenient units, is the plan that appeals to his business sense. In fact, the New York commissioners, in justifying their adoption of a rectangular street plan, said that they had rejected an irregular system deliberately, for the reason that a city is "composed principally of the habitations of men, and that strait-sided and right-angled houses are the most cheap to build and the most convenient to live in."

The rectangular plan has other advantages and economies. It is so easily made that one can make it himself, without the necessity of retaining expert skill; it reduces the cost of surveying to a minimum and makes title descriptions easy to write. Its regularity simplifies a systematic designation of streets; and because of its standardization distances can be readily computed. This, to be sure, would be worth more if the standards were the same for all communities. But they vary considerably, so that one must know the scale in each city.

A plan, too, which provides uniform lot depths makes the levying of assessments easy, whether these be by the front foot or by the square foot; and it not only induces co-ordination in the street plans of new subdivisions, but it promotes this between the new subdivisions and the existing street plan. It is further claimed for it that the long straight streets,

THE TYPICAL CHICAGO SUBDIVISIONS OF FIVE-ACRE TRACTS INTO STREETS AND LOTS

Figure I. Sixty-six-foot streets and a fourteen-foot alley.

Figure II. Sixty-foot streets and a twenty-foot alley.

eliminating the necessity of ever making more than one turn, increase the rapidity of traffic movement and hence are of special value in case of fire—an argument offset in part by the fact that for any destination not on the same street one must traverse two sides of a triangle. Furthermore, automobiles have made a promiscuous rapidity of traffic movement on residence streets a danger and a nuisance.

Doubtless, finally, the very universality of the plan's adoption in America is a convenience, in these days of vastly increased travel. Our towns may be monotonous, but at least one can feel pretty much at home in any of them and can hardly lose his way. With the rectangular street plan, one may have to journey a longer distance than should be necessary but one will not need to retrace his steps.

In the aggregate, all these advantages make, clearly, a formidable showing. For a small town on a fairly level site, the rectangular street plan has, indeed, very much in its favour. And in this connection two things are to be noted: The tendency nowadays is to choose fairly level sites for towns; and at the period when first street plans are adopted the towns are small. Had Philadelphia grown no larger than Penn planned it, the plan he made for its flat site would have been a pretty good one. It would have had little aesthetic charm; but it would have been convenient and practical, and, thanks to

the number of its open spaces, healthful. To demonstrate that a city planner, dealing with like conditions of topography, might do better than Penn did, involves showing that the needs of modern city life have greatly changed. This is true; and the plan which would serve even a hundred years ago, is not adequate today, in spite of its several advantages.

CHAPTER III

THE STANDARDIZING OF STREETS

A RECTANGULAR street system does not, theoretically, require standardization in the size of the blocks, in the width of the streets, or in the manner of their development. We might have right-angled streets of various widths, at various distances apart, and variously developed. Practically, we very seldom do have them.

This is because rectangular platting so distinctly fosters standardization that where the first exists one almost always finds the second. It appears in all three of the forms named: In the uniformity of block size—as in New York, with its 200 x 800 blocks, or as in Chicago with the 300 x 600 blocks into which, with boundary streets and interior alley, the square subdivisions of the Government township plat are so readily divisible[1]; in the width of the streets, and in the apportionment of their width between vehicular traffic and pedestrian.

On the other hand, considerable standardization

[1] See illustration opposite page 22.

is possible without rectangular platting. For example, an English act requires that no street in Liverpool shall proceed further than 150 yards without a cross street—regardless of the angle of the street's direction and irrespective of how little travel there ever may be across it. Other by-laws require a certain minimum width of street—as forty feet in all of England, and sixty feet under certain strict conditions on all the new traffic highways of the City of Washington, and otherwise ninety feet; a definite apportionment of the street space—as three-fifths in roadway, which is the common requirement in the United States and in France; and even, as in England again, a certain minimum strength of construction, to which of course minor streets at least will adhere without variation. None of these demands is dependent on the pattern which the street system makes.

To discuss, therefore, the effects of standardized street platting is not to limit the subject to right-angled streets. While the discussion will apply to nearly all the rectangular street platting which has been actually done, it must also be understood as applying to any other streets on which standardization has placed its stamp.

A standardizing of streets has proceeded so confidently, so broadly—from the standpoint of geographical distribution—and so indifferently to

the costs involved, that it is well to examine the arguments for it. These are the more interesting because its advantages are not as obvious, nor does the system seem as natural, as was found to be the case with rectangular street platting. On a site presenting some irregularities of contour and differences in land values, the amateur street platter might be expected to find it easier to recognize variations of condition, when constructing his streets, than to select a mean for them and then to make them all conform exactly to it.

The probability is that, strongly encouraged by rectangular street planning, standardization received much of its impetus as a result of the checkerboard and gridiron plans. Those plans practically assume standardization. Basing their chief claims on their regularity, consistency requires a belief that the more regular they are, the better they are. To improve a stereotyped pattern by varying it, is to confess inadequacy in the pattern and so to destroy the reason for making it stereotyped. Evidence of this position is offered by the degree to which standardization in its most extreme form has everywhere characterized rectangular street platting.

But there are definite arguments in behalf of it, as evidenced by its adoption in one form or another where the street plan is irregular. Three, in particular, are commonly given. One is the convenience of

the system. To make all streets alike in width and in arrangement, is to reduce to a minimum the need of mental exertion on the part of the tract developer. The device may make the contractor's task a harder one; but the man responsible for putting the plan on paper, can almost leave the task to his office boy.

A second "justification," often cited in these days, is that the method represents an effort to be forehanded in providing for future traffic. As to this, the situation is as follows: We, as citizens, have found in dearly bought experience that the streets of the long ago are too small for the traffic of the great cities of today, with their larger populations and vastly increased transportation needs. We have determined that the error shall not be repeated in the building of new towns or in additions to the old. As no walls of masonry now encompass our cities to cramp the streets, we say to ourselves there is all outdoors to grow in. Let us, therefore, plan on a big scale, making our streets generously broad. Accordingly, we have raised the percentage of area devoted to streets from the ten per cent. which was frequent in mediæval and ancient cities[1] to the twenty-five and even forty per cent. which is usual in the built-up portions of modern cities. As our streets, pene-

[1] In Pompeii, for instance, it is found that the principal streets were only thirty feet wide, and the side streets only fifteen. In Havana, Cuba, the area devoted to streets is less even today than ten per cent. of the total.

Original taken by G. Reinecke, Hanover

TYPICAL STREET OF A MEDIAEVAL TOWN

This view in old Potthof well illustrates the condition when traffic was light and city street plans comprised a few broad spaces, united by "narrow channels and a network of connecting slits."

trating the outskirts of the town, carry a decreased traffic, we do not, therefore, narrow them; but maintain them at the standard width, proud of our forethought for the traffic which the future is to bring.

This course may seem, at first thought, very creditable, and no doubt it is desirable to raise the percentage of street area as much on the average as we have raised it. The trouble with the operation is that we have performed it in a uniform, unthinking way, forgetful that the growth of traffic is not the same on different streets, and that walls of time and of transportation charges still engirdle city workers, exacting toll in higher rent for improvident use of land.

We need to recognize that there are some streets which never can be traffic highways, however broad they be—as streets that climb steep hills or terminate quickly, or skirt lines of bluffs.[1] We need, also, to realize that, at worst, Broadways, Fleet Streets, and

[1] An illustration, which is interesting because typical, may be cited from Los Angeles, Cal. There a law specifies that no public street shall be less than forty feet wide. Recently owners of a certain tract in the hills, called Beverly Glen, offered to dedicate a sufficiently wide street through the canyon in the middle of the tract. But this left house lots on the hillsides which it was illegal to offer for sale until public highways had been set aside to reach them, on plats accepted by the Board of Supervisors and made matter of record. Such, however, was the character of the hillsides that it was out of the question to lay out public highways which the Board could legally accept. As this is written, there is pending the query whether the unreasonable standardizing law can be evaded by accepting "public trails"!—Condensed from a news note in *Municipal Journal and Engineer*, Feb. 8, 1911.

"the highroad to London" are not born full-grown over night. In ninety-nine cases out of the hundred it can be foreseen absolutely that some residence thoroughfares cannot become business streets within any reasonable period. Is it not absurd to charge the community through all the intervening years with the annual cost of a hundred needlessly wide streets because one of them might possibly, generations hence, have a great deal larger traffic than today? And as to the one case, of which the future might not be accurately foreseen so long ahead, the growing traffic, the trend of business and of building, or the undertaking of a public work that is to revolutionize the community would give the warning in time for it. On the other hand, how often do we find the main business street of a populous town or city choked with traffic, because careless standardization gave to it only the same width as that of the quietest residence street. If we are going to be thoughtful in our city building, does it not behoove us to think of facts and not of theories?

If, then, standardization deserves credit for implying recognition of a need of regulation, it destroys this claim to credit by imposing a regulation that is arbitrary, unrelated to facts, and hence in many cases illogical. To require that the gridiron street plan, which is possibly characteristic of the nucleus of the town, shall "spread like an eruption over hill

and valley, regardless of gradient, site or of strategic lines of communication, oblivious of monotony and blind to topographical opportunity,"[1] may be to blast the chance of suburban appropriateness and beauty. Again, to impose on the new streets themselves requirements which unfit them for the best performance of their function can represent no advance over leaving them unregulated, since under the latter condition an intelligent person might now and then fit them for their purpose. And to say that no streets shall have less than a certain minimum width of roadway, setting that minimum at a figure appropriate only for streets of a considerable traffic value; or to say that every street shall be intersected by a cross street at definitely named intervals, is to impose restrictions of exactly these kinds.

A third excuse for giving to streets a width in excess of the traffic needs is that such action is wise because in residence districts, especially among humble homes, the width is useful for something else than mere traffic—as air and light and grass and flowers. But this is a costly way to provide these amenities. Would an architect justify the expense of putting additional staircases in a house because banister-rails are nice for boys to slide on? It would be better to provide air and light and vegetation in

[1] An admirably descriptive phrase used by Arthur A. Shurtleff, in *Landscape Architecture*, January, 1911.

such quarters by a corresponding deepening of lots and the requirement that the houses be set back from the street. Should there be felt the need for traffic forehandedness, the community could secure an easement over this front garden space. Meanwhile the desired amenities would be attributes of the home rather than of the street, and better so; while as to provision for shade trees, when a street is narrow the trees are better inside the property-line than outside of it, if the houses be placed sufficiently far back.

Again, in other districts where excessive street width due to standardization is absorbed in needlessly wide pavements, the excuse is offered that wide streets look well. The syllogism seems to run like this: Great thoroughfares, such as boulevards, have paved roadways of considerable width; great thoroughfares, such as boulevards, look well; therefore—but the flaw in the logic is quite obvious.

The cost of standardization, economic and social, is to be considered in succeeding chapters. Here it remains only to note the length to which its exactions go.

There has been reference to a certain law in Washington—a city selected for citation because we like to think of it as so admirably planned. This requires that all new highways be not less than ninety feet in width, unless the dedicating parties establish a building restriction line, when, if the set back be sufficient, the new street may be platted but sixty

feet in width. Contrast these requirements for the width of suburban streets with the dimensions of thoroughfares world famous for the volume of traffic they accommodate. Sixty feet is as wide as Cheapside, London, and approximates the available width of Fifth Avenue, New York, before the setting back of stoops. Ninety feet is much wider than Piccadilly, Queen Victoria Street, or Oxford Street, and is wider than Regent Street Quadrant, in London. It is only eight feet less than the Parisian boulevards or the Avenue de l'Opéra, and is wider than are the busiest parts of Broadway, New York. It were trite to term such provisions, made regardless of all local conditions, extravagant.

Turning from the width of streets to enactments standardizing their development, we have just seen that one-fifth for each sidewalk and three-fifths for roadway is a common requirement in France and in the United States. Sometimes, when the streets are narrower, and especially in other countries, the division is two-thirds roadway and one-sixth to each sidewalk; or, occasionally, and as an equally arbitrary standard, one-half roadway, leaving a quarter to each sidewalk. All this is irrespective of the actual relation between pedestrian and vehicular travel on any particular street, for the variation in requirements is found between cities—very seldom between different parts of the same city.

The City of New York conveniently offers innumerable examples of the different needs in this respect of different kinds of streets, even when their width is the same. We find, for instance, business sections and residence sections with traffic requirements totally unlike. We find the business section subdivided many times, as into wholesale and retail districts, and these again subdivided, as into the "leather district," the "financial centre," the "automobile row," etc. The residence sections in their turn are subdivided into high-class and middle-class and workingmen's districts. The tenement region makes another vast section. Sidewalk and pavement requirements are by no means the same on all the streets of like width in these various districts. One may find on a street in the wholesale district fifty great trucks and drays to a single pedestrian. On the tenement-lined streets of the congested East Side, or among tall office buildings, of which a single one contains the population of a good-sized town, there may be five hundred pedestrians to a single vehicle. Streams of people on the sidewalks flow into the "roadway" and sometimes choke it to such extent that one could hardly drive there if he would. But up on the avenue, where the roadway is uniform in width with that between the tenements and the skyscrapers, the river of traffic is mainly composed of motor cars. Such a mighty torrent is it that the

hunted pedestrian can cross it only as the children of Israel crossed the Red Sea, a Moses in uniform holding back the flood on either side. In yet another part of the city, the authorities found it advisable some months ago to close some streets to vehicular traffic between certain hours, because inconsequent childhood had appropriated the space for a needed playground!

Great as are these contrasts, the problem is reduced in this statement to its simplest terms. No account is taken of the difference between streets that have and have not car-tracks, though in other respects they be alike; no account of grades, and length, of direction with respect to the tidal flow of traffic; of terminals, cross-streams, and other matters which affect the efficiency of streets. And even all these conditions would not illustrate all the folly of a standardizing system. There are other streets in the city, scores and hundreds, on which, though they are equal in width with thoroughfares as crowded as those described, there will be, perhaps, two vehicles and half-a-dozen pedestrians in the hour.

Then there is the standardization of direction, which requires that all streets adhere strictly to the Plan, indifferent to the purpose they have to serve. Even on a virgin plain this is not justifiable. Take the one matter of orientation. We shall find it desirable that residence streets in temperate zones have

such direction that there will be no day of the year when the sun may not reach some windows of the houses. But on business streets this is far less important—shops, indeed, preferring the shady side.

Or take the matter of street intersections, as the case of the cited English act which requires cross streets not more than 150 yards apart, no matter how few the houses are and must ever be. In New York City, with its enormous traffic, many of the blocks are nearly twice as long as that; in Montreal, the average block is 750 feet on two of its sides; in Washington, streets are frequently 800 feet apart. Yet this law requires that if one is laying out a tract on which to house the very poor at the lowest possible rent in Liverpool, one must increase the cost of the operation by building a street at intervals of every 450 feet.[1]

Finally, most significant in all this standardization is the fact that there are to be found a great variety of standards in different localities, even when economic, social, and topographical conditions seem very similar. In other words, there is no pretence that a true standard has been found. Selected re-

[1] The question, to be sure, is not wholly one of traffic accommodation. Streets not only carry traffic, but their location determines block plans, and block plans determine lot lengths. The shallow lot, secured only by frequency of parallel streets, is exceedingly desirable where the poor are to be housed—as will appear further on. But a needless frequency of cross streets, or the frequency of parallel streets that through standardization are compelled to have a useless width, is thoroughly bad. That is the point as regards the present discussion.

quirements and dimensions seem to have been determined upon in each place by accident, more or less, and to have persisted largely through inertia.

Meanwhile, the whole problem of the street has been growing vastly in complexity with the growth of cities, with the volume of their traffic and the extensive variation in social and economic conditions. The problem is hardly less pressing in the outskirts than in the city's heart, since no subdivision can be properly considered by itself alone. In the mere matter of width, if we set the common excessive width of strictly residence streets over against the common excessive narrowness of main traffic thoroughfares, we shall not fail to note how few streets are fitted to the mean. It is as if hats were all made of one size—to fit the average head. How many foreheads would be telescoped, and how many heads would prove but aviation grounds whence hats would soar!

CHAPTER IV

ECONOMIC DEFECTS OF STANDARDIZATION

WE have seen that the standardizing of streets is a labour-saving and convenient method of regulating the subdivision of real estate. In most operations, however, standardization also means an economy which is its principal justification. To observe the economic effects of this method of street arrangement is, then, to submit it to an important test, the mere ease and convenience of the man who plats the street being of little moment compared with the costs to which those may be subjected who use it or own property upon it. If these costs are unreasonably high, the arguments for the method break down.

A valuable report which was submitted at the Seventh Congrès International des Habitations à bon Marché, a gathering of those interested primarily in housing rather than in town planning, named the following as the factors which determine rent as far as the landlord's side of the question is concerned:

1. Interest on capital outlay:
   (a) For site.
   (b) For roads, sewers, etc.
   (c) For building.
2. Maintenance expenses:
   (a) For repairs—"a fairly constant factor, averaging about one-tenth of the gross rent."
   (b) For management and sundries, "a fairly constant factor, averaging about one twenty-fifth of the gross rent."
   (c) For taxes and insurance.

Of these factors, it will be observed that the street platting very largely determines the size and shape of "sites"—1, (a); that the platting, width, and manner of street development largely determine the cost of the roads and sewers—1, (b), of the roads, obviously, while as to the sewers, the necessary capacity of those for storm water increases with the width of impervious pavement, and the mileage of both storm and sanitary sewers is affected by the length and the frequency of the streets; and, finally, that the cost of the streets, as a result of their platting, width, and development, largely determines the amount to be paid in taxes—2, (c), for this item may be taken to include local assessments.[1]

[1] It is hardly necessary, though it would be interesting, to consider here the various theories as to the precise effect of taxation upon rents. There may just be note that sometimes the *method* of levying taxes may have quite as much effect as does the tax rate. Indeed, adherents of the system which exempts improvements, putting all the tax on the land, assert that such a method must tend, by encouraging building, to reduce rents. With the whole tax placed on the land, it does not pay to allow valuable land—

So it is seen that three of the six factors determining rent grow out of the street arrangement. Two of the other three—2, (a) and (b)—are described as "fairly constant," leaving the selling value of land, so far as it represents a capitalization of net rent, influenced very largely indeed by the arrangement of streets, and all rentals governed mainly by two items: Cost of structure and the street plan, using the latter term in its widest sense.

When it is realized that the tenant, in choosing his place of abode and the style of his house, tends to select the best he can afford, it becomes clear that the rent factors which are imposed by the street planner really go far toward fixing the scale of his living. The far-reaching, even the widely personal, importance of applying the economic test to methods of street arrangement becomes thus evident. This is one of the reasons why students of housing make

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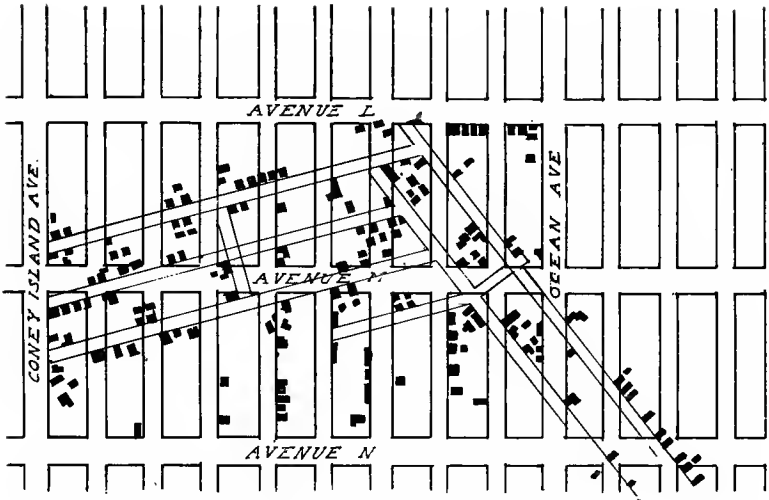
which is to say land immediately needed for use—to remain out of use. From a town planning standpoint, it is interesting to note the further claim that the city would consequently develop in a more orderly and consistent manner. Large areas of property, allowed to lie vacant because of low taxes, would no longer separate its outer ring into scattered communities—a course that adds much to the cost of policing, lighting, sewering, and paving. On the other hand, the opponents of this system make the important claim that because it practically penalizes low buildings as compared to high, it must increase the congestion which town planning endeavours to relieve. Again, those who believe in an "unearned increment" tax on land, a system in operation in Germany most notably, though also in some other countries, make for their method a claim similar to that advanced for exempting improvements and taxing land.



A Rectangular Street System's Disregard of Existing Roads and Buildings

Plan showing actual conditions in the creation of a rigid street system in the Borough of Brooklyn, New York. The expense imposed by this policy is apparent.

Reproduced from illustration to paper by Nelson E. Lewis on "The City Plan and What it Means," published in Proceedings for 1911 of The Municipal Engineers of the City of New York.

The Cost of Rigidity of Plan

The extension of a Philadelphia street. In this case the destruction was not necessary.

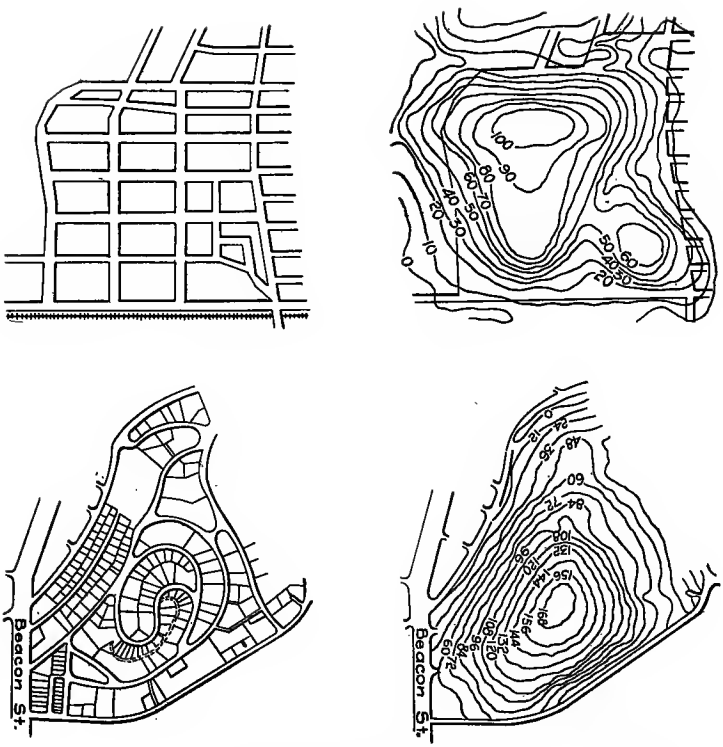
town planning the first step and housing the second in their effort to promote a better social order.

The analysis is of value, therefore, in carrying conviction that if the present familiar method of standardization is unduly extravagant, it should not be permitted to exist simply through inertia and because it saves trouble in surveying and thinking. So it will be of interest to observe some of the costs which standardizing does involve. In the main the system takes, it will be remembered, three general forms: (1), The standardizing of direction—as in the checkerboard and gridiron plan; (2), the standardizing of width; and (3), the standardizing of the cross-section plan in the street's development.

(1) A standardization of direction, which requires strict adherence to a fixed plan, as in the case of the checkerboard and gridiron, is careless of the cost of cuts and fills and is regardless as to whether grades are negotiable. We find it—alike in Albany, N. Y., and in San Francisco, Cal., for example—carrying streets over hills at grades so steep that no vehicle so much as attempts to use the street and that stairs must be made for pedestrians; and we find it on other occasions the cause of heavy cuts, that leave ugly gashes in the hillside, that destroy the trees, that are vastly expensive, and that reduce property values through making lots almost inaccessible; or, yet again, we find it requiring great fills, or costly

viaducts, beneath which the theoretically abutting property is shorn of most of its value. Than such street platting as this, there could be none more wasteful, extravagant, uneconomic. One could hardly believe that sane men would lay out streets in such a way, if the country were not full of examples. The practice affords a striking illustration of blind devotion to a fetish.

(2) A standardization of width which, in the establishment of an arbitrary mean, makes many streets too broad and not a few too narrow, involves, in the one case, a waste of land and an unnecessary expenditure for construction and for maintenance. The land, which in some instances must be bought, is at any rate subtracted from the abutting lots, and is therefore a contribution from the lot owners, which may be not only involuntary but made to their own positive disadvantage. In the other case, the traffic congestion which results from making streets too narrow, involves considerable danger to life, limb, and property—as costly accidents are testifying—and it leads to constant delays to traffic. These, as a clog to business, decrease the commercial and industrial efficiency for which the city ought to stand—in fact, it has been well said that "a city's traffic is its life-blood." They impose, therefore, a hidden but very real tax on the whole population in higher costs for service and for products of all kinds.



By courtesy of Metropolitan Improvements Commission (Boston).

STREETS ADJUSTED TO CONTOURS

The street development of Aspinwall Hill, Brookline, Mass., as shown in the lower diagrams, offers delightful contrast to that on the hill at Wollaston, shown above.

It is easy to illustrate this. The Municipal Markets Commission of Chicago, discussing in their 1914 report the high cost of living, point out that it costs as much to deliver a hundred pounds of foodstuffs in Chicago, after the supplies have reached the city, as it does to carry them the hundred miles across the lake. In Milwaukee, where it is said "to cost more to distribute coal within the city than to bring it from Pennsylvania," it has been figured that this excessive cost entails upon the consumers in any one year an expense which would serve to build a well-placed arterial highway, which would remove the excess cost for all time.[1] The Report of the London Traffic Commission for 1905, when conditions were not as bad as they have since become in almost every large city, reported that the average speed of all kinds of vehicles in central London was only about one-half as great in the crush hours as in the slack hours. A traffic census taken at that time, at the corner of Piccadilly and St. James's Street, showed that between four and five P.M. north and south traffic was held up thirty-one times, for a total of forty-three and a half minutes—or for seventy-three per cent. of the entire time. Surely such conditions

[1] This statement was made by C. B. Whitnall, of Milwaukee, in a paper submitted to the Canadian Housing and Town Planning Congress, Winnipeg, 1912. It should be added, however, that congestion is not alone responsible for the relatively high cost of street transportation. The condition of pavements, for instance, considerably affects the expense of such traffic movement.

as these impose an expensive handicap on urban efficiency.

In many cities, too, the choking of the streets with traffic has become so serious that numerous business streets have to be designated as "one-way" streets only, it being necessary to require that all traffic on them move in the same direction—a device which means delay, trouble, and the traversing of excess distance if one be not approaching his destination from the required direction. In practically all the larger cities, it has become necessary to employ salaried traffic officers, to erect isles of safety, and frequently to supplement annoyingly restrictive ordinances by various mechanical devices for the traffic's regulation.

A costly "economy," then, is the standardization that results in making streets too narrow—as costly as is that which results in making them too broad. And curiously enough, by contrast, in other fields of municipal engineering,—as in making sewers, for example—the structures are designed with reference to the service that will be required of them. Consequently, if non-standardization be a novel suggestion for city engineering work, it is not a radical nor unprecedented one.

(3) The third of the principal forms of standardization was that of the cross-section plan in the street's development. To be coupled with it is the

standardization—less common in the United States than in England—of the details of construction. Some data directly measuring this by its effect on rents is conveniently at hand.

Alderman W. Thompson, long chairman of the National Housing Reform Council of England, in his valuable compilation, *Housing Up to Date*, states that under by-law conditions of subdivision the cost of roads, sewers, etc., reaches in some cases as high as £9 per room or £45 per cottage, and that it averages £9 per cottage. This calculation is based on statistics covering thousands of cottage dwellings, and since the word "cottage" means in this connection houses built in continuous rows—that is, dwellings that occupy with their grounds a minimum street frontage—it makes apparent the effect on rents for even the cheapest homes. As to the more costly, or villa, type of dwellings, the same authority notes that the English by-law requiring a paved or macadamized road surface of about forty feet, has made the cost of thoroughfares, in newly developed estates on the outskirts of towns, from £200 to £500 per acre—"*or more than the land itself.*"

John S. Nettlefold, in his *Slum Reform and Town Planning*, calculates that the interest on the expenditure for street work "comes to one shilling or more per week on a house rented for six shillings, if the number of houses is restricted to fifteen per acre."

One must read that statement twice to get its full significance, and must realize that the suggested restriction is not a low one, the typical Chicago subdivision, in which the lots are 25 x 125 feet, giving but nine and three-fifths houses to the acre. At Bournville, England, the houses are restricted to eleven to the acre, and at Hampstead Garden Suburb they average less than eight, with twelve the maximum. Twelve to the acre has been made the standard in English housing exhibitions. Yet even at fifteen to the acre, one-sixth or more is added to the weekly rent by the English by-law requirements.

Raymond Unwin puts the unreasonableness of the requirement in this striking way:

> A mansion such as Chatsworth or Blenheim will be adequately served by a simple carriage drive from 13 to 20 feet wide. The population of such a building will be larger than that of a row or group of cottages, and the amount of wheel traffic to and from it many times as great; yet for the cottage road asphalt or concrete paved footpaths, granite curbs and channel, and granite macadamized surface, the whole from 40 to 50 feet wide, and costing, with the sewers, etc., from £5 to £8 a lineal yard, are required by the local authority, under our existing by-law.

More recently, Mr. Unwin has worked out, by means of tables giving the cost of estate development per house for various numbers of houses per acre, an interesting calculation as to the profit in making certain concessions with respect to roads. He

imagines, for instance, a tract of twenty acres, valued at £300 an acre, with ten houses to the acre, and assumes the cost of fifty-foot roads to be £7, 10*s.* per lineal yard, the cost of thirty-six-foot roads to be £5, 10*s.* per lineal yard, and the cost of twenty-foot roads to be £3 per lineal yard. He finds that if, instead of constructing the ordinary by-law roads, the houses being so few, there were made one fifty-foot road around the twenty acres, a thirty-six-foot residential road across the area, and then, instead of another thirty-six-foot road through the length of the plat, two small drives of twenty feet each, the cost per house for land and roads would be reduced from £71 to £62, 6*s.* assuming the land-cost as remaining fixed in either case. The concession, that is to say, makes the same difference to the landlord as if he had been allowed to put one hundred and forty more houses on the twenty acres.

Or, coming to America for illustration, the Topographical Survey Commission of Baltimore observe in their 1911 Report that in that city the normal street is sixty-six feet wide, of which the ordinance requires that thirty-nine and six-tenths feet shall be in roadway. They then note that if authority were granted to reduce the pavement on a minor street from a width of thirty-nine feet to a width of twenty-four feet, there would be a saving of $17,600 per mile in paving alone, the paving being figured at $2.00

per square yard. Yet a pavement reduced to twenty-four feet is sufficient to accommodate three teams or automobiles abreast.

It is fair to add, in view of the examples cited from England—and most significant is the possibility of adding it—that the English town planning act of 1909 recognizes the needlessness of the cost of standardization. It permits local authorities, in order "to secure proper sanitary conditions, amenity, and convenience," to relax or modify former requirements, breaking away from the tradition that all streets should be of like width and like strength.

There must be remembrance, further, that the construction cost of unnecessary street area, whether it be in roadway or in parking, is followed by excessive costs for maintenance; and by the cost of keeping the extra width clean. Take, for example, simply the matter of sprinkling. If a cart waters satisfactorily a twenty-four-foot pavement in one passage, the widening of the pavement to thirty-six feet, perhaps even to thirty feet, may necessitate a second trip, so doubling the cost. Maintenance is supposed also to take care of depreciation. Not only would the property owner on a minor street with an appropriately narrow roadway have to provide for the deterioration of a smaller area of street, but the rate of deterioration would itself be less, if none but local travel were invited to use the street.

THE UNSYMPATHETIC PLAN OF A DOMESTIC STREET

This picture was taken and published, curiously enough, to advertise the attractiveness of a certain residential development.

The present property holder on a typical suburban street is very much in the position of a man required to cover his front sidewalk with a brussels carpet which each person who goes past his house does something to wear out. As everything is done to invite people to use the street, and as nowadays a great many play-loving persons are riding up and down, the carpet wears out very fast. The man has not awakened yet to the injustice of the demand that he provide the carpet where he does not want one, and then invite people, who are only a nuisance to him, to use it. Under the saner method of street platting, his carpet would be in his front hall. It would not wear out so fast, because no one would use it but his own household, his nearest neighbours, and their visitors. He would not grudge the wear given to it in that way, and he would find that a cheaper grade of carpet, costing less in the first place, would last as long as the body brussels laid on the front walk. For these minor residential streets, if inviting no through travel, would be as private entrance ways to the few houses gathered upon them.

There is another way, less obvious than those which have been cited, but very important to tenants and owners of property, in which the standardizing of streets means economic waste. This is its failure to provide stability in values.

With a series of streets precisely alike, there is

little or no protection from artificial manipulation in realty prices. One or more enterprising men can draw business out of one street into a neighbouring one, if there be no organic reason for the choice which business had previously made. One may see this operation taking place in almost every city with standardized streets, as a result of the erection of an important building, of a re-routeing of transportation lines, of an improvement in lighting, or for some other reason. Almost every such city has its "blighted district"—a central area in which values once were high, but where property is now nearly unsalable. These districts are striking examples of economic waste. On the other hand, through the belief, or hope, that business or fashion may jump into a certain street, values and rents upon that street are often kept unreasonably inflated. On all sides, at the expense of the tenant, optimistic guessing is going on, and when the guesses prove wrong there are losses. It is largely because of standardization that real estate in American cities is, so disastrously to the common good, a speculation rather than an investment.

It should be noted, in conclusion of the chapter, that in addition to the municipality, in its corporate capacity, there are three groups of individuals directly affected by the economic consequences of street standardization. These are: (1), The tenants or

purchasers of house-lots, who, as the ultimate consumers, constitute the largest and most important of the groups; (2), the capitalists, or investors; (3), the real estate promoters and speculators. All of these are losers by the method, except possibly the latter. And perhaps they have acted short-sightedly in encouraging a system which in the long run is not to the advantage of their clients. Certainly, many of the more enlightened and progressive real estate men feel no longer bound by it. Their testimony is that courage pays. But an unregulated liberty has dangers of its own.

CHAPTER V

SOCIAL DEFICIENCIES OF STANDARDIZATION

OF more moment to the welfare of cities than the wealth of their citizens is the citizens' moral, physical, and social well-being. In so far as the platting of streets, that cities may extend and that land which is held in tracts or blocks may be cut into home-lots, is a business proposition, the fallacy of street standardization has been sufficiently indicated by its failure to meet economic tests, unless the town's site be a plain and its size very small. But the operation is a business one on one side only—that of the seller. The typical ultimate purchaser is buying for a home, not making an impersonal investment. It is necessary, therefore, to scrutinize the social consequences of the method, using the term social in a broadly civic sense.

In the preceding chapter the statement was made, after a careful analysis, that the rent factors imposed by the street plan go far toward fixing the scale of the tenant's living. That was to make a statement of tremendous social import.

An interesting illustration of this may be taken from the experience of certain Continental cities. When the Germans first took up deliberate town planning, as the phrase is now understood, they were wont to construct very broad streets when developing outlying areas. The evil of this was early recognized by a few students, for even in 1892 the minister of finance said, in presenting to the Prussian House of Representatives a bill relative to town planning:

> Everywhere equally wide streets have been made, whether they are in a district of heavy traffic, or whether they are in the less busy parts of the town in which, naturally, workmen seek a home. . . . In preparing a rational town building plan our task will be to avoid these faults and to take as our aim that narrow as well as wide streets shall be laid out, which will cost less to make.

More recently, however, in the discussion of the few pages from this volume which were read at the London Town Planning Conference of 1910, Dr. Hegemann of Berlin traced a relation of cause and effect between the wide streets and the tenements with which those streets are lined in the more remote portions of the German capital; while Thomas Adams, then town planning advisor to the Local Government Board of England, testified that after investigating conditions in Germany and Sweden, he had come to the conclusion that the system of high tenement block dwellings was as much the result of wide roads,

as wide roads had been the result of the tenement system. The one, he said, was complementary to the other. It was necessary that the owner extract from each yard of his frontage enough rent to pay its share of the costly street.[1]

At the same conference Dr. Eberstadt, in a formal paper, told how English visitors are driven about the German cities and shown imposingly broad streets "with a display of asphalt that would empty half the pits of Italy, and a show of granite sufficient to level down the mountains of Sweden, lined all along with huge five- or six-story tenement barracks." Some English visitors, he added, were full of admiration for this sort of thing; but he testified that the Germans, who have had the opportunity to study it at close range, "now wish to do away with it, as far as may be practicable."

Happily, many German town planners other than those quoted became convinced that the social loss, consequent upon broad and costly streets in sections where the poor have to live, fully offset the aesthetic gain. Accordingly, the schemes worked out for the Greater Berlin city planning competition (1909)

[1] Dr. Hegemann makes under date of 1914 the startling assertion, in the Introduction to his Report entitled, *A City Plan for Berkeley, Cal.*, that "in the communities that make up Greater Berlin, from 500,000 to 600,000 people are congested into tenements with an average of five to thirteen persons to every room." This counts only rooms that can be heated, and of course does not include bathrooms (where these exist) or kitchens.

A German Type of Handsome Street

High tenement dwellings, built in blocks, may be the direct result of wide roads. A handsome street that is lined with them, as a result of its spaciousness, cannot be admired from the standpoint of social welfare.

Sacrificing Comfort and Beauty for Width

This is a street in a residential suburb of New York. Its length is limited to two or three blocks owing to natural conditions, and there was no need to sacrifice beauty and comfort in order to make it as wide as Broadway. *See* text, page 57.

supplement very wide traffic roads, that reach far into the country, with large numbers of narrow non-traffic roads, intended for residence. The same result was seen two years later in the Düsseldorf competition. Significant, also, was the hold which "the Garden City movement" began to take in Germany after 1910, and the fact that in connection with the harbour works at Frankfort the municipality extended the tram lines into the suburbs and to nearby villages where rents were low, and of itself undertook a vast housing scheme which took the form of erecting hundreds of small dwellings for employees of the new industrial section.

That in England and America broad streets, in areas where the poor are congregated, are not—save in New York—as commonly lined with tall tenement barracks as in Germany, in Italy, or in Paris, must not be understood as meaning that the same economic law is not in operation, or that it operates less unfortunately. A social repugnance to the big tenement, except as a last necessity, has led to the construction of small houses (often more crowded per room, and less sanitary, than is the tenement block), and then the need of squeezing from the land the higher rent necessitated by the cost of frontage on an expensive street induces the construction of another house, sometimes a small tenement, on the rear of the lot.

These houses, hidden by the structures in front,

are uncontrolled by ordinary police inspection and unaffected by public observation and criticism. They become such breeding places of disease and vice that at last, in city after city, it becomes necessary to forbid their erection. In Washington, where they were perhaps no worse than in other cities, the official report of the President's Homes Commission described them as "discreditable to the city and injurious to the sanitary interests of its inhabitants."[1] There seems, then, to be no doubt of the condemnation on social grounds deserved by a street standardization which provides excessive width, when the resulting financial sacrifice means hardship.

There are other social losses growing out of this action which affect the well-to-do as well as the poor. While a needlessly wide street pavement, for instance, means unnecessary expense, the evil does not stop there. It probably also results in a shorter pavement than would otherwise be laid, and perhaps in a cheaper and poorer one. Both of these outcomes represent a loss to the community.

Another injury is described by Frederick Law Olmsted in this way:

> The tendency of the standardizing plan to encourage the distribution of a certain amount of through traffic upon nearly

[1] That this evil is not peculiar to America, but, as stated, is vigorous in England where also the tenement is unpopular, is indicated by the authoritative statement in 1915 that Birmingham then had "30,000 back-to-back houses." The statement is made in *Town Planning* by George Cadbury, Jr.

every street in each district, is a distinct injury both to the residential streets, where the abutters wish to escape from the disturbance of traffic, and to the commercial streets, where the abutters wish to have the maximum amount of traffic pass their places of business.

In other words, the abutters are taxed for a system which is to their disadvantage.

It was early claimed that a wide street, furnishing abundance of light and air, would be healthier to live upon. But this does not follow if the added breadth is devoted only to pavement. Such a street is provocative of much dust, which is never healthy; and in enforcing intensive land occupation, either by covering much of the land with buildings, or by high building, it creates conditions that are by no means hygienic. As suggested in the preceding chapter, if one's purpose in platting a wide street is simply to secure open space, one would do much better not to provide that space in its most disagreeable and unhealthy form—which is the street.

Again, that standardization of street direction which is based on the Government township surveys, squares a rectangular street system with the cardinal points of the compass, giving us many east and west streets. For the houses on these streets it is very difficult in the latitudes of the northern half of the United States to obtain a good distribution of sunlight. The best is found when one series of streets runs

northeast-southwest and the other northwest-southeast. The usual American standardization of direction is thus responsible for many sunless rooms.

Further, an excessive width on minor residence streets robs the people of the gardens they might otherwise have. For example, in Bedford Park, London, the first "Garden" Suburb in England, the houses on Gainsborough Road are placed about five feet back from the lot-line. Hedges are used in front of most of the dwellings, and these naturally occupy so much of the space as to render what is left nearly worthless for garden purposes. In fact, generally it is paved. But the street, which is only one block long and therefore not a thoroughfare—through which indeed the writer's carriage was perhaps the only one that passed the day he visited it—is, as the law directed, forty feet wide. How much better it would be for the occupants of these houses, people who may be supposed to have moved into Bedford Park in order to get garden space, if it had been possible to reduce this one-block street to a width of twenty-four feet, giving to the people on each side eight feet more of garden in front of their homes! Gardens, as we all know when we come to think of it, are something more than pretty things to look at. They have large social and physical advantages.

Finally, the standardization which is regardless of street grades is also inconsiderate of historic interest,

Extra Space for Unused Road Leaves Little Space for much Used Garden

A Convertible Street

The modern town street contains a narrow roadway which can be easily widened when occasion demands.

and is blind to beauty. The long straight streets of the rectangular plan give a sweep to the wind, which raises clouds of dust, making such thoroughfares unpleasant to travel. Not infrequently, too, the streets are broken by jogs, because the standard of subdivision adopted by one tract-owner happens not to be the same as that which was adopted by the owner of the tract adjoining.

Very serious also in its effects is the standardizing of lot depths that results from adherence to the rigid plan. The poor family, obliged to rent, or to buy, more land than they want—the same depth of lot, in fact, as do well-to-do citizens—must double up with one or more others. They do this either by living in a tenement or by occupying only part of a small house, or part of the long lot—with consequences as unfortunate as those considered when the doubling up is caused by the high cost of street construction.

As to individual streets, as distinguished from groups, or districts, of streets, J. S. Nettlefold's *Practical Housing* offers in an English example a hint of the nature of the sacrifice which standardization then involves:

> Our present regulations [he says] stipulate that every new street must be of a certain minimum width, largely regardless of what traffic is likely to go along it. The sides of the streets must be curbed and channelled and the footpaths paved with flagstones in a most expensive manner. This entails a very heavy expenditure in estate development, which, on the aver-

age, is about equal to the value of the land that is going to be developed. The result of this heavy expenditure is that the landowner, in order to get a return on the capital invested, crowds just as many houses per acre on to his land as the by-laws will allow. That is, the model by-laws allow fifty-six houses to the acre, whereas, from the hygienic point of view, there should not be more than twelve.

In short, it is the same result, over the tract or district, which is seen in smaller scale upon the lot, when excessive street costs make it necessary to get maximum returns.

The truth is, the people who dwell together in any one populous community are never all of like conditions and circumstances. The relation existing between their lives and the width and arrangement of the streets on which they live is exceptionally close and intimate—more so than has been commonly realized. If, then, the development of residence streets be standardized, so that they all tend to uniformity, and the lives of the residents are not, and cannot be, reduced to a fixed social mean, there must result a series of misfits, of which the outcome can be only prodigality, social inconvenience, and a general maladjustment to real conditions. This affects the different classes of residents with different degrees of relative seriousness, but none will escape its influence.

Not the least of these influences, though it is not so direct, is the circumstance that if a more rational method of street planning should be worked out,

which would provide cheaper minor streets for residence purposes, more land would be opened for building. This is because less capital would be required in the development of estates and tracts, and less land would remain tied up by the want of capital.

From the standpoint of the home makers, this means less crowded living conditions—and hence healthier and better conditions of home life. From the standpoint of the owners of suburban property, it means the intensive productive utilization of more land. It means that fewer persons owning property on the outskirts of cities need be "land poor." It would tend, further, to produce a greater equalization of values between adjoining properties.

And while the purchaser may find the cost of individual lots reduced, because of lower charges for development, the owner, without reduction of net returns, may sell more quickly. This is because over against a greater supply of building lots, there is to be put an anticipated increased demand for them. That is an important matter. For the city planner should feel a like interest in tenant and in landowner. It is not for him to favour the former at the expense, economic or social, of the latter. In fact, the ideal which is to be kept in mind as a desirable goal is a condition in which each citizen would own his home, and the tenant become a relatively negligible quantity among a multitude of lot-owners.

The increased demand will certainly come if rents can be lowered as a result of less expensive development—a lowering, be it observed, which does not involve to the landowner a decrease in net rent. Increased demand may be confidently expected, also, to follow an enhancement in the attractiveness of small streets. It must be clear that streets which follow more nearly the topography, which make use of every natural advantage, which are narrow, grass-bordered, quiet ways—rather than broad and dusty highways that are hot in summer and cold in winter—would call men from the city streets with an even greater appeal than suburban tracts now have. In the announcement issued by the Russell Sage Foundation of Forest Hills Gardens—the Garden Suburb it has been constructing on Long Island—the following statement, significant from this point of view, was prepared by the landscape architect:

> Probably one of the most notable characteristics of Forest Hills Gardens will be the cosy domestic character of these local streets, where the monotony of endless straight, wind-swept thoroughfares, which are the New York conception of streets, will give place to short, quiet, self-contained, and garden-like neighbourhoods, each having distinctive character.

But it is, of course, among the least well-to-do of the city that the street's social influence, for better or worse, is most keenly felt. This is because they cannot leave the street. It must always have an

intimate connection with their lives. That this connection is of vital concern to the city at large is surely a matter which requires no argument.

There are some, perhaps, who will not think it part of a town's business to build decent dwellings for its poorer citizens—though in Europe the clearance of slum areas and the rehousing of the people thus displaced has been accepted as a very important, albeit a very costly, part of municipal activity.[1] But at least all will recognize that the city should do what can be done, by the wise building of streets, for the encouragement of good housing. In its purpose to make citizens, rather than simply to add to the total of street area, it will avoid, as far as it may, whatever fosters the "warehousing" of men, women, and children in tenement barracks; it will discriminate between shelter and "home," seeing in the latter more than simply the four walls of a dwelling; it will realize that a policy which provokes unwholesome methods of living, through compelling a too intensive use of the land, drains the municipal treasury in other and more serious ways than simply for the cost of making and maintaining needlessly broad streets. The maintenance of health and morality among poor people who have to live on lots of high-priced frontage is a more expensive business than is even the

[1] There has been an admission of civic responsibility in this matter in a good deal of the recent housing legislation in America.

maintenance of the street. And failure here is a more serious matter to the community.[1]

As Dr. Charles W. Eliot once said in an address: "I am persuaded that the public ought not to limit itself to economic considerations in laying out parks and cities. The increase of human welfare, including its happiness, should be the real consideration." But wisely to consider that may be a true economy. "A master of industry," a social worker has said, "may hurt society by the payment of low wages and unfit conditions of abour; a politician may demoralize a community by graft and civic treason; but the landlord has it in his power to hurt deadlier than all, for he may strike at the home." The pity of it is that there has been unconsciously so much "striking" of that kind.

[1] Town planning literature, in book and pamphlet, has now made familiar the striking comparative figures of crime and mortality for crowded and uncrowded districts. To the child, at least, town planning is the promise of life.

Functional Street Platting

CHAPTER VI

THE NEED, THE THEORY, AND ITS RATIONALE

IN reviewing the widely prevalent method of modern street arrangement, we have now seen the naturalness of rectangular planning, its tendency to promote a various-sided standardization, and then the breakdown of an application of that system on any large scale, under the conditions of present day city life, when the method is subjected to economic and social tests. This is a serious arraignment, for street platting must go on. Indeed, it has been proceeding since 1890 at a faster rate than was ever known before.

The popularity of the operation—its large volume and widespread character—though realized in a general way, has unfolded with a suddenness which seems strange. The development of suburban acreage property by its division into lots and the cutting of streets, dates back, as a business, only to 1887. That year, as few now appreciate, marked the beginning of the custom of selling land on a small initial payment, made on a contract of sale between the buyer

and the seller. It was this bond for a deed, or agreement of sale, delivered on the making of a small initial payment, which created the possibility of marketing suburban lots on the present scale. Simultaneously there began an extraordinary development in urban transportation—a speeding up, cheapening, and democratizing—which made the possibility of suburban home-lots immediately practicable.

Without pausing now to consider the origin and nature of the demand which clutched so eagerly at the opportunity thus suddenly presented, we may merely note how tremendous the movement has become. The subdivision of acreage property by the platting of streets, and then its partition into lots, has been undertaken by individuals, corporations, and associations. If thousands have marketed property in this way, the purchasers of it are to be counted by the tens and hundreds of thousands.

In the six years preceding 1913, three hundred thousand acres were absorbed into the urban area of London, and one thousand one hundred streets were constructed, said John Burns, speaking that year as President of the Local Government Board.

From the roofs of our dwellings [says a more imaginative writer],[1] as from some solitary watch tower, we can discern the progress of our armies. Southward lies the Land of Promise —hills covered with greenery—the one cool and quieting sight

[1] C. F. G. Masterman, in *The Abyss.*

in the hot wilderness of bricks and mortar. . . . Our armies are innumerable, the force behind us is importunate; our opponents are feeble and divided. But two generations back, Walworth consisted of public gardens, Camberwell was a pretty and peaceful suburb; Wandsworth an old-world village by a quiet stream. In less than fifty years we have converted these into acres of desolation.

Such is the march of London, and it is typical.[1]

To cite as illustration a moderate-sized American city, the statement is made that in Omaha, during the ten years from 1903 to 1913, an average of 535 acres *per year* were platted into lots and were fairly well absorbed. At five lots to the acre, probably a reasonable average in suburban Omaha, this made about twenty-six hundred lots a year. As the population was growing twenty-two hundred a year (103,000 to 125,000, in 1900–1910, by the Federal census) and the average family which settled on a lot could not be held to consist of only one member, there is offered a suggestion of how far the demand outstrips increase in population, even when there is no special congestion to cause an outward pressure.

This condition is common in all cities and towns. It is sometimes fancied that because of the tide of

[1] Another impressive illustration of the spreading out of London is offered in the census returns for 1900–1910. An enormous net increase in population for the metropolitan area is accompanied by the showing of a decrease in population in twenty out of the twenty-nine areas comprising the administrative county. This means, significantly, that the outer belt was being filled up by an outward flow from the centre as well as by an influx from the country, the decreases having been at the centre.

immigration, American cities grow with peculiar rapidity. But that is not true. In England, fifty years ago the bulk of the population lived in rural conditions, while in 1914 it was estimated that six-sevenths lived in urban conditions. In Germany, the city, as a national institution, is very recent. In 1871 there were only nine German cities with a population of 100,000 or more; in 1913 there were forty-seven. "The American city," says Frederick C. Howe, "is typical of the industrial world, whether it be in Germany, England, France, Belgium, or Italy."

So street platting on a tremendous scale proceeds. The circumstance that it has not, even usually, been done wisely or economically does not check it. To prevent the great resulting loss, financial and social, there must be found a better system. While this book is not written to proclaim such a discovery, or to advocate any particular street system, it is clear that the true method of street platting must be one which adapts the street more closely to (a) the needs of those who use it and live on it; and to (b) the conditions under which it is constructed.

This law seems simple enough, in brief statement; but it involves a great deal. The whole science of city planning, in so far as this is concerned with the platting of streets, is embraced in it. We should note, in analyzing its brief enunciation, these facts:

With reference to the first requirement of the

law—(a)—streets are differently used. The whole community uses some streets, while others are used by almost none except those who live upon them. From the standpoint of use, then, some streets have community value; some have restricted local value; and some are of value to their own residents or to small neighbourhoods or districts only.

If we are to make a logical standardization of streets, we must not establish one standard, but several, adapted to streets of different kinds and degrees of use. Hence, it is encouraging to find that the English town planning act suggests that streets be recognized, for purposes of separate treatment, as: (1), main arterial roads; (2), secondary roads; (3), residential roads. This seems to be good common sense, if the differentiation goes far enough.

The city planning law—as we have framed it—states that the street should be adapted not merely to the needs of those who use it, but with consideration for the needs of those who live upon it. Those needs are not all alike. The occupants of the houses on any particular street, or any particular unit of street, are likely indeed to have approximately the same general position in life, but between two streets, or between two well-defined divisions of a street, there may be the diameter of the whole social structure. If we are going to adapt our streets to the needs of those who live upon them, we cannot have a single

standard, any more than we can have one standard of people, or one standard of street use.

Referring to the second part—(b)—of the simple law here promulgated, streets ought to be laid out with a reasonable regard for the conditions under which they are constructed. That means that we should not, for instance, overlook marked differences of topography. In short, taking the law as a whole, we should plan our streets with something like the consideration which an architect gives to the planning of the rooms of a house. He thinks of their use, of what is needed of each room by those who live in the house and by those who are visitors to it, and of the conditions which are imposed by the requirements of building and by the amount of sun and wind that reaches each room. He does not dream of making all his rooms alike, though to do so would save him trouble in the planning.

The simile of domestic architecture can be carried further. Rooms of like general purpose are collected, or grouped. The kitchen is not put between the front door and the drawing-room; the butler's pantry connects dining-room and kitchen, not two bedrooms; the coal bin is not an adjunct of the music room, nor is the garage in the attic. Comparatively few cities in the United States have yet ventured to exert such control as this in determining where their various functions shall be exercised. We find fac-

tories destroying the charm of residential neighbourhoods and railroads thrusting themselves into commercial districts.

What would be the practical effect of thus adapting every part of the city, and the city's streets, to the special function which is properly theirs in the city's life?

One of the most important results would be a completer adaptation to function. If we had to prepare a district or a street to do a certain definite thing, and not a miscellaneous number of things, we should be able to fit it better for that work. We would plan the areas that are to serve special purposes—as those of commerce, manufacturing, or residence—with the same forethought as an architect plans the different rooms of the house. The area—be it kitchen or entry in the house; business street or residence crescent in the city—would be selected for its particular purpose because of appropriateness of character and location. In either instance, having been chosen for a given purpose and designed to fit it, the area's resulting inadequacy for other ends must tend to keep it in the use for which it was planned. This will lead to stability in values—both in traffic values and in land values—a second important result.

This steadying of values will be seen alike on the main thoroughfares and on the minor streets; and it appears on both with beneficial results. The concen-

tration of through travel upon certain streets would raise the value of the frontage on those streets for commercial purposes; while the assurance that intermediate streets would not be encroached upon for business purposes would not only settle definitely the business character of the chosen main highways, but would have a beneficial effect upon property on the intermediate streets. The reason for this is the certainty which would be thus gained that they would be free from the danger of invasion by elements inconsistent, and out of harmony, with their present use. The more certain, it has been well said, a man can feel that the character of any given street is fixed, the more he is willing to pay for the privilege of having a lot on that street if it is the kind of street he wants. He justifies this willingness from an economic standpoint by the argument that the property, for the use for which he desires it, will not decline in value.

Other results would include gain in efficiency and economy in construction. By so differentiating our streets that the bulk of the heavy traffic would be concentrated on a relatively small number of selected thoroughfares, the latter could be especially prepared for it, receiving a width and style of pavement calculated to handle the business with the least delay and the smallest cost for operation and maintenance. Each purely local street could, at the same time, be developed in the way that would best suit the needs,

the means, and the taste of the people it is designed to serve. As to the economy in construction, this would result not merely from the fact that no street would have to be made better than its use demanded; but also from the fact that if there were determination in advance of the degree of development which each area was to have, it would be much easier to make an accurate adjustment of all the engineering work to the service it is expected to perform.

Finally, this system of street designing would make just and reasonable—and that is to say, would make possible—a radical restriction not only in the amount of the lot which may be covered by buildings, but in the number of houses which may be constructed to the acre. To impose such a limit, as is now done in so-called "Garden City" work, is obviously of social advantage. It secures to the householder sufficient light and air and domestic independence—to say nothing of other gains.[1] It is also of economic advantage. While, at first thought, one might think that an increase in the number of houses on a given area of land would decrease rents, the actual result in the long run is the reverse of this. Opportunity to overcrowd land raises its price, and rents, of course, bear relation to the capital invested. Consequently "land sweating" does not lower house rents.

[1] "The problem of the last generation," it has been well said of cities, "was the supply of gas and water; the problem of the next is to provide light and air."

If, then, it be desired to limit the number of houses that may be constructed to an acre, the city must be fair to the landowner. If, for instance, it is going to say to him that he cannot construct on his tract more than fifteen houses to the acre, it must say to him that he will not have to pay, for the development and maintenance of the streets in his tract, any such sum that thirty houses to an acre would be necessary to give him an adequate return on the investment. The one act requires the other. Conversely, if the owner is to be relieved of the cost of constructing wide streets, he must agree to a restriction of the land's human occupancy—by limiting the height of his houses and their number per acre—to an aggregate giving no more traffic than the street can care for. If, that is to say, adjustment of street width to street need is required, to make reasonable the placing of a desirable restriction on land development, such adjustment carries with it an obligation on the part of the owner to consent to the restriction.

It is clear, under these conditions, that the city, when it imposes a limit on the number of houses which can be erected in a given area, does place an approximate limit on the amount of traffic for which provision need be made by the local streets of that area. The necessity will no longer exist to require that there be adherence to rigid specifications designed to take care of a traffic which may increase

with unchecked rapidity. It does actually become possible at last to adjust the street's development to the property's development. But when no limit is set to the latter, as in unrestricted areas, the standard for the street work must be set by the dreams of the most optimistic promoter. It will be correspondingly high, and correspondingly forgetful of the common good.

Three criticisms of functional street platting suggest themselves. First, it may be said that in assigning streets and areas to definitely distinct purposes, there is a danger that we shall not plan with sufficient liberality. There might, for instance, develop a need for more traffic streets than there has been provision for, or the use of a certain area might outgrow the space allotted to it and its expansion mean the absorption of an area which was originally planned for other utilization. But speaking generally, this danger will at worst threaten only the margins of a district which in all the rest, and larger, portion of its territory will be designed to meet in the best way possible the needs peculiar to it. Nor will this peril of the margins be truly menacing. In forehanded planning for special uses there will be liberality and, especially, there will be provision for convertibility—as will appear later on.

Second, it may be said that those who own property on the main traffic highways would be pretty hard

hit by construction and maintenance charges, if all through travel were concentrated upon their streets. This is true, but there are three answers to the objection: In the first place, their property would at once gain speculative value, for it would have the commercial possibilities which are to be denied to the minor streets, and which pay such high returns. In the second place, it would not be unfair, wherever it is demanded that wide streets be put through a residential estate for the convenience of communication between districts lying on either side of it, to require that the general body of taxpayers should pay the cost of street works in excess of what might reasonably be held to make for the convenience of the frontage and for the increase of its speculative value. Third, it is probable that, taking the city or even the neighbourhood as a whole, the deterioration of pavement would be much less than under the present system. There would be a smaller street area to take care of, and some pavements, such as asphalt, deteriorate less rapidly if they carry a fairly heavy ard constant stream of travel.

Third, it may be claimed that it would be better for a town if its residence area were not subdivided into districts of distinct character; that town planning should endeavour to promote a vigorous democracy by discouraging tendencies toward segregation, and that it certainly should do nothing to fix or emphasize

class separation. However much this argument may appeal to a republican, the real condition is so universal as to seem to compel recognition. The separation of home sections into districts of various character is as evident in Chicago as it is in London. It is a result of the operation of social laws—nay, of laws embracing more than human society. It is the attraction of like for like. Further, it is the application to cities of that law of evolution described as the specializing or differentiation of function. Whether we like it or not, we cannot in fairness fail to note its operation in cities, not only now, but in the past—this is interestingly shown by the names of ancient streets—or fail to realize that the process must continue and can hardly grow less marked.

Jane Addams, than whom no social worker has a broader outlook, says in one of her books: "The city grows more complex, more varied in resources, and more highly organized, and is, therefore, in greater need of a more diffused and local anatomy." She says this simply and incidentally, to prove another point, as if everyone admitted it. Yet the statement puts tersely the great lesson which we have yet to learn in the platting of streets.

CHAPTER VII

THE STREET SYSTEM'S NATURAL DIVISIONS

ADVANCING from general theories to actual practice, it is not enough to say that we must have a street system so differentiated as to meet the needs of the highly organized life and activities of the modern city. We have to discover what this involves, what the main differences are to be. Just what, that is to say, are the principal needs which the streets must satisfy?

The answer is important whether we are considering the planning of a whole city, or of only a tract on its outskirts, or of only one street. A fault in much picturesque and irregular platting is that, in reaction from a stereotyped co-ordination, it has flown to the other extreme—to a complete independence of units, destructive of cohesiveness, and ruinous to the larger unity of the town. But such action is the antithesis of city planning. The greater the liberties which city planning would take with conventional street platting, the more conscious it would be of a need of knitting each part so closely to the whole that varia-

tions will constitute but the interesting figures of one general and beautiful pattern. It appreciates that the city is like a great machine. No part is independent. All are interlocked, and to break connections is to injure the whole mechanism.

This is because the people of no section or district of the city, however exclusive it may be, can lead, or even wish to lead, an isolated life. They would not be residents of the city if they did not desire or expect to have relations with its other parts. So the question presses: What are the community's dominant requirements of city streets; what main purposes do streets serve; into what main classes do they fall?

The answer is not as simple as one might think. Its roots reach back to the nature of the demand which has grasped so eagerly the opportunity to buy home-lots on the instalment plan and even to avail itself of mechanical transportation in order to live outside the crowded centre of the town. For this demand reflects, as we have seen, not simply the outward pressure of a growing population. With present methods of building, the point of absolute saturation, when people must move out if they are to live at all, can hardly be said to have been reached in any congested centre. If people move out, rather than crowd more closely in the centres, it is because, of the two alternatives, the former act seems to them to promise most.

But the outward growth of cities, the continual extending of streets and opening of new tracts, does more than equal, it exceeds, statistics show, the response to an increase in population. Since many newcomers do settle in the built-up part of town, the outward flow must be expressive of some other demand. This is a social demand, and as the movement is new, we may call it a new demand, though it may have been latent a long time, waiting opportunity for expression.

It is not so much, then, the new ideal, perhaps, as the new hope, of a real home—of a home which shall have light and air on possibly all its sides, and which at least shall have an entity of its own, privacy, and even a garden—that lies back of and explains the presence of an insistent modern demand of which cities of the past knew little. The ideal is not simply a fad, nor the movement resulting from it a bubble which may burst. Its roots go deep into human nature. All that we value most is bound up with the love of home and the yearning for it. And so good is the promise of this movement, to individual, to state, and to society, that the city planner cannot choose but try to satisfy it in his platting of the streets. His work can make upon him no claim which will be higher.

We find the demand beginning with the removal of the necessity that all workmen live near their work.

The term is relative, of course; but even so considered, "near" has been stretched by cheap, frequent, continuous, and rapid transportation until today comparatively few are under that necessity. Those few are the labourers who are most poorly paid—as the push-cart vendors and the sweat-shop workers—or those whose hours of labour are longest,[1] or whose labour calls them to work at awkward and irregular times. Others who live in town do so from choice, or from lack of initiative.

The professional man nowadays is extremely likely to have an office in the city and a home in the outskirts; merchant and banker and broker may sleep in the country though their labour is in town; in multitudes the more progressive clerks and salesmen occupy the detached and semi-detached dwellings that make up the outer residence zones of cities; in the early hours of the working day and again at its

[1] Some significant statistics on this point were given by Prof. Henry R. Seager, of Columbia University, New York, in a paper presented at the Congestion Conference held in New York City, March, 1908. He pointed out that the dispersion of the homes of employees from the place where they are employed is in inverse proportion to the length of their work-day. This he illustrated by a study of the printing industry, representing an eight-hour trade, the leather industry, representing a nine-hour trade, and the food industries, representing a ten-hour trade. A study of the employees in a number of establishments in these trades, all below Forty-second Street on Manhattan Island, indicated that the proportion of employees living in Manhattan in the short-houred printing trade was 31%, in the longer-houred leather trade 42%, and in the still longer-houred food industries 74%. The showing that in the printing trade, with its comparatively good pay and short hours, more than two-thirds of the workers did not have their homes on Manhattan Island at all, is striking.

closing hours, rapid transit lines are crowded with lunch-box and dinner-pail bearers—with the great army of the employed, journeying to and from their work—riding, because they live too far away to walk.

This is the triumph of the modern city. It has come with the quickening and cheapening of urban mechanical transportation. It is the relief which has been developed as a blessed offset to the increasing pressure of modern industrial and commercial activity. At last it has become possible for the citizen to get away from work, and in multitudes he gets away. To be sure, there still are thousands of men who go to bed over their shops, or who sleep within call of the factory whistle; but other thousands, in a throng that grows with astonishing rapidity, considering how radical the domestic upheaval involved, have now a daily change of scene and air, and at nightfall enter into a peace which industry and commerce may not molest.

There is in this a social readjustment of incalculable value. But as yet it has expressed itself very inadequately on the city plan. We have simply prolonged our old-time streets, in our haste projecting upon the fair landscape, broken though it be by hill and dale and watercourse, the humdrum street pattern of the town. And even that pattern should not in all cases have been humdrum. Within the confines of the original city, before the days of its expansion, the

topography has not been always flat and featureless; nor, in spite of platting, have all streets been traffic highways.

Nevertheless, streets have generally been classified simply as busy and not busy. Or, at best—as in the English town planning act—into three classes, or grades, there being injected an intermediate class, expected to carry a moderate traffic, proportioned accordingly and designated "secondary streets." Differences have thus been based, not on the kind of service, but on its quantity.

This is one of the reasons standardization has been so unsatisfactory. It is difficult to standardize the degree of a street's service, and in the fact we have seen one grade of streets soon merging into another. Then we discover that we have set up arbitrary standards, and that, if there be nothing to fix and hold the *character* of a street, it tends to change. The traffic changes with it; the old standardization breaks down; the original adjustment in structure and proportion becomes unsatisfactory.

Taking, now, the social point of view, and observing the change which has recently come over city life, we may note that in no one feature does a modern city differ more radically from its prototype than in the daily ebb and flow, inward and outward, of its tide of travel. That circumstance makes upon the street plan a demand for a strictly twofold service—

the one for traffic and the one for quiet residence—with an urgency unknown before. It offers the opportunity, and even the obligation, to create two distinct kinds of streets that shall serve in the best possible way these diverse needs.

Such a classification is plainly better than the superficial consideration of streets as simply of first and second, and possibly third, traffic value. It draws a clearer line, for in recognizing two different kinds of functions, it becomes possible, as we shall later see, to differentiate the street development so markedly that one use cannot merge into another. It may be noted, however, that since most retail business is dependent upon the existence of a stream of travel, those streets which serve for the latter's conveyance include so-called business streets. On the other hand, it should be added that all main highways are not business streets. A leading traffic thoroughfare may give access to a freight house or to a park, or through open country to another town, as certainly as to a department store.

Streets of the traffic group are, therefore, variously developed. Yet all have this much in common: They exist primarily to carry traffic and may be said to constitute the framework of the city. Their planning, as a class, should be prior to that of the minor streets; they should be, as we shall see in another chapter, direct, broad, and of easy gradient, desirably

also in many cases long and radial. Their function, as regards the travel they accommodate, is to shorten time between foci—commonly between the centre of the city and its outer zones. They are designed to do this by facilitating rapidity of movement and shortening distance.

The streets that offer to residents refuge from these tidal traffic streams are the minor residential thoroughfares. The phrase which describes them is itself a definition. It excludes all main highways, all avenues and boulevards, and for the purposes of this discussion it will be held to exclude all streets which carry a through travel that so much as even equals the traffic originating and terminating within the street itself. If we accept this as our understanding of the term we shall exclude also, from consideration here, all streets that carry car lines or that are routes convenient for general teaming, driving, or motoring.

It is clear that these will be streets that are not inviting to traffic. This may be either because of the special development which has been given to other thoroughfares, or because they themselves are characterized by some permanent physical handicap, such as indirection, heavy grades, or a break in continuity. Their traffic function, as regards the street plan of the city and its suburbs, is only to harbour the little eddies left at the side by the mighty streams of travel

which flow through main thoroughfares. Because they serve this purpose, they must be generally in close connection with major streets and traffic highways. If we fancy an ideal city plan in which various arterial streets radiate from a common business centre, we shall expect to find the minor streets located between the radii.

In considering these minor residential streets, two peculiarities at once become clear. First, as they are not limited to any one residential section of the city, they do not exclusively belong to any one class of citizens. Necessarily, therefore, they, like the traffic thoroughfares, vary in character. There is, for instance, the shack-lined alley off a third-class business street, and the private "Place" off a fashionable avenue, and each may be classed under the title "minor residence street." Second, and as a consequence of the foregoing consideration, it is obvious that they are very numerous and of much importance in the city's life. As far as numbers go, it is usually possible to class more streets under this term than under any other. An imposing proportion of the total number of the citizens dwells upon them, and the lives of these people are intimately affected by the character of the streets. The streets are minor, considered only in themselves and their street relations; they are not minor as regards their social value or their economic influence upon rents. When

one deals with minor residential streets, one deals closely with the homes of the citizens.

That these streets are distinct from traffic thoroughfares, however, cannot be emphasized too strongly. The avenues, the boulevards, the arterial highways and main roads may as often be too narrow, under present systems of planning, as these minor streets are prone to be too broad. A street plan problem, when reduced to its simplest terms, is duplex.

Simple distinctions of width, however, do not solve the problem. Retail business, which it is so natural to associate with traffic streets, abhors a vacuum. For this reason, when a town is small it sometimes happens that of two parallel streets, one made wide for business and the next one narrow for residence, business takes the narrower—as it took Chestnut rather than Market Street in the early days of Philadelphia. This may be due to excessiveness, partly in the width and partly in the prices for property, on the wide street. For that reason, the accurate location of these streets, that they may be the most convenient for traffic, and their development, in such manner that they may be the most inviting to it, are matters of exceeding importance, to be considered coincidently with their width.

Good street platting is a product of philosophy, of sociology, and of economics as much as it is of engineering.

CHAPTER VIII

THE LOCATION OF MAIN TRAFFIC STREETS

WE have seen that streets of the traffic group constitute the framework of the city, and that the platting of them, as a class, should be prior to that of the minor streets. It is interesting to observe the historical correctness of this order of procedure, for main thoroughfares express the elementary function of the street: the affording of means of communication. People might, conceivably, live in a trackless forest, but the moment they began to pass from shelter to shelter, or to carry food and firewood back and forth, that moment a path would be commenced—a street would have begun. Thus is the traffic way the primitive type of street.

As means of transit is an absolutely essential product of the town's activity, so is it, in turn, a factor indispensable to the community's progress. Largely, also, upon the degree of transportation facility depends the cost of living. The influence which a section of street in front of a dwelling exerts upon the cost of the land, or upon the ground rent charged, is

not, therefore, all summed up in the proportions of the section of street considered by itself.

He who buys a lot on a minor street of even a very retired subdivision pays for something more than street improvements and a certain number of square feet of land. Often he could get more land and as good street improvements in some other section for less money. Attributes for which he willingly pays extra are, in part, the conveniences and opportunities which are attached to the selected land. It is because these go with it that it has its special value in his eyes. These include such attributes as accessibility to transportation facilities, as nearness to main highways that are attractive as well as direct, as, in short, convenient and pleasant accessibility to work—or sometimes to play, as in the case of proximity to a park or a country club. To obtain such benefits, a family will often deny itself larger grounds, a better view, and a finer house than they might elsewhere have.

Applying this law to the humbler grades of society, there is discovered the truth of the saying: "Bad housing is a symptom only; the disease of which it gives evidence is the inadequacy of transportation facilities." The English Land Enquiry Committee, in discussing this subject in its voluminous report of 1914, goes so far as explicitly to declare that the solution of the housing problem in the larger towns

and cities "necessarily includes" the provision of cheap and rapid transportation.

But another importance attaches to the proper location of main thoroughfares. The dependence of the community as a whole upon the wise platting of its main highways is such as to be paramount even to the effect of their platting on the immediately tributary area. This is because the city's extension, the transaction of its business, and the pursuit of its pleasure are facilitated or hampered, sometimes in large degree, by the platting of its main thoroughfares.

So it comes about that in the platting of a street system, whether for a subdivision or for a whole town, we have an immensely important undertaking—the laying down of the arterial system which is to give life to the whole organism. We are to plan these streets prior to our other planning, and in determining the location and manner of development to be given to them, we are to apply the crucial test of adequacy for the transportation needs of the community.

Let us consider (1), how these needs have been met in the planning of our newer cities; (2), why the problem has grown more difficult; (3), what are the limitations of street provision; (4), the need of central control; (5), certain general principles that may aid us in correctly platting main traffic streets in new areas. The points will be taken up in order:

(1), It is respect for the test of traffic adequacy which explains the width that in the newer cities and towns has been given so indiscriminately to all streets. Urban traffic was widely observed to be growing enormously, both in volume and in the means by which it is carried on. We saw the narrow streets of towns of long ago choked with it. Consequently, in building new cities and in adding to the old, streets have been made uniformly broad in recognition of the fact that, whatever the cost, we must make it possible for the traffic to move. Witnessing, as civic engineers, a flood that filled old channels to overflowing, we took that primitive step in flood control of widening the channels. Then, following further the example of the hydraulic engineers, we straightened lines and from the individual street removed those projections or irregularities which might retard the progress of the current. In so far as these measures referred to traffic highways, they were wise and natural—as far as they went.

(2), But the traffic stream for which we must now provide is not simply a matter of growing volume. It is increasingly complex in composition and varied in its rate of movement. In the early days urban traffic was of limited tonnage capacity and of slow movement. Traffic methods then were few. Almost the only movement was on foot or on horseback. The social activity of the towns was concentrated

in a few open spaces, such as the market-place and the squares in front of the churches, rather than diffused through the city streets. Aside from a few main thoroughfares, there were, in towns of that period, only narrow passageways between the houses. Inigo Triggs notes that in even the largest mediæval towns the principal streets were not as a rule more than twenty-four feet broad, or occasionally thirty feet; that lanes were not over eighteen feet; and that alleys were generally six feet. In small towns dimensions were even less than these; and there was seldom any differentiation of surface for the purpose of separating pedestrians from pack animals. Yet those streets served fairly well the traffic which made use of them.

To return to the hydraulic simile, the traffic problem of those times could be likened to a very sluggish water movement, such as can be accommodated easily by broad ponds, a few narrow channels, and a network of connecting slits. This, roughly, was the street plan of the old cities.[1] Conditions of modern traffic have substituted for those conditions a raging torrent, mighty in volume, swift in movement, irregular in flow, and carrying the flotsam and jetsam of present-day commerce. Consider simply the increase of volume which the automobile's lengthened radius of effective vehicle transportation has brought—

[1] See the frontispiece.

Photo by Rotary Photo, London E. C.

THE CLOTH FAIR, EAST PASSAGE, LONDON

Photo by Rotary Photo, London E. C.

THE CLOTH FAIR, MIDDLE STREET, LONDON

> Auto vehicles . . . can come to a city, in a day, from sixty miles away, more easily and as quickly as can a horse-drawn vehicle, with less than half the load, from twenty miles away. In the twenty-mile radius are 804,236 acres; in the sixty-mile radius, 7,238,246 acres.[1]

It had become necessary, even before the automobile, to make a division of streets into wheelways and footways, and on very many of them to provide tracks for mechanical locomotion. The street had already ceased to be a path. Today, it is filled with a life and motion that must attract even the idler and loafer. The ordinary movement of traffic upon it makes such a pageant that it is often necessary to provide space for spectators also. And with it all there is such danger to life and limb, and such nerve-racking tumult, that we must provide for interludes, making it possible for spectators and actors to go into quiet homes on quiet streets, where the din of traffic will not disturb their sleep, and the frail and the sick and the child may live in safety.

The whole problem of street adjustment has thus become immensely enlarged and complicated. It is no longer sufficient simply to widen streets and untangle their old network; nor, on the other hand, is it enough, in the extension of cities, to plat simply a regular system of traffic canals, long, straight, and monotonous, all alike in dimensions and character.

[1] *Bangor City Plan*, by Warren H. Manning.

We must form main traffic channels that in location and arrangement shall be so nearly ideal that traffic will naturally concentrate upon them, to the end that the streets which we do not design for traffic highways shall not be unduly used by traffic.

From whatever point of view we approach the matter, there appears the need of two main divisions in the street system. As in selling clothes, the manufacturer does not make only one size of coat and induce all men to wear it, so in building streets, we should provide for the fat traffic and for the lean traffic, and follow the example of the clothier who keeps the lean man out of the fat man's garments by designing, especially for his use, clothes that are becoming and comfortable.

(3), The question of street transportation is many-sided and complex. Street provision alone cannot, in some instances, take care of all phases of it, nor can all of its aspects be covered in a discussion of the street. The main traffic street must give room for means of rapid transit, but with the problems of rapid transit, financial, mechanical, and social, whole books have been filled. A striking statement, made from one point of view regarding the problem, says: "It is a question not of dollars but of human lives."[1]

In limiting our discussion to a consideration of streets and their adaptation to transportation de-

[1] The New York Committee on Congestion of Population.

mands, we are able, happily, to pass over some of the more technical questions with regard to the provision of mechanical means of locomotion. Such questions as the extension and financing of suburban lines, of the relation of land values to transit facilities—how "the trams help the suburbs and the suburbs help the trams"; of interurban terminals, of the relative advantage of bringing trunk railroads into single terminal stations or of providing for their trains a circulatory movement; of fare zones, rush-hour traffic, of workingmen's tickets; of the disproportionate growth of travel as compared to the growth of population, and the freight terminal problem—all these and kindred questions, though they be intimately bound up with the extension of cities, need not here detain us.[1] We have problems enough in providing streets adequate for the varying surface traffic which would make use of them.

To be sure, it has been wisely pointed out that the use to which land is to be put, and the intensiveness of its development, are factors "to be determined, logically, before any radical plan for transit can be

[1] The growth of street car travel as compared with the growth of population is perhaps of special pertinence. The following data, collected in Newark, N. J., and issued by the Public Library, is probably typical:

Year	*Population*	*Rides*
1893	200,000	18,000,000
1903	285,000	45,000,000
1912	370,000	78,000,000

In 1893 there were 90 rides per capita of population; in 1903 there were 157, and in 1912 there were 210.

developed."[1] But transit plans need not here concern us, beyond assuming the advisability of providing space for surface car tracks on all main highways. More highly developed means of rapid transit, such as subways and elevated roads, would not, probably, require additional street provision.

(4), As to the need of central control, the first thing to recognize is that the problem with which we have to deal is a community problem. Some years ago, when the Royal Commission on London Traffic brought in a report,[2] it stated that it found that the leading cause of the city's congestion was the absence of a central authority, charged with the supervision of the traffic arrangements of London as a whole. It noted that railways had been built, new streets opened out, and tramways laid down at local instance, to meet merely sectional requirements, and without regard either to the needs of the rest of the community or to the pressing claims of posterity. This condition which is at fault in London is general among cities. In no phase of city planning is the need of central control more urgent than in the laying down of main traffic thoroughfares. Indeed, it is so obviously better and more reasonable that new streets which are destined to be main lines of communication should be planned, not by the owner of the land in accord-

[1] *An Introduction to City Planning*, by Benjamin C. Marsh.
[2] Volume VII., 1905.

ance with his conception of his own interests, but, having due regard for him, by the town, in accordance with the interest and needs of the whole population, that the matter requires no argument. In German cities, in Belgian, in some Swiss, in Sweden, and in England, under the present town planning law, such action is now taken.[1]

(5), There remain for examination those general principles which should be our guide in platting the traffic ways of new areas, when once we have taken the community point of view.

(a), First of all, there must be perception of the town's more important focal points—its waterfront, railroad stations, public buildings, etc.—for the location of these will largely determine those lines of naturally converging travel which ought to define a city's main traffic routes. In the location of these foci, there are established the bases from which the street framework is logically built up.

(b), In the second place, and particularly in subdivision work, we should seek out, with a great deal of deference, the earlier country highways. If the tract is large enough to permit anything like comprehensive planning, it is pretty sure to be traversed by such roads. For these it may be assumed that there was, and is, good reason. Once in a while their grades may be excessive, but generally it is probable that

[1] See Chapter XV. for a discussion of measures for control.

their alignment was sacrificed for easy grades at the time when they were laid out. In the United States, at least, that was likely to be a time when improved country roads were almost unknown, and heavily ladened vehicles were obliged to avoid excessive grades. These existing country roads, even when rectangular in general arrangement, have probably a radial relation to the city nucleus, and may well be taken to form the basis of the extension of the city street system. As existing and natural traffic channels, we may expect streets developed from country roads to remain important traffic thoroughfares. As a first step, then, we must widen and straighten these principal channels as hydraulic engineers would do under the like conditions.

(c), In street building, however, "straightening" should not be understood always to mean rectilinear and parallel margins. An occasional extra widening, the break of a small open space at one side, a concavity of street façade in abutting structures, which makes space for cab stands, for kiosks, or for a group of trees, may add greatly to the charm of the street, while heightening rather than lessening its traffic value. Again, that slight departure from absolutely straight lines which makes negligible addition to street length may add very much to street beauty. It is their waving line that is responsible, in large measure, for the charm of some old-world traffic

thoroughfares, such as The High in Oxford, the Grand Canal in Venice, and the Lung Arno in Florence.[1] Buildings are seen at advantageous angles of perspective and there is a varying play of light and shade.[2] But the curves must be long. The sinuosity which looks well on paper is very likely to seem wiggly when on the ground, and the only test is that the street shall please as one passes along it. To do this, it must have no studied effect, must give no hint of affectation. Moreover, the automobile increases the need of flattening curves, of eliminating obstructions, of avoiding sharp turns. It would be absurd to attempt to lay down a general rule.

Nor, indeed, should all arterial streets have waving lines. There is a certain grandeur—the grandeur, someone has said, which was imperial Rome's—in the straight line for a street. When the scale of construction is very large, there is a masterful firmness in rigidity of street line which is more satisfying than flexibility could be.

So, by straightness, or very slight and gently made deviations from straightness, the main highway will be fitted to expedite its traffic to destination. But this will not in itself suffice. As open country is trans-

[1] America is not entirely without examples of this, especially among the older cities. Observe, for instance, the gently waving line of Main Street, in Springfield, Mass., and the bends in Broadway, New York.

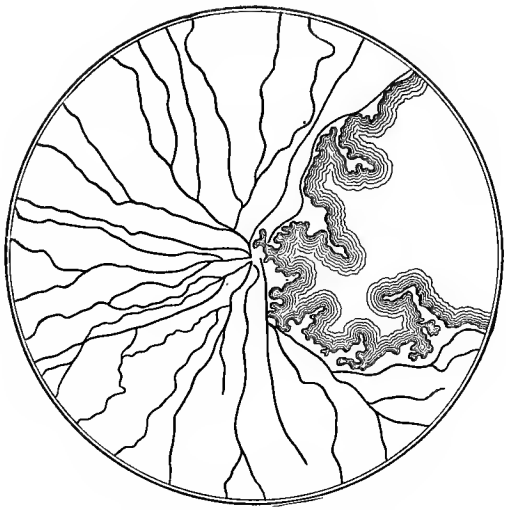
[2] It must be added that buildings on the convex side of a curve (or the inner side of the turn) are not seen to advantage. The concave side should therefore have the more important structures.

formed into a populated area, more is needed than the widening and "straightening" of original channels to care for the swelling streams of traffic.

(d), We must lay out additional highways, also of generally radial character as respects the centre, interspersing them, as we foresee will be necessary, between the existing roads.[1] G. H. Knibbs, F.R.A.S., has noted that it is with a radial street system that "the greatest area is reached with the least length of street." He adds a suggestion that the radial system be hexagonal. As the footnote indicates, however, no fixed rule has been followed in planning actual radial streets. Even when the centre of convergence is a point rather than a considerable area, there is much diversity in practice, the most formal plans being somewhat affected by existing conditions of site, etc. Thus, the Arc de Triomphe in Paris has fourteen converging avenues; while the Place de la Bastille in Paris and the Capitol in Washington have eleven. As Professor Eberstadt has said, "There is nothing absolute in town building"—nor should there be.

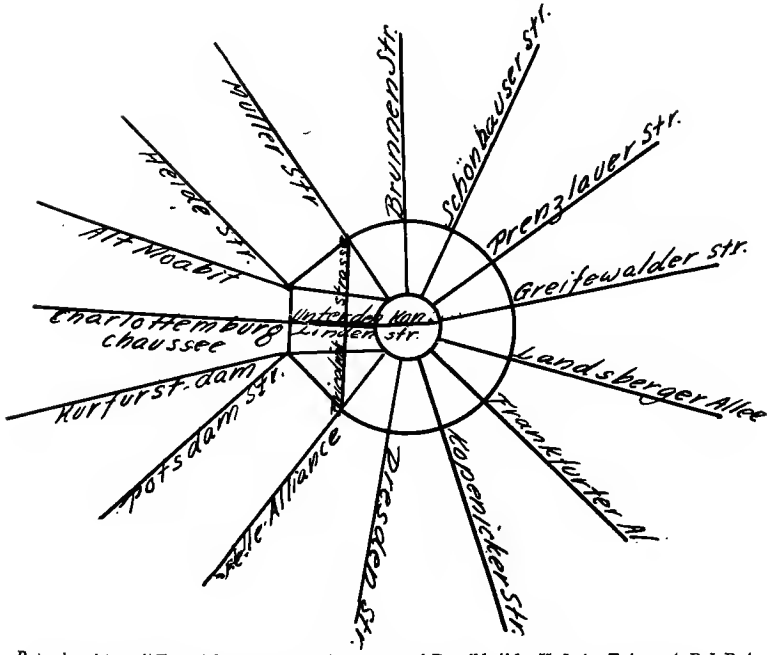
(e), If of radial character, our main highways will become farther and farther apart as one travels outward from the centre. Doubtless we shall find it

[1] "In Berlin fourteen great roads connected by a circle radiate from the seat of this military government and lend themselves to effective and economical expansion of the city on all sides. In London there are three principal civic centres: Trafalgar Square, the Bank, and the Elephant and Castle. From the triangle thus bounded sixteen radial routes diverge."—Robert S. Peabody, in *A Holiday Study of Cities and Ports.*



HIGHWAYS LEADING INTO BOSTON

Note their naturally radial character and how they fork as they get farther from the centre.



Reproduced from "Town Planning: Past, Present, and Possible," by H. Inigo Triggs, A.R.I.B.A.

THEORETICAL PLAN OF THE TRAFFIC CIRCULATION OF BERLIN

Existing irregularities are but slightly corrected.

advisable, therefore, to branch them occasionally. If these branches should come at intervals of approximately three-quarters of a mile, and the branching point should be dignified by some striking architectural accent, the aspect of the streets would be vastly improved. But the three-quarter mile interval is not a fixed distance. Much must depend, even as far as looks are concerned, on the street's grade, width, and general treatment; and looks can be very seldom indeed the sole determining factor. Yet it is worth while in our platting not to forget that a comparatively short street—or one containing a focal point clearly visible throughout its length—is far preferable aesthetically to a long one, and is much less wearisome to the traveller.

(f), Between the arms of the main framework, thus constructed, it will be necessary to provide cross connections, which in their turn will become main channels for the cross, or circumferential, traffic. This traffic is not only of sufficient importance in itself to deserve such recognition, but provision for it will relieve the main radial thoroughfares. Otherwise these furnish for cross traffic—especially for that which uses street cars—a very roundabout course, into the centre and out again, that adds to the natural congestion on the radii and wastes energy and time. These circumferential streets will tend, in their turn, to be broad and nearly straight, between the radial

or parallel highways. Naturally we shall try to have them intersect those highways at the branching points so that they may serve the largest possible number of people.

(g), A convergence of radials to the crowded central area of the city—and they must converge there if they are to be of maximum usefulness—will add greatly to traffic congestion, unless the point of convergence be an area of considerable extent. To avoid this difficulty, it will sometimes prove desirable to plan not merely *circumferential* traffic streets but an inner, or central, traffic circuit. The device is known perhaps more accurately as "the diamond on the cross," the streets being rarely curved; but rather, in the theoretical plan, short, straight diagonals which offer short cuts between points on the two main thoroughfares about equidistant from the town centre, this centre having resulted from the crossing of these two thoroughfares at right angles. In practice, on a rectangular street pattern, where the cutting of new streets in the heart of the city would be enormously expensive, the circuit is more likely to be a parallelogram, special width or other treatment having been given to four streets which surround the central area and intercept converging traffic at a convenient point. Examples of this scheme may be found in the plans made for Chicago, Philadelphia, Newark, etc.

(h), Intersections of important traffic highways with one another present, in the planning of new areas, interesting opportunities. Sometimes the street area at such points can be enlarged to create small plazas. These plazas will be not only of traffic service but will lend themselves to the construction of desirable architectural accents.[1] At these points also should be developed secondary centres, not only of business but of administration. These will be neighbourhood centres, having for limited areas the significance which the civic centre is supposed to have for the whole community. In arranging such architectural groups, it is desirable that there be a moderate symmetry at the least in the size of the lots.

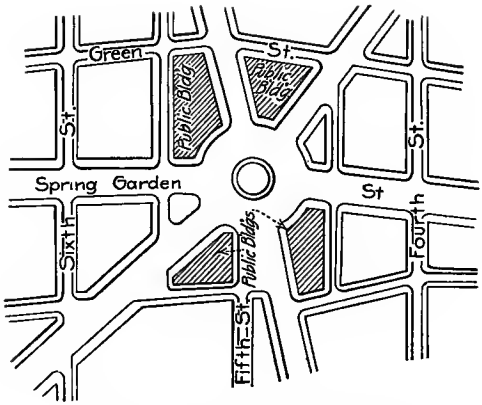
When a plaza is not practicable, there may be some setting back of buildings to give additional space, should it prove necessary to handle intersecting traffic by the rotary system. Or corners may be cut back, so that approaching vehicles can be seen. At an exceedingly bad crossing there is the possibility of carrying one street below the other, as is done at Holborn Viaduct in London. If the main highway be

[1] Raymond Unwin's *Town Planning in Practice* contains a very interesting discussion of various ways of treating street junction points architecturally, so as to secure such accents and break the monotony of streets. Chapter VI. of the author's *Modern Civic Art* is devoted to a discussion of the aesthetic considerations for which there should be regard in platting main highways—considerations of a good deal of importance. Some further comments on the subject, which are contained in Chapter X. of the present volume, should be understood to apply to traffic thoroughfares as well as to residence streets.

a diagonal, acute angles at its intersections can be avoided by giving to the cross streets such change of direction before they reach it that they will intersect it at right angles.

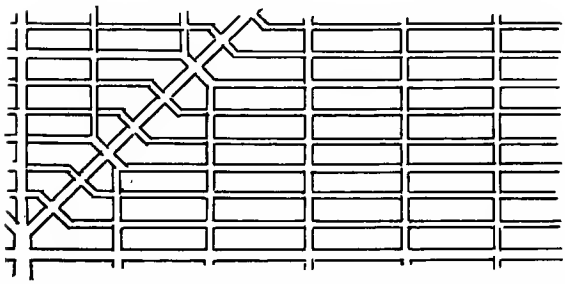
In conclusion, it may be observed that the system of main highways, if well worked out, will not only constitute the skeleton of the city plan, but that we shall find the principal thoroughfares of the city's outlying portions in complete articulation with the street plan of the inner area. In the interstices between these main lines the minor streets will lie.

If there be a fear that the adoption of a definite and comprehensive plan for main highways may give the stamp of uniformity to the street system, let there be reminder that topography and existing country highways must largely determine the lay-out of these streets. The first, for the avoidance of very steep grades, is likely in most cases to require some long sweeping curves; while country highways are seldom perfectly straight for extended distances—for the taking out of small kinks, which is the thing that was meant in suggesting their "straightening," would not remove definite changes of direction. Moreover, the proportion of towns built on a level plain, and which, therefore, might be thought in danger of adherence to an unbroken stereotyped pattern, is small. Even among them, one portion will often be bounded by a body of water, or by other



AN INTERSECTION OF IMPORTANT STREETS

Development proposed in Philadelphia. Note the grouping of the local public buildings.



Reproduced from report on "Detroit Suburban Planning," by Arthur Coleman Comey.

A DEVICE TO SECURE RIGHT-ANGLED STREET CROSSINGS WHERE A DIAGONAL THOROUGHFARE CROSSES A GRIDIRON STREET PLAN.

natural feature, of irregular outline; a meandering stream will cause variety, or the location and irregularity of park lands will break the uniformity. Finally, the minor streets, under the suggestion here broadly outlined, will always lend the charm of the unexpected. Mere likeness of direction in streets does not much impress one on the ground. Variation in width counts for more.

But if the worst did happen, and there was, conceivably, a likeness among principal traffic streets in the extension plans of various towns, few persons would ever think of comparing designs. Indeed, the vague consciousness of likeness in respect to those streets would prove, as far as it goes, something of a public convenience. It is to be recognized, too, that he who adequately approaches the problem of city planning will look for nothing more eagerly than for evidences of the city's natural individuality. This is an intangible something, more expressed perhaps by irregularities than it is by any other feature, which is the secret of each city's own peculiar charm. To any evidences of this which he may find, the city planner will pay great deference. He will let them temper his whole re-casting and subtly affect his every scheme.

As Cornelius Gurlitt has said:

> The artistically creative city planner should seek out all peculiarities of the site and emphasize them according to their individuality; thereby, whenever possible, reconciling every

contradiction between his planning and the aspects of nature. He should take into question the irregularities of the surface, the existing streets and ways in their natural configuration, the property lines, and the single natural features—even if nothing but several old trees. Notwithstanding this, he should impart all practical advantages to traffic, to circumstances of habitation, and to the administration of individual properties.

CHAPTER IX

THE WIDTH AND DEVELOPMENT OF MAIN TRAFFIC STREETS

OF hardly less importance than the wise locating of main thoroughfares, is the determination of the width and development to be given to them. A traffic street may be ever so well placed; but if it is so narrow that the congestion of vehicles is constantly blocking it, the street fails in the proper performance of its function. In fact, automobilists choose an indirect route, on which they can move with relative freedom, in preference to a direct route which is overcrowded.

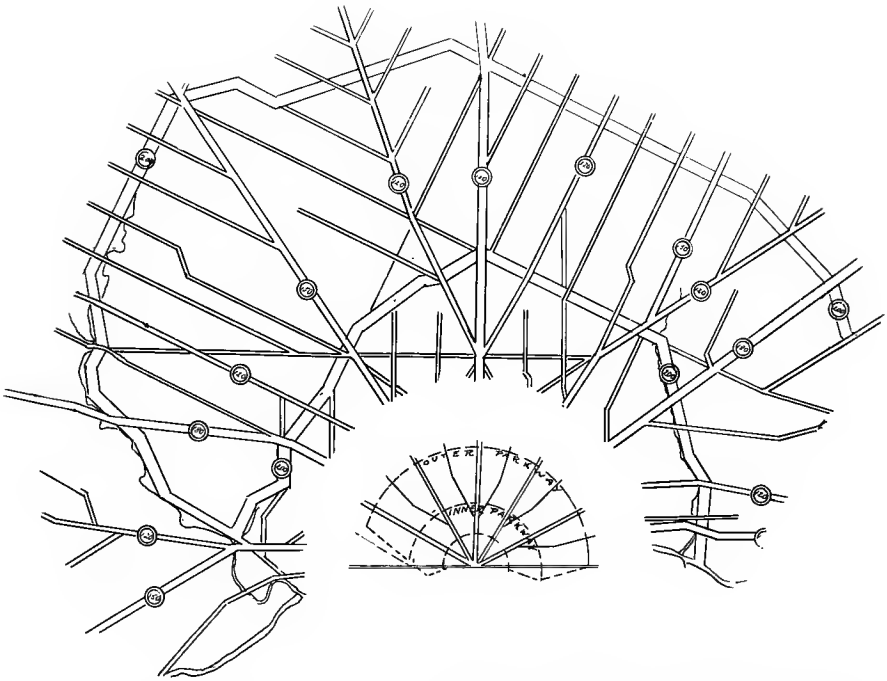
From the city planning point of view, a necessity for such a choice is very unfortunate. It is confession of defectiveness in the street plan; it means a lessening of efficiency; and it draws out of the traffic thoroughfare—normally a business street—some of the travel which it is most to the interest of the merchants to have remain there. The problem, then, of the main traffic street is by no means settled when we have merely determined its location.

Theoretically, it would be desirable to create at

least three distinct types of traffic streets: (a), For rapid transit lines; (b), for light, swift, miscellaneous automobile and driving traffic; (c), for heavy trucking. If one had the planning from the start, of an ideal city, doubtless this might be done; but in attempting to organize the street arrangement of an existing city, or in platting the new streets of an outlying section in which convenient connections must be made with existing thoroughfares in the inner area, the difficulties to be overcome make ideal planning impossible.

But it may be practicable at times to separate swift-moving from slow-moving vehicles—as Chicago, for instance, has done in declaring Jackson Street a "boulevard" and restricting the use of it to rapidly moving vehicles. This helps a great deal, for the motor truck is a serious obstructor to street traffic not only because of its slow movement, but also because of its width.

The street cars are put sometimes on the streets of one type, sometimes on those of the other, and very often on both. In fact, as a general rule it undoubtedly is wise, if practicable, to plan all main arteries of such width that they will include space for car lines. Many of them certainly will carry lines of rapid transit, and the number of these must increase with the growth of population and with the outward extension of the city.



Reproduced from report on "Detroit Suburban Planning."

MAIN RADIAL THOROUGHFARES OF DIFFERENT WIDTHS, AS PROPOSED FOR DETROIT IN REPORT MADE TO THE CITY PLAN AND IMPROVEMENT COMMISSION BY ARTHUR COLEMAN COMEY, 1915.

The report says: "For effective service every part of the Metropolitan District should be within a half-mile of a radial thoroughfare ninety feet wide, which will afford direct access to the heart of the city. Certain main thoroughfares, which will act as collectors of the traffic on the ninety-foot highways, should be one hundred and twenty feet wide. The extensions of four of the principal arteries, Fort, Grand River, Centre Line, and Jefferson Avenues, should be made 'traffic parkways' one hundred and fifty feet wide, providing room for a central tree-lined grass strip for electric cars. Finally, upon Michigan, Woodward, and Gratiot Avenues, the interurban electric lines should be concentrated, and an extreme width of one hundred and eighty feet provided, to be laid out for the present with a broad central park strip. This may later, however, be excavated to form an open cut way for the rapid transit lines, either for trains or the interurban type of cars."

It seems, too, not unreasonable to expect an expansion in the use of electric surface roads in cities, not only from growth of passenger travel, which increases faster than population, but through appreciation of their freight carrying value. That is to say, it is likely that eventually there will be diverted to their rails—between certain hours at least—much transportation which now, through breakage of bulk and laborious individual truckage, adds so disproportionately to the cost of freight movement, while so increasing the congestion of streets and the wear of pavements. The slow beginnings of such service are already plainly evident.

At all events, it is a good city planning rule that it ought never to be necessary to put car-tracks on a street so narrow that most of the roadway is absorbed by them. A prohibition, such as that effective in New York, which forbids the construction of a single-track surface railroad on any street having a roadway less than thirty feet wide, or a double-track surface railroad where the roadway is less than forty feet wide, recognizes this rule and safeguards minor streets.

As to just how wide the great thoroughfares, of either of the two principle types, may most desirably be, it is as impossible to designate an exact standard width for them as it has been seen to be unwise to standardize all kinds of streets. But these thoughts at least may be kept in mind:

(1), That the primary purpose of such highways is to make it possible for the travel upon them to move safely and easily, swiftly and inexpensively.

(2), That the whole history of transportation has been marked by a gradual increase in the size of the transporting unit, so that it behooves us to be generous in the provision of space.

(3), That with the automobile there has come a demand, of such vast proportions as to be practically new, for the provision of space for standing vehicles.

(4), That as the travel upon main thoroughfares will be human travel, for the most part the daily ebb and flow of the tide between home and work, it will be well to make these streets, as far as practicable, pleasant ways of going.

Since the third point applies especially to business streets, where occurs the worst congestion in parking, consideration of it may be postponed to the end of the chapter.

As to the other points, it may be maintained that the provision for rapid transit ought to be sufficient to accommodate a double-track surface railroad, and it is desirable that the opportunity be given to put this on a distinct right-of-way. As a city grows, the tendency is to utilize all streets of this character for rapid transit, and to recognize this in the platting is simply a commonsense look ahead. Track gauges

differ somewhat, but in order to provide such right-of-way it would be necessary, as a rule, to be able to set apart a strip at least twenty feet wide.

The separate right-of-way, though it may not always be granted, is desirable because it permits a quick movement of cars, and makes their operation possible at the minimum of danger and discomfort to other traffic. This acceleration of the street car movement is a matter of economic concern to the community, for it widens the zone of available residence for the city's workers, and, in doing this, gives marketability to increased areas of land for home sites. The transfer of a car line from the pavement of a crowded street to an exclusive right-of-way, though it be still in the centre of the street, may even mean as much to the community as did the acceleration which came with the change of motive power from horse to electricity.

On a street where general traffic is of a business character, the separation—whether the tracks are at the side or in the centre of the roadway—is likely to be sufficient if it consist of only a few inches' elevation, divided from the roadway by a curb. An additional foot of space would take care of this. Where the traffic is largely made up of pleasure driving, as on boulevard or parkway, or on a high-class residence street, it may be well to widen the strip a total of five to twenty feet beyond the actual

car requirement, in order to permit the screening of the track by planting trees and shrubs, to permit the deadening of the railroad's noise and the elimination of its dust by wide turf borders, or the ornamentation of the space with flower borders and looped vines. Further, if the street railroad be allowed such separate right-of-way, which can be turf covered between the rails, the cost of construction is considerably less than when the company must lay a pavement.[1] In many cases this saving might be enough to pay for the additional width of street the arrangement required. It may be noted, however, that the community has something to gain, as well as the company, in any safe reduction of construction cost which may make possible a low fare for a long ride, or improvement in the service.

In addition to the space set aside for car-tracks—a space, that is to say, of twenty to forty feet—there must be space for vehicles to stop at the curb without interrupting the through travel. This means the use, for the two sides of the street, of some sixteen feet. Then the number of streams of through travel for which there must be provision is a matter that cannot be treated in any general way. Each case must be considered by itself. Some streets, for instance, lead simply into open country, becoming

[1] In the United States street car companies have been very commonly required to pay for the street pavement between their rails and for one or two feet outside.

CAR-TRACKS ON A CENTRAL RESERVED STRIP IN A RESIDENCE STREET

View of a section of Beacon Street, Boston.

CAR-TRACKS ON A CENTRAL RESERVED STRIP IN A BUSINESS STREET

Huntington Avenue, Boston.

more and more sparsely settled the farther one goes from town; others are highways connecting important and populous communities with the city, and carrying a correspondingly heavy traffic; others, again, lead to parks or popular resorts. In any case, it must be foreseen that the traffic will grow faster than the city grows, and it would seem that to provide for two uninterrupted lines of travel in each direction, one for slowly moving vehicles near the curb and one for swiftly moving vehicles near the centre, would be generally a minimum for such main streets as are under consideration.[1] Because it seems reasonable to expect the unit of vehicle size to increase, and because for rapid movement and heavier travel it is necessary to provide ample clearance space between vehicles, we may assume that four lines of travel would require thirty-six to forty feet.

[1] The author is aware that a report brought out under the auspices of the Society of Technical Superior Officers of German Cities, expresses the opinion that very broad carriage ways do not appreciably distribute the traffic, even when the traffic is heavy. In proof of this it states that the traffic keeps its accustomed tracks, as shown by the wearing down of strips of roadway surface, while the pavement between these tracks remains little used. With due deference to the source of this report, it should be pointed out that the finding is not, as a matter of fact, adverse to the value of broad carriage ways for streets of heavy travel. The "little use" of "the pavement between"—by which one vehicle gets past another, on occasion—may make the whole difference between the efficiency and congestion of a highway. But it is true, that if the increase of width be not enough for another vehicle plus its clearance, the addition is not worth much. For example, five feet might be added to the width of a congested roadway without appreciably relieving the situation, since this space is insufficient to allow a vehicle to get by, or to accommodate an additional line of vehicles.

This is fairly liberal, for under present conditions thirty-six feet give a clearance space of about a foot on either side of each vehicle, and it might perhaps be argued that the vehicles standing at the curb do not require any clearance space of their own. Moreover, the manufacturers of motor trucks, in reply to inquiries, now assert with rather remarkable unanimity that the limit of width has been reached. The fact, however, that the historic tendency in nearly every kind of transportation unit is against their statement seems to justify the proposed extra provision for the future. And it may be recalled that if vehicles are backed to the curb, instead of standing parallel to it, they need thirteen and a half feet, or a total of twenty-seven feet on the two sides, instead of the sixteen allotted in the original estimate; and that the parking of automobiles is very often at an angle.

Finally, as business is likely to make use of these streets—the stores that serve the residential neighbourhoods should be encouraged to locate on them—there must be allowance of sufficient sidewalk space. This could hardly be less than twelve feet on a side, whether or not it be all paved at first.

A main highway having a width of one hundred feet would seem, these calculations being considered, to be close to the minimum. It might provide:

Four lines of through travel.....	36 to 40 ft.
Space at two curbs for waiting vehicles	16 to 16 "
A double car track.....	20 to 20 "
Two sidewalks.....	28 to 24 "
	100 100 ft.

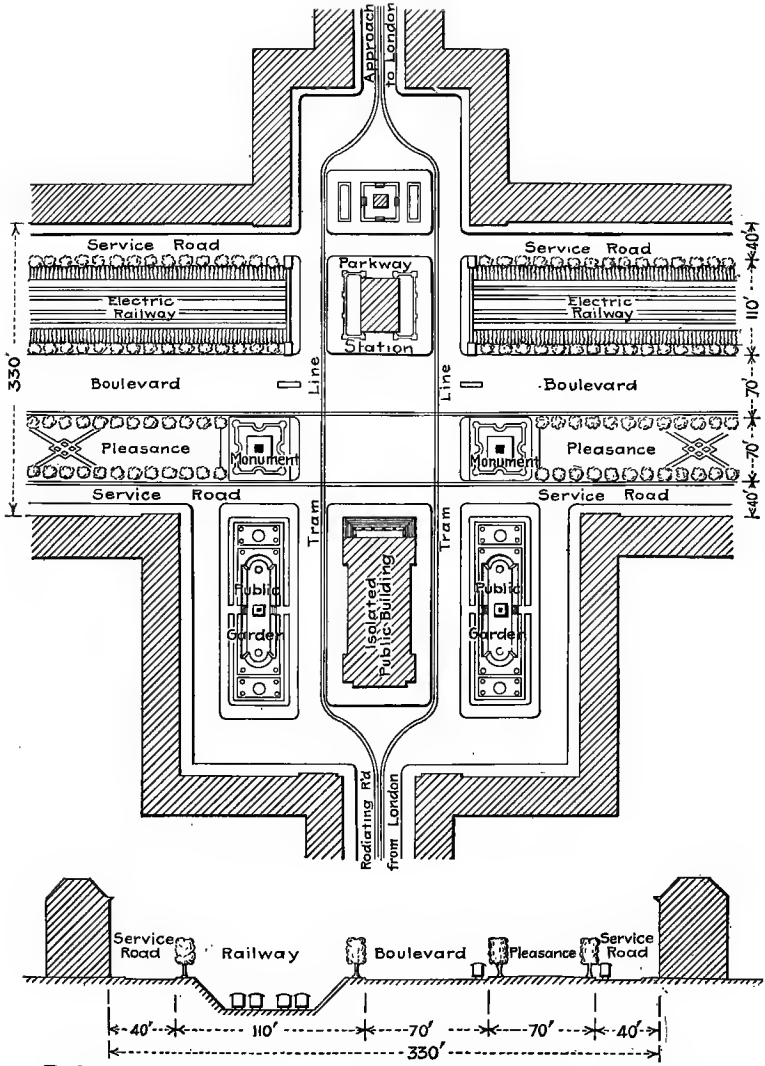
If the railroad strip were given the additional width suggested, if the sidewalk space were widened—twenty feet has been suggested for a business street, and if trees are to be placed on a main highway, where the buildings are likely to be erected at the front lot-line, there should be enough sidewalk space to make it possible for them to stand as much as twenty feet from the building-line—if there were provision of a bridle path, if business and pleasure vehicles had separate roadways, if there were a broad central promenade, or other important ornamental features, the width would be increased to two or possibly three times these figures.

It is interesting in this connection to note that at present Berlin requires that principal thoroughfares shall not have a less width than 95 feet; that the Royal Commission on London Traffic makes 100 feet the standard for first-class arterial streets, and 140 feet for "main avenues"—the latter to carry four lines of track; and that secondary German cities, such as Leipzig, Frankfort, and Hanover put the figure for main thoroughfares at 85 to 118 feet—none

of them provisions that can be said to be too liberal as respects the future. On the other hand, Unter den Linden in Berlin, with its tree-lined central promenade, is 193 feet wide; the Ringstrasse in Vienna is 188½ feet; the Avenue des Champs-Elysées in Paris varies from 230 to 260 feet; Arborway at Franklin Park, and portions of Commonwealth Avenue, in Boston, are 200 feet, Eastern and Ocean Parkways in Brooklyn are 210 feet, and 150 feet is by no means unusual among Western cities of the United States.[1]

There are one or two other points to be emphasized, with reference to these wide streets: If a width of at least a hundred feet for main thoroughfares seems extravagant, let it be remembered that when such streets are widened, and thus are able to serve adequately their proper function as main traffic highways, it will be possible to narrow all the streets which are of distinctly local character. To give a few

[1] A most interesting scheme for a great city highway is one drawn up by D. Barclay Niven, Esq., F.R.I.B.A., for London; but, as Professor Mawson remarks, applicable with local adaptation to any large city. This contemplates a thoroughfare 330 feet in width. It is divided as follows: A service road with sidewalk, forty feet; a four-track electric railway, in open cut, one hundred and ten feet—this space including the sloping sides of the cut; a "boulevard" drive, seventy feet; a promenade or plaisance, tree-bordered, seventy feet, and then the second service road and walk, forty feet. This of course is very expensive and very grand in scale; but if we imagine it applied to a radial road, and consider the extent of additional building area which it would make available by its traffic efficiency, the expense may not seem unwise. A reproduction is appended of the interesting diagram in Mawson's *Civic Art*, illustrating such a street.



D. Barclay Niven's Plan for a Great Highway for London

strategically placed principal streets ample width, so that through travel will find in them sufficient accommodation, is in actual fact not as extravagant as to give to all streets, whether local or arterial, a uniform width which is more than they need for the one use and not as much as they ought to have for the other. To put the matter concretely, we may say that in any particular area to raise the width of twenty miles of street from sixty feet to one hundred feet, and sometimes more, reducing at the same time the width of forty other miles of street from sixty feet to an average of less than thirty feet, would really mean an appropriation of less land for streets.

Furthermore, there is large economy in getting the main traffic streets wide enough at the start. In June, 1907, the Association of Municipal Corporations of England submitted figures which showed that two-thirds of the great English towns had expended on the widening of main highways during the preceding ten years an average of nearly a million pounds a year. Had those streets been given sufficient width at the beginning, when values were low, almost all of this drain would have been saved.

Of course, too, it will be understood that so platting a street that it may have sufficient width to serve as a future main traffic thoroughfare, does not mean that it must be developed in its final form until the traffic demands such development. An

illustration of this, which is the more interesting because it comes from England where grass margins are not as common as in America, may be found in the case of the Queen's Drive, in Liverpool. Though a width of 84 feet has been given to this highway, the carriage road is only 25 feet wide and the two foot-paths but 6 feet each. The remaining 48 feet, available for the future extension of road and walks, is planted in grass. Except, therefore, for the cost of the land—and for a main traffic way the land is often donated—a platting of it at adequate width does not entail any serious additional expense until the full width is demanded by traffic.

But not only is there financial economy in building well located main thoroughfares on an ample scale. Other results include great increase in street efficiency, the more economical development of real estate as well as of streets, a street system of much more variety and interest than one in which all streets are alike; and, finally, a system that, by means of these great highways, establishes frequent fire breaks and makes it possible for strong currents of fresh air to percolate through the city.

There should be perhaps a special, final, word with regard to the business district. For here is a district where all the streets are traffic ways. But even here some are more so than others; and the general principle of particular width for those which

carry particularly heavy traffic, of the value of radials or diagonals to furnish cut-offs, of the avoidance of jogs and irregularities of platting, applies as it did for the town as a whole, except now with more universality and in a concentrated form.

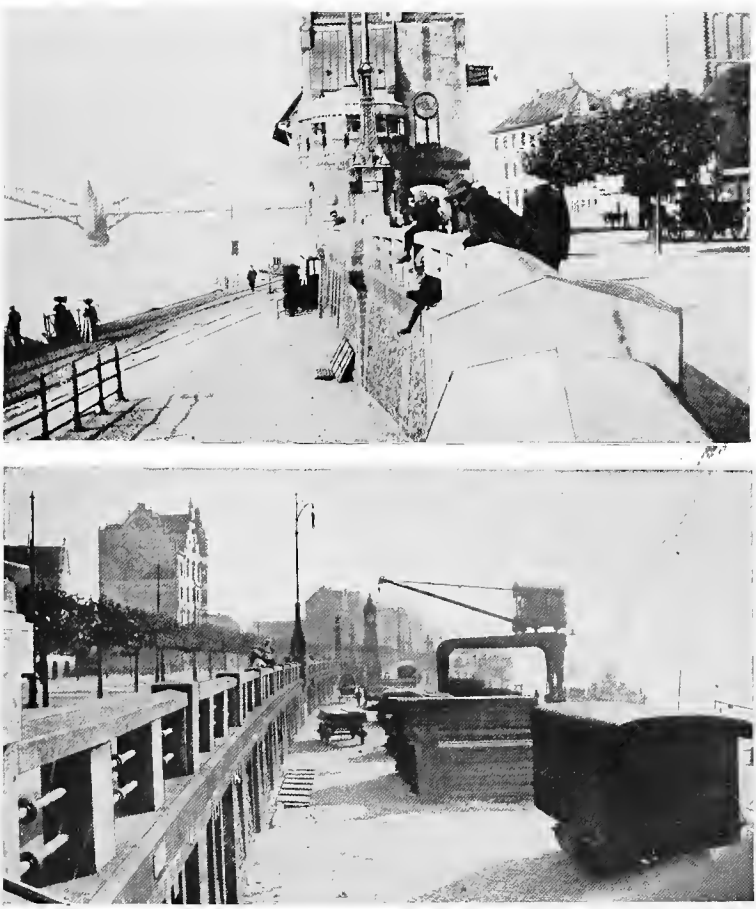
The most difficult present problem is to provide adequately for the parking of motors. As circumstances permit, they are allowed to stand in the centre of very broad streets, to be congregated in such open spaces as are convenient, and to stand in minor side streets if not blocking them. Even a combination of all these methods does not promise complete adjustment to the new and sudden demand. What means of satisfaction will be worked out, does not yet appear.

It should be noted that in the business district an alley system is of peculiar value. An alley gives an additional opportunity for fighting fire, that may be worth much in a section which is closely built up; and at doors that open on to alleys, goods can be loaded and unloaded systematically without interruption by, or interruption to, the traffic of the street. Because of these facts, business lots which run through to alleys have a higher value than those which do not possess such facilities. The alley is also, its frontage costing only a fraction of that on the street, a convenient place for stables, boiler rooms, etc. Undoubtedly, a business dis-

trict is much more efficient with alleys than without them.

If the town be on a navigable body of water, a two-level construction of the marginal street—nearly always a main thoroughfare—is of great usefulness. This can be secured by running a bank or retaining wall longitudinally through the middle of the street. The half at the summit of the bank or wall thus becomes a sort of terrace, or elevated street. The natural incline of the shore is likely to facilitate such an arrangement, which has the advantage of making possible the devotion of the lower level to commercial purposes and of the upper to the ordinary purposes of traffic. Stairs and inclines connect the two levels at frequent intervals; and the street's possession of a higher surface simplifies greatly the matter of bridge approaches.

Waterfront commerce, with the slow processes of loading and unloading and its quite common need of surface railroad tracks, may be a sad impediment to normal street traffic when the two are not separated. Conversely, the street traffic is likely to be hardly less of a hindrance to waterfront commerce if both try to use the same space. It is because of this that a two-level street on the waterfront tends to increase of efficiency. It also means enhancement of attractiveness. The buildings on the upper stage, looking over the lower level, are given long views that miss



TWO-LEVEL STREET ON THE WATERFRONT

An example from Düsseldorf of a useful street construction.

only the sordid and slovenly details of commerce; while the outside walk of the street's upper half offers a vantage point of never failing fascination for watching the busy scenes below and the play of wind and light upon the water. Finally, the view of the city, from the water, is made by this construction much more orderly, impressive, and dignified.

Nothing has been said as to the height of buildings on main thoroughfares. This is because the width of the street should be a factor in determining the maximum limit of height to which buildings can be constructed. If we get the street widths, we get—or should get—the building height limit automatically. The usual European regulation is that no building shall exceed such height that any part of it shall project above a line drawn from the farther side (or from the middle) of the street at a designated angle to intersect the vertical plane that passes through the axis of the building. The angle varies in different cities, and of course with the location of the starting-point. If that be the centre of the street, the angle is most often forty-five degrees.

Just what the number of degrees should be, or whether this is the best method of establishing the connection between the width of the street and the height of the buildings on it, is not the point here. The important matter is simply that the width of the

street ought to determine the height of the building. There are three reasons for this: (a), The desirability of allowing circulation of air and admitting some sunlight to the street and the lower floors of the buildings; (b), the need of considering the capacity of the street—for nowadays a single building may contain as great a population as a town; and (c), the aesthetic requirement of proportion.

A wise regulation of building height in accordance with street width would frequently mean in America a lower limitation than is now allowed—although a great deal of legislation on this subject has been enacted in the last few years. This new legislation has made use of various devices besides the European method above cited; but they are of rather doubtful improvement upon it—unless a limitation worked out by proportioning the cubeage of the building to the width of the street be a better method. That does seem to cover pretty well the three main factors to be considered, as respects the street.[1]

It should be added that since, in the business

[1] An extremely important reason for height limitation, which has not been mentioned here because it has no direct bearing on street platting, is the effect of an unrestricted building height on the value of land. Very full discussion of the whole subject may be found, with widely collected statistics and ordinances, in the published Report of the Heights of Buildings Commission to the Board of Estimate and Apportionment of the City of New York, 1913. A shorter report, but also one of much value, was issued by the Minneapolis Civic and Commerce Association in 1914.

sections of cities some tall building is an economic necessity, or tends to become one, the future city plan, under favouring conditions, might properly include squares or plazas especially designed to afford proper sites for such buildings. It has been suggested also that towers, if so separated from one another as to admit light and air in ample quantity, would not be objectionable, though their height far exceeded the width of the street.

There is much, finally, that might be said about the regulation of architecture on main thoroughfares —or, at any rate, about its obligations and opportunities.[1] But while the aspect of the street is very largely determined by the construction at its edge, that is not a matter which has much influence on the planning of traffic highways—save as there be an effort to create adequate sites.

Thomas H. Mawson well depicted the aesthetic phase of this part of the city planner's problem when he said:

> Even to design a house or garden ideally, it is necessary to grasp the configuration of the site as a whole, and to catch the atmosphere and traditions of the domain and district with innate artistic perception, or even the rarer response of poetic grace. It is much easier to build and garden well—to impart a grand or stylish air to the mansion and to make the garden superior and luxuriant than to build a fine city.

[1] Chapter VII, of the author's *Modern Civic Art* is devoted to a discussion of this subject.

No book, therefore, can give a complete and accurate formula. Rules and suggestions can be based only on practical considerations. The rest must be in the designer's heart.

CHAPTER X

THE PLATTING OF MINOR RESIDENCE STREETS FOR HIGH-CLASS DISTRICTS[1]

IN leaving main thoroughfares and coming to minor residence streets, the designer acquires a much freer hand. The arterial highways which constitute the framework of the city plan must be largely governed by considerations of a very practical nature. These are never entirely absent in good street planning; but in platting streets that have only local traffic value, and which are rather to be lived upon than journeyed through, and whose residents are in such financial circumstances that they are not vitally dependent on either the economic or social influence of the street, there is acquired the largest measure of freedom which pertains to any part of city planning. In fact, from this limited part of the work that large term is some-

[1] In the use of this volume as a text-book, others may find it desirable, as the author has found it, to assign Chapter X. of his *Modern Civic Art* for reading preliminary to the present chapter.

times withheld, the designation "site planning" or "estate development" being substituted for it.

From a broader point of view, we should not, however, fail to recognize that this very freedom makes important contribution to the city plan. It renders it possible for the designer to discourage travel on these minor streets, making them quiet ways for residence, giving to them a correspondingly cosy and domestic character, and so providing response to the second part of the twofold d mand which modern society makes on the city street system—of streets for traffic and of streets for quiet residence.

Bernard Kampffmeyer, as chairman of the German Garden City Association, has said in describing the Garden City of Hellerau, near Dresden:

> The streets conform to the lie of the hills in delicate curves, and present to the architects who will be building here the best opportunity for making charming city pictures. Near the workshops stretches out the quarter occupied by small dwellings, in which the houses belonging to single families are united in groups and rows.

In another section, he added, "extensive quarters for country houses are provided."

In a general way this statement puts briefly the ideal of a street layout which might be in the residence portion of any city. It suggests, also, the natural subdivision of the subject into at least two main discussions—one having to do with high-class regions,

Photo by Anderson Com'l Photo Co., Kansas City

RETAINING THE CHARM OF THE COUNTRY IN THE STREET LAYOUT. AN EXAMPLE FROM THE COUNTRY CLUB DISTRICT, KANSAS CITY

where plats vary in size, but are relatively large; and one having to do with workingmen's districts, where the lot unit is small. Of course between these two extremes there must be, in every city, provision for the great middle class—if that phrase may be used—through which, by steps too gradual for separate observation, the one extreme graduates into the other. But that scarcely demands separate consideration. Just because the progression is so gradual there is no line that distinctly sets it off, and according as the middle class assumes, in greater or less degree, a likeness to the one extreme or to the other, street and lot arrangement can be appropriately adjusted—since traffic needs are become a minor factor.

The arrangement of the subject as thus proposed is likely, however, to provoke this query: If charm and loveliness are to be the attributes of the higher class of residence streets in cities that are wisely planned, is there to be no provision for the stately avenue? All the people who live in costly houses set in spacious grounds will not wish to live on streets that curve, however "delicately," or that rise and fall in conformity with the natural hills and dales. And if this be true of the residents of houses set in gardens it will be true still more of those who are content to do without a garden.

To that query, then, let there be immediate re-

sponse: The desire to dwell on a stately avenue is just as legitimate, and is just as worthy of consideration in the street platting, as is a preference for quieter streets. But the great avenue must have length to match its breadth, and it must be direct, else it will lack in dignity. It is most naturally developed, therefore, and with greatest frequency, from those main arterial thoroughfares, of which there has been discussion, or from the boulevards and parkways of which we have yet to speak. It tends to be an artery of travel, and this remains true even though heavy traffic be debarred from using it. For travel in the city makes use of diverse vehicles, and it is not, we have seen, an essential duty of a main channel to accommodate every kind. With the stately avenue, therefore, though it has its important place in the city plan, this chapter need not concern itself. Nor will such an avenue fall within the scope of a discussion of those minor streets that are lined with humble homes.

To take up, then, such general rules as may be composed, for platting minor residence streets in high-class neighbourhoods, there may be quoted this statement from Raymond Unwin's *Town Planning in Practice:*

> When the main roads have been laid down and the main traffic requirements have been provided for, the spaces left between these through roads can be developed more from the

point of view of making the best of the sites for the buildings, and less from the point of view of public convenience.

That is to say, through travel can now be definitely discouraged, by indirectness or other device. The factors most considered now may be the convenience and pleasure of the persons who live on the streets, so far as there is no violation of reasonable sanitary, building, and fire precautions.

Moreover, and partly in consequence of this rule, it is now to be realized that site planning, as distinguished from the larger phases of city planning, cannot be successfully carried out in a very wholesale manner. City planning, by which the main traffic arteries are platted, can only be done comprehensively; but once that is accomplished, there is required a degree of thought, for the problem presented by the individual minor street and residence site, which can hardly be given in sufficient detail when vast urban areas are considered in the mass. If this be true of the single city, it must apply with double force to a discussion in general terms of the problems of all cities. Yet we may note certain principles which it is profitable to keep in mind.

The expediency of a reasonable economy in street construction is one of these. In preceding chapters there has been effort to indicate the far-reaching social importance of this consideration, and though the people we have now to deal with may not have the

whole tenor of their lives changed by expensive street building, yet there are various ways in which extravagance in that operation may cost the land-owner dearly. For example, a main economic factor now may be, not the width of the street, the kind of pavement, or other feature of street improvement; but the street's location.

The influence of this factor is exerted through the resulting lot-subdivision. The streets should be so placed that they will cut the tract into the largest possible number of the kind, or kinds, of lots most salable in the sort of development which is contemplated. In a high-class residence section, especially in one picturesquely developed, there will be demand for plats of various sizes. The attractiveness of the plat, its susceptibility to pleasing development, and its relation to its surroundings are factors that determine the lot area most marketable. There is no special advantage, therefore, in a section of this kind, in establishing a lot-unit, for larger plats are not likely to be exact multiples of it nor smaller plats precise divisions of it.[1] Thus we shall do very

[1] A standard lot is as common in cities as a standard street, and for much the same reason. There can be no question that it saves some trouble to have an accepted unit of lot size. Persons who want more land buy two or more lots, persons who want less, buy half a lot. The latter operation has its dangers, however, as we shall later see. The standard lot is, further, the result, very largely, of a standardized street system; and as that is different in different cities, so the accepted lot-unit varies among cities. The *pros* and *cons* of the standard lot have been discussed among

well, from the financial point of view, in letting lot-lines go very far toward determining street-lines in subdivisions of this character—the lines of minor streets, of course—instead of making the lot the product of an exact arrangement of streets.

In developing the house-lots, even in a section where there are gardens, a certain symmetry of shape will, however, be found desirable. To secure this, the minor streets will have to be platted with reference to the nearest main traffic ways. This seems an unnecessary comment, and yet there are many examples of useful diagonal highways superimposed on a rigid gridiron of minor streets, so creating awkward corners and unsalable lots. As Raymond Unwin says[1]:

> That the minor roads in the north-west corner of a town should be parallel with the minor roads in the south-east corner, though it may look pretty on the plan, is a matter having in reality no value whatever; but that the minor roads should have a definite relationship to the secondary or main roads of the framework to which they are adjacent is essential, as much for convenience and economy as for securing a satisfactory artistic treatment of the street.

The fact is, briefly, the street planner should approach the problem of the minor street with no

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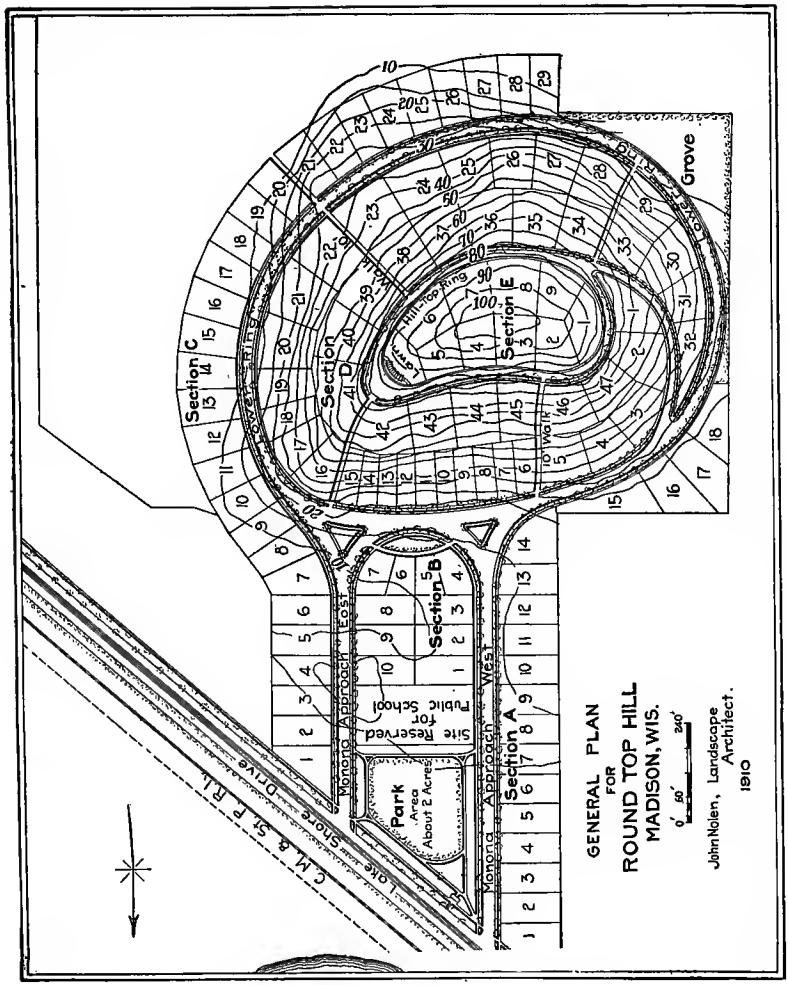
city planners without, as yet, definite outcome—as a general proposition. In a high-class subdivision, characterized by large grounds, it would certainly seem, however, that its disadvantages predominate. Further discussion of this subject will be found on pages 163–165.

[1] Paper read at the Town Planning Conference, London, 1910.

predilection in favour of any geometrical system. With a perfectly open mind, he should simply seek the street layout that is most appropriate to the contours, that will most advantageously subdivide the property, and that will give the best connections and best shaped lots on the main highways. He should not approach this problem predisposed to adopt a gridiron, checkerboard, or diagonal system.

There are other matters which make the street's location an economic factor. For instance, there is the question of drainage. Generally, a street which follows the line of natural drainage presents, other things being equal, marked advantages from this point of view. Again, to follow the topography, where this can be done without too great sacrifices in other directions, means a large saving in fills and cuts. Or, in carrying a road along the side of a hill, it often is well so to locate it that there is more of cutting on the one side than there is of filling on the other. This is because the street sewer will probably have to be placed low enough to drain the houses on the low side, and because the house-lots on the low side are considered so undesirable that either they must be filled up or high foundation walls must be constructed. As houses on terraced sites are well regarded, there need be less anxiety regarding the lots on the high side of the street than regarding those on the low side. Hence, the change of a street's centre line by a



FITTING THE PLAN TO THE CONTOURS

This subdivision, made by John Nolen, for Round Top hill, Madison, Wis., illustrates several of the principles advocated in these pages. Note the relation of the residential subdivision to the main highway, the contour roads, the use of footpaths to furnish short cuts, instead of additional streets; the reservation of an outlook point, the variation in the size of lots, the ornamental park spaces at important street intersections, and the location of the school next to the park. It is interesting also to observe that the streets gradually narrow as traffic may be expected to diminish.

TWO-LEVEL STREET IN A RESIDENCE SECTION

The beginning of a longitudinal bank that is to separate the two levels of a wide street on a hillside. Picture from a new section of Aix-la-Chapelle.

very few feet may make a great difference in costs and sales.

Occasionally it is worth while, as the Germans in particular have shown, to confine the house building to the upper side of the street alone. This is on steep hillsides, where construction on the lower side would involve large cost and, as return for the expenditure, would shut out a view and transform into a commonplace thoroughfare a street that had tremendous natural possibilities for beauty. Narrower and more frequent streets on such a site will sometimes be the method of development at once most economical and effective.

Then there is the two-level street, if the side of the hill be very precipitous. Here a longitudinal bank or retaining wall is introduced in the middle, dividing the street into two levels, as was proposed for the waterfront street, so bringing each side of it nearer to the natural surface of the abutting property. Such a street must of course be wider than a single thoroughfare of the same capacity. But the saving of values in the frontage may more than compensate for the cost of the extra width.

The question of street grades is of more than traffic significance. Though there be wish to follow contours on streets that carry little traffic, though the automobile has robbed the grade of much of its terror, and though the hill site is attractive because of the

view and climatic conditions it offers, care must be taken that grades are not unbroken for long distances. For one thing, it is not so easy to sell house-lots which can be approached only by climbing a very long or steep hill. For another thing, a street with extremely heavy grade needs more expensive pavement and sewer construction than does one which is not subject to torrential floods, and consequent washouts, after summer showers.

In placing these streets some thought should be given, also, to wind and sun. The home, and its pleasantest and healthiest orientation, is a more important matter on a minor residence street than is the getting of a traveller to a certain point by the shortest route. As to the sun, in northern climates one should take care, as already stated, not to run a residence street due east and west. If so running it, he should try to give the lots a wide frontage, so that important rooms of the house may have a southern exposure. There is further the need, if it is likely that houses will be built in continuous rows and will be of considerable height, that such streets be made relatively wide—else the direct sunlight will not reach the lower windows. This hygienic consideration has clearly economic importance as well, where houses are to be built by those who are both willing and able to pay for healthful conditions. If, however, the street's location be swerved enough to avoid an

exact east and west direction, the sun will reach the north side for a little while, and thus, if the house be detached, will shine at some hour of the day into every window.[1]

As to the wind, care should be taken when practicable not to extend a street for a long distance in exactly the direction of the prevailing winds. A street that serves as a funnel is pleasant neither to live on nor travel on. Düsseldorf, for example, is exposed to strong west winds over the Rhine, and Herr Geusen, Oberbaurat, has said that in making recent changes and clearings it became evident that curious street curves in the old town were deliberately planned to reduce the unpleasantness of the wind storms.[2]

Finally, to preserve or enhance the beauty of the street—a very justifiable purpose, where the object is the building of homes—a slight change here, or a curve there, may save a group of beautiful trees, or a single noble specimen which represents the growth of scores of years. It may preserve a picturesque boulder, which might otherwise have had to be blasted away, or an historic shrine which might otherwise have been sold for junk; or it may suddenly reveal a view that delights and thrills.

It is clear, then, that ever so slight changes of

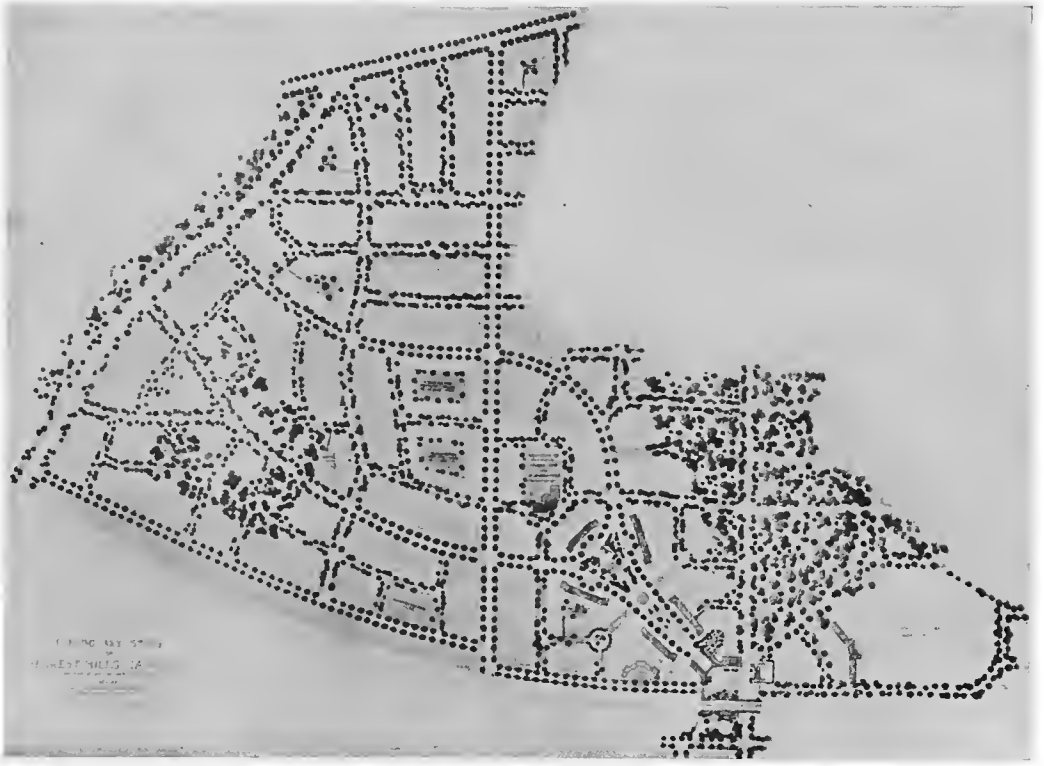
[1] See footnote on page 154

[2] It has been pointed out, on the other hand, and this also by German town planners, that buildings may well be kept low in a section over which the prevailing winds must pass in order to penetrate a city's central area.

direction may make great differences, in cost of construction, in salability of lots, and in comfort and pleasure of life on those streets where the accommodation of traffic and the pursuit of business are not important considerations. It is clear also how very essential it is, for good results, that the plans be not made on paper, but on the ground; and that fixed rules, requiring a single solution for every problem, be avoided. It should be considered, too, that there is little advantage in planning, for districts that have villa development, the geometrical arrangement which looks well in a drawing. The lines disappear, or at least are lost to the eye, amid the natural surroundings. In pleasure over detail, one forgets the general "plan-picture." In the great and much broken spaces, indeed, one finds the "picture" difficult to decipher.

Nelson P. Lewis, who, as Chief Engineer of the Board of Estimate and Apportionment of New York, has had much practical experience in these matters, has written—as if in summary of these considerations:

> The interest of the average citizen is not in the map; it is in the street system itself, and it might be preferable to allow these various subdivisions to develop along lines of least resistance, without exercising too much control over them. In fact, if the treatment of these different sections varies, a more pleasing result may be attained. Here, where the topography suggests it, a serpentine system of streets may be laid out; there, a



THE STREET PLAN OF FOREST HILLS GARDENS

generous depth of lots, with space for gardens and ornamental planting, may be provided.

If some one objects that with so disordered, or at least unsystematic, an arrangement of minor streets, the stranger is likely to lose his way, he may be reassured by the reflection that a short walk in any direction would bring the wanderer to a main thoroughfare. And Cornelius Gurlitt goes so far as to remark that

the finding of one's way in a city quarter is made easier by a diversity in streets and open spaces, two similar open spaces in one city reminding one of those practical jokes that were characteristic of garden designs in the eighteenth century.

There is something to be said for that.

Besides hampering picturesque platting, the straight line loses now even such measure of prestige as directness and shortness give to it where traffic considerations are paramount. Among the homes, the street that curves may often be highly valued. The time has happily passed when there was need to plead for its attractiveness and beauty in such environment. We shall come in time to realize that wherever there must be a bend, not less on main avenue than on minor street, that turn should be a curve and not an angle. We build our streets for the traffic that makes use of them; we see the car-tracks sweep around the angle in a curve and the tracks of wagons and motors

describe lines of grace, but because it is a little easier to survey lots in straight lines and angles than in curves, we too often destroy the beauty of a street and the adaptation of its course to the traffic which is upon it, in order to put in the surveyor's hard straight lines and angles.

There have been interesting and important discussions as to the radius which is most desirable for street curves. The fact that the rapid movement of the automobile has made this question urgent from the standpoint of safety is itself an evidence of the delay which right-angled crossings offer to safe traffic movement. It would seem that the radius could be wisely determined only with knowledge of the following factors: the width of the road, its gradient, the obstructions on the convex side and the use made of the road.

European engineers quite generally advocate a radius of as much as 1500 feet. Nelson P. Lewis, Chief Engineer of the Board of Estimate and Apportionment, New York, suggests such radius as to give an unobstructed view of not less than 300 feet. William E. Harmon, one of the most widely known real estate operators, has made an interesting contribution to the subject from the developer's point of view in saying, in an address to the National Association of Real Estate Exchanges (1914): "Where streets are curved, make the curve slight. . . .You

get all the beauty of outlook with a minimum of disadvantage in the way of awkwardly shaped lots."

But not only do we commonly make angles on various quiet streets, where curves would be both beautiful and natural, we go so far as to make rectangular street crossings on hillsides, where the steepness of a slope may make the angle dangerous as well as sharp. Further, we carry streets in straight lines over summits. This practice imposes the tax of excessive grades. Moreover, convex changes in grade are displeasing to the eye. The reason is that beyond the summit, buildings, street furnishings, vehicles, and people seem to sink. Passing over a high point, Dr. Stübben suggests, should be accomplished

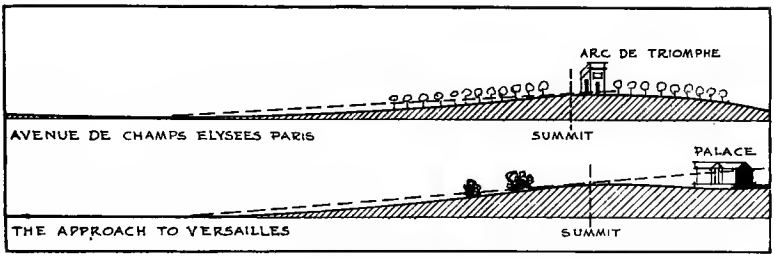
> by a bending of the street in plan and profile, the course of which the eye cannot follow beyond the ridge; or by means of breaking off the street at the summit. The interruption may be a vertical or a horizontal one; a vertical one in the form of a monument, a plantation, a fountain or the like which the eye cannot see beyond; a horizontal in the form of a crossing or dispersing place beyond which the direction of the street changes.

But because a curving street has been discovered to be generally pleasant, we should not make that circumstance an excuse for creating it without a further and practical reason. The deliberately manufactured ornament that serves no functional purpose does not please. In the curving of our streets, we

must take care that we are beautifying construction and not making an attempt to construct beauty. As every one knows, that is a primary lesson in art and good taste.

The curving street, or any irregularity of platting, is likely to leave at intersections some small spaces, gores or segments, that are not suitable for building purposes. These can be put to best use as additions to street area, or as small park spaces, for the beautifying of the neighbourhood. In a high-class district, where attractiveness of environment is popularly demanded, these opportunities will not be overlooked, and may even be purposely created. Their naturalness, as a development of the street plan, and the intimacy with which they enter into it, are not, indeed, the least of the merits of informal and picturesque street platting in residential neighbourhoods.

Of course, one would not deliberately set out to create the charm of the unexpected, such as seen in the narrow streets, the curving façades, even the unexpected turns—"the atmosphere, the quaintness, the sudden respite from the wearying strenuous life"—with which an old-world city sometimes so delights explorers. But we shall find that if we go lovingly, freely, and joyously about our task of designing streets in which men are to build their homes away from the thraldom of business, and where children are to play, we shall somehow create that very



THE EFFECT OF PLACING MONUMENTAL STRUCTURES ON OR OFF GRADE SUMMIT

A QUIET RESIDENCE SECTION NEAR A LARGE CITY

A lane in Brookline, Mass.

charm, that very atmosphere. More than half a century ago, A. J. Downing, stumbling on an example of this sort of street platting—happily, it is much commoner now than then—wrote of it:

> The whole of this neighbourhood of Brookline is a kind of landscape garden, and there is nothing in America of the sort so inexpressibly charming as the lanes which lead from one cottage, or villa, to another. . . . These lanes are clothed with a profusion of trees and wild shrubbery, often almost to the carriage tracks, and curve and wind about.

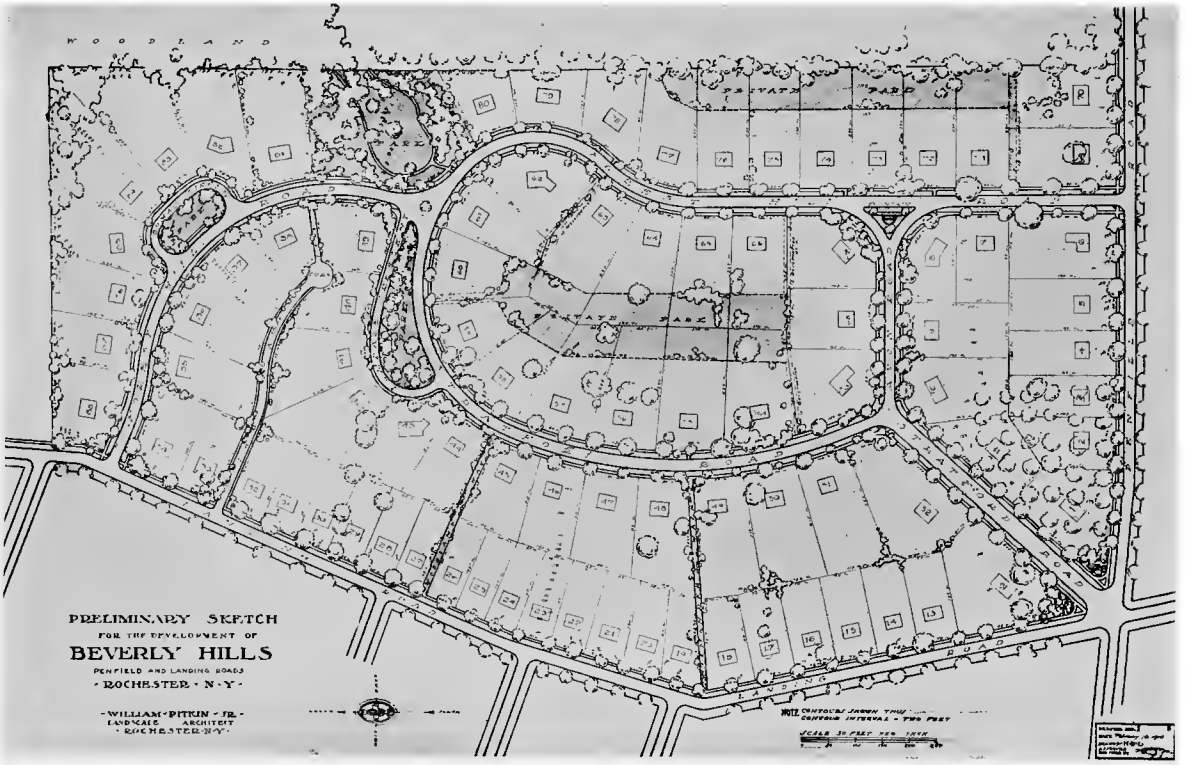
Familiar examples have convinced us now. And as there is danger that the curving street, which must be so strongly advocated in writing of the development of residence tracts, may be overdone, so there is danger that the picturesque will be attempted on a matter-of-fact site, the lovely and informal on an unlovely tract, too small to give to the designer the necessary scope. There is need of spaciousness, of proportion, of verdure, quiet and natural appropriateness. Any flat and vacant field will not serve for the sort of street beauty that may properly be given to rolling land. In the past, we have erred too much the other way—ruining the naturally picturesque, at great cost levelling hills and filling valleys, that we might transfer to a beautiful tract the plainness of the plain. There is need of a protest against doing that, and at the same time need of a warning, lest we should go to the opposite extreme. Only by taking

the home motif, and adjusting our development to the conditions of the site, may we hope to avoid both errors.

This chapter would not be complete, did it not consider the alley problem. For the inclusion of alleys in high-class residence platting, it is common to hear several reasons advanced, if any are given, the inclusion or omission of alleys being in reality largely a matter of custom—for example, they are expected in Chicago and not in New York. When omitted, nothing is said; when included, the reasons usually cited in justification are: (1), The alley is a convenience for the delivery of bulky supplies, as coal, building material, etc. (2), It promotes economy in the removal of waste. For instance, garbage wagons, where there are no alleys, have to travel around the block instead of through it, so doubling the length of haul. (3), It removes from the street unpleasant service and some of the trucking which is most destructive to pavements. (4), It offers a better place than the street for poles or conduits. (5), It affords rear access in case of fire. (6), It offers additional opportunity for light and air. (7), It promotes the convertibility of a tract to other use should a change become necessary.[1]

While all of these claims are true, it may be said, in rebuttal, that the first is a convenience dearly paid

[1] See pages 158-159



A Plan for a High-class Subdivision which is Typical

for; that the second and third advantages almost surely cost more than they save; that the fourth can be more cheaply secured on rear lot-lines, and that back gardens offer the fifth and sixth advantages in a better way. The seventh is of only very occasional usefulness, and with good city planning legislation should not be necessary.

The disadvantages of the alley in residence sections are, as suggested, largely economic. Its cost is made up of: (1), The sacrifice of land. Land used for alleys is subtracted usually from the individual lots. If this is not done in a large tract, the lots being left full depth, several alleys may mean a reduced number of lots. The landowner has either to make less or to charge more for what he sells. In other words, the cost of the alley land is still paid by somebody. (2), The cost of paving. (3), The cost of sewers. (4), The cost of fencing, in a double line at the rear of lots. (5), The cost of cleaning. (6), The cost of lighting. There is also the disadvantage that the construction of alley houses is invited, as pressure of population increases.[1]

[1] *Housing Problems in America*, 1913, offers the following estimate of the cost per lot of an alley, in a region of humble homes. In a high-class section the cost is much higher. In a ten-acre tract, having 978 lots thirty-five feet wide and a hundred feet deep, having streets sixty feet wide and alleys twenty feet wide, the alleys lighted by tungsten lamps three hundred feet apart, the land valued at $20 a front foot and the cleaning of the alleys costing fifty cents a thousand square yards, the cost of alley construction is $78 a lot, and the annual cost of maintenance $13 a lot.

As a result of balancing the arguments for and against, the best opinion tends to be adverse to alleys in residence districts. In lieu of them, the practice is growing up of reserving an easement three to six feet broad—half of it taken from each lot—along the rear lot-line, for the purpose of placing poles, constructing conduits, etc. The lot owner can include his share of it within his fenceline and can plant on the strip—can do anything except build on it—it being understood that occasionally his planting may be disturbed.

The question, however, of platting alleys in strictly residence districts—where the comfort of the residents takes precedence over the community's traffic needs—is to be determined, as are most other questions in those sections, by the desires quite as much as by the best interests of those who are to live there. Not infrequently, in spite of all statistics and arguments, custom will have so firmly intrenched an alley system that the people would hardly be happy without it, nor lots easily sold if it were not provided. In such cases the city planner is probably wise to remember that his clients are engaged in a commercial operation, requiring that the subdivision of the property be such as will sell.

CHAPTER XI

THE PLATTING OF MINOR STREETS FOR HUMBLE HOMES

IF, from a civic and social standpoint, economy, light, and air are important considerations when platting the streets where the wealthy are to live, they must be factors of special influence when we come to the planning of streets on which those are to live who cannot supplement by private purchase what the city fails to give. There is now injected, also, a new economic factor with great urgency. This arises from the anomaly well expressed by J. S. Nettlefold[1] when he wrote: "In the vast majority of cases, poor people live on dear land and rich people live on cheap land."

The condition may be absurd, as he declared it to be; but it is quite explicable, since land in cities receives its main value from the human use to which it is, or is believed likely to be, put. The land that is to accommodate a great many human beings to the acre can hardly fail to be expensive. In fact, when

[1] *Practical Housing.*

we would set bounds to its cost, we place a limit on the intensiveness of its use. To do this, indeed, is one of the objects of the zoning or districting system. Yet, as the poor can at best occupy but little land apiece, the area where they live is bound to be used intensively and therefore cannot be really cheap.[1]

We shall help some, no doubt, if we can arrange to house the poor on land which is of so little use for other purposes that few competing interests bid up its price.[2] But even then a crowding of many people on the land will make it relatively costly land; and since inadaptability to other use is likely to be due to uneven topography (for if used for housing it must not be too remote or unhealthy) the cost of street making will be high, and that makes the cost of lots high, per square foot of area. The best we can do when platting streets for humble homes, is to see that the poor man receives the maximum return, in comfort and happiness, from such land as he may be able to secure by lease or purchase.

In saying this, it may seem that considerations of

[1] A good illustration of this truth was offered by an incident in Berlin a few years ago. The military authority having decided to sell 875 acres of the Tempelhofer-Feld, south of the city, several building plans were made for the tract. One required that in all but a small section the dwellings should be detached, or semi-detached, and should be not more than two stories high; another that they should be five stories, closely built. It is said that the adoption of the former plan reduced the value of the tract from the $79,000,000, which it is thought it would have had under the latter scheme, to about $10,000,000.

[2] Note, for example, the hillside houses of Pittsburgh.

human welfare have been regarded above those of property. It is quite right in planning cities that they should be earnestly heeded. Indeed, in the platting of the quarters where the poor are to live, these considerations have such importance for the whole community that regard for the public health, convenience, and comfort—that is to say, for the best practicable livableness—may properly be required by the street planning authority.

Returning, then, to practical measures, it may be reasonably assumed that land, air, and light will be less expensive in portions of the town's circumference than at its center. Consequently, in the effort to secure for the poor the greatest possible return from their home investment, we must try to encourage an outward movement of population. While facilities for cheap and rapid transportation go far—as has been said—toward such encouragement, they will not, of themselves, suffice even though supplemented by the removal of factories to the outskirts. Thomas Adams, now town planning advisor to the Commission of Conservation in Canada, well expresses the further need in these words:

> The first condition to secure wide distribution of population is to have land near the city cheap and unhampered by speculative interests. This condition is requisite to enable the worker to get advantages in the suburbs which will compensate him for two disadvantages in moving out from the central districts, viz.: (1), Sufficient saving in rent and taxes to pay

his extra cost by traveling, and, (2), Sufficient attractiveness in his environment to compensate for his daily journey to and fro and his loss of social attractions.

Since it turns out that those who have little to spend must live on land that is expensive, they cannot, as individual families, have much of it. Consequently the more, within reasonable limits, the community can obtain and use for their benefit, the better for them. So there arises a marked difference between the problems offered in platting streets in high-class residence sections and those which must be met in platting them for humble homes.

In high-class sections, the enlargement of private ownership and the curtailment of public are desirable, for it is realized that self-interest, if coupled with ample means, will afford attractive and intelligent development.

Among humble homes, it is desirable to reduce the need of private ownership to a minimum, in order that the necessities of private economy may not involve too great a civic loss, and to offer the maximum provision by the community, so far as this can be afforded, of those advantages which normally come from private ownership. Instead of small public provision and large lots, we now seek, theoretically, large public provision and small lots. That the most advantageous use of the considerable public

land will not prove to be in the building of streets alone, does not invalidate this claim.

In theory there is thus a reversal of policy. But the theory that in its poorer quarters the city should supply those playgrounds, gardens, and neighbourhood amenities which, in a region of wealthier citizens, might be left to private provision, is qualified by the clause, "so far as this can be afforded." Taxation of various forms puts the cost of such benefits upon the neighbourhood that enjoys them. Thus under the economic conditional the theory often in practice breaks down. Just as, in considering the platting of streets in neighbourhoods for the well-to-do, it was observed that sometimes streets are given excessive width, in order that their attractiveness may be enhanced—the community assuming some of the task which theoretically might there be left to individual property owners; so, among the humble homes, the need for municipal economy sometimes results in a minimum acquirement of public property, where in theory the maximum would be desirable. It should be noted, also, that a factor of considerable practical moment is that of political influence. Rich citizens may secure the doing of some things by the city which it would not otherwise do and which there is no real need of its doing. On the contrary, poor citizens, because unfamiliar with modes of political pressure, may fail to secure at public cost some of the "improve-

ments" they ought to have. Nevertheless, the theory, if we recognize the possibility, and probability, of numerous exceptions, is a useful guide.

How genuine the need is of an appropriately proportioned small lot, and how serious may be the consequence of failure to provide it, can be gathered from the fact that the special evils of New York tenements are attributed largely to the use of the standard 25 x 100-foot lot. Social workers have dubbed it the curse of the city. Not that there would have been no tenements had the lots been less deep. Tenements are inevitable on Manhattan—even for the very well-to-do—but shallower lots would have robbed the New York tenement of some of its worst features. We find this illustrated again, in the case of Washington, where the President's Homes Commission, and C. F. Weller in *Neglected Neighbours*, have pointed out that one of the greatest advantages to be gained by the transformation of blind alleys into secondary streets is that the size of the blocks would be cut down. The two examples are significant. The one illustrates the responsibility of the long lot for the dumb-bell tenement, under conditions of excessive congestion; in the other, the evil which developed, under less serious pressure, was the construction of rear houses. The point of the illustrations is that the adjustment of the lot to the need is not a matter of satisfying simply a whim. When

one deals with those who must earnestly count the cost of every pleasure and comfort, he finds there is but slender margin between their convenience and the bedrock of their necessity.

Because a small lot-unit is now desirable, we find the street platting determined by the lot platting to much greater extent, under ideal conditions, than in the higher-class districts, where large lots of irregular size and shape are serviceable. The streets now have to be more frequent. On the other hand, with smaller lots a larger population can be housed on a given area, or, putting the matter the other way, a reduced area will house a given population, and so, while our streets are more frequent, we shall possibly have to construct and maintain less street per capita than where the lots are large. Certainly transportation distances will be less.

Yet we shall find several of the principles which promised to be useful guides in platting the streets in high-class districts still helpful. The economy that may be secured by a slight change in the street line is much more desirable now, if it does not mean added cost in some other direction—as in the lot. While now the tract to be platted is less likely to be rugged, for in residence sections picturesqueness is not a sure sign of lower land values, a reduction of expense by causing the streets to follow the contour, within reasonable limits, instead of adopting the

railroad grades that engineers esteem, is certainly not less necessary.[1] The orientation that gives the maximum of sunlight is changed from a merely desirable to a needful consideration.[2] The demands of traffic, much reduced on the minor street of a high-class section, are now still further lessened. The desirability of securing any beauty which the platting or alignment of the street can give, is heightened. In short, there is as much inducement for picturesque informal planning as there was before, if the site permits of it.

The community, however, reads the rule for this class of work, must furnish in public property some of those advantages which can be furnished by pri-

[1] The reason that a tract to be devoted to workingmen's homes is likely to be approximately level is not, of course, that the labourer is unappreciative of natural beauty. Economy is the impelling force. It is much cheaper to build streets, and houses too, on a nearly level tract than on irregular contours, this consideration frequently offsetting higher land values when level tracts do possess them. Moreover, transportation lines sooner penetrate such districts.

[2] M. A. Augustin Rey, one of the official architects of Paris, has made an elaborate series of astronomical studies to determine the most desirable directions for residence streets as regards sunlight. Taking December 21st, the shortest day of the year, and making observations for Paris, London, and Berlin, as representing Europe; and for New York, Philadelphia, Washington, Boston, and Chicago, as representing America; and basing his calculations on two-story, four-story and six-story buildings, he concludes: "Streets running north and south are eminently healthy; streets at an angle of 30 degrees to a line drawn north and south are healthy; streets inclined at an angle of 45 degrees to the line drawn north and south are moderately healthy; streets running east and west are notoriously not healthy." It hardly need be added that street direction becomes less important, from this point of view, as space between the houses increases; and that in the tropics, where shade and breeze are desirable, the choice would change.

A Plan for an Employees' Residence Section on the Outskirts of a City

vate property where lots are large. This cannot be done by mere frequency of streets, though they be picturesquely platted, nor can it be wholly by broad streets, for they are costly. As Professor Dewsnup puts the matter in discussing *The Housing Problem in England*, "The haphazard huddling together of streets and houses must be prevented. Whatever the detailed nature of such a plan may be, it must provide for a thoroughly ventilated street system and an adequate supply of open spaces." With open spaces other than those of the broad street, this chapter will not deal. What the broad street, conservatively used, can give to the minor street it must consider.

The statement has been already made that the latter is likely always, under good city planning, to be near a main highway. When reference is to the minor street of humble homes, it is almost essential that it be near one. Several considerations emphasize this need. One is the value of the highway in ventilating the system of narrow streets. Another is the consideration that the workman who is poorly paid, or has long hours, can live only where it is possible for him to get to and from his work quickly and cheaply. This makes proximity to a traffic artery an economic necessity—except in those cases where the establishment of the factory in the suburbs has made the employee comparatively in-

dependent of transportation into and out of town. A third advantage of proximity to a main traffic way is social.

The life of a busy street is an unfailing source of entertainment. Not only will the cheaper theatres and picture shows be gathered on the main highway of travel; but the street itself, with its restless crowds, its bright windows, its exciting episodes and commercial opportunities, offers without charge an attraction so well-suited to those whom purchasable pleasures have not surfeited that there are few vacant rooms on such a street. For residence, its advantages seem to such persons, even after deductions for noise, danger to children, and usually inferior living accommodations, to outweigh oftentimes the claims of the quiet street. To the class of persons under consideration, the busy street indeed typifies the lure of the town. To put their homes out of convenient reach of it were to demand an unreasonable sacrifice. In this connection, it may be said of the poor in every city, as it is said of all classes of Parisians, that the street is to them another room. For at least half the year, even in northern latitudes, the occupants of humble homes spend the hours of recreation out-of-doors. As it was put not long ago in a report on housing conditions in Chicago, "The streets and alleys are to the people of a well-to-do district only a convenience for transit. In an overcrowded district there is little

else more important to the happiness and welfare of the people."

Aside from the pleasure which the broad street may bring to socially hungry lives, craving distraction from the narrow round of oppressive duty, there can be little doubt that the contact which it offers with the outer world, with the joyous larger life of the community, is an admirable antidote for pettiness and sulky introspective brooding. It is because streets are so largely depended upon to furnish light, air, play-space for children, entertainment and diversion, that they have been so often made broader than the traffic required, in spite of the economic sacrifice involved. For these reasons well-meaning persons have acquiesced and even rejoiced in an action which costs tenants dearly, which even compels them to live in multiple houses.

But tenement quarters on a wide street are not a correct social or civic ideal. We must try to provide the individual home on a more livable street.[1] In so doing, however, we must recognize the good qualities of the street which is necessarily broad, and seek to secure these advantages for humble homes by putting

[1] Interesting, as a striking evidence of appreciation of this fact, is a resolution adopted as long ago as 1898 by the Town Council of Düsseldorf. In effect, it provides that on streets upon which the owners agree to erect only detached or semi-detached dwellings, having not more than one story above the ground floor, the contribution to the public sewers will be reduced by one-half; the street will be narrowed; and toward the cost of making the street the builders will have to pay only the cost of macadamizing.

the homes near the highway. It is not, in any large measure, possible, nor happily is it necessary, that they be upon it. Further, we can obviate multiplication of excessively broad streets by furnishing some of their advantages in other ways. To considerable extent, this will be by means of the parks and other public open spaces, and by the courts and little gardens which narrower streets permit or create. Of these, there will be later mention.

Because the platting for a workingmen's housing district is so distinct from that for other portions of the city, the factor of convertibility in the street plan assumes a good deal of importance. On the one hand we sometimes have to transform a district platted in large blocks for large lots into such a section, giving it small blocks for small lots; on the other hand we sometimes have to do just the reverse of this.

For example, suppose that on account of the sudden intrusion of factories or railroads, or for some other reason, fashion and wealth migrate from the section they have occupied and replatting for workingmen becomes desirable. The division of lot widths is, of course, easily managed. The division of lot depths may be accomplished by the opening of new minor streets to cut very deep lots into conveniently shallow ones. When there is an alley system this action can be economically provided for at the start, by the imposition of a building restriction requiring that no

structure be closer than ten feet to the alley line. If this requirement was early imposed, there will be no costly improvements to prevent the widening of the alley by at least ten feet on each side. With a twenty-foot alley—the usual width in high-class districts—we would thus secure a forty-foot street—which in Boston is accepted as the standard for districts occupied by operatives' dwellings. This is a means by which an alley system may promote the ready convertibility of a tract.

In the conversion of a residential district, of any class, into a business district—a very common transformation—the elimination of alleys, if they exist, could be only undertaken reluctantly, for the serviceableness and value of alleys are now increased. Happily, however, business can make use of the normal residential lot-unit without much difficulty, combining units if there be need of either greater width or greater depth. The principal new requirement which business makes of platting is likely to be only that of greater street width. Here again, therefore, the early imposition of a front building-line restriction will simplify and cheapen the process of conversion.[1]

When the required convertibility is the reverse of that first imagined, and we have to change a region of small blocks and small lots into one in which units

[1] For further discussion of this point see Chapter XVIII.

are larger, the purpose most often is to adapt a region devoted to employees' homes to the expansion of an adjoining industrial section. In such case, it usually is necessary to abandon some of the minor streets, so as to provide lots of sufficient depth, and possibly to widen some of the other minor streets to provide thoroughfares adequate for the new demands. In platting an employees' residence section close to the factories, it is well to provide for the possibility of such conversion by establishing, on certain of the streets at least, a front building-line some feet back from the street.[1]

The strictly street needs of the manufacturing district include, it may be added, directness and levelness of grade, that heavy loads may be transported with the minimum of effort; broad pavements, that wide and cumbersome vehicles may be easily turned and may back against the curb; strong pavements, such as granite block, that they may stand the wear of heavy loads—and noise is now of no importance; and narrow sidewalks, for the walks are little used except by employees going to and from their work

[1] It is interesting to note in this connection that the Harborne Tenants Limited, hampered, in developing a tract in Birmingham, Eng., by the by-law which required fifty-foot streets, applied to the City Council for relief on the plea that it would build only ten houses to the acre, and would set them fifteen feet back from the street. Relief was granted, and in reply to a criticism that ordinary builders would want the same privilege, members of the Council were quoted as saying that they might have it if making a like agreement.

before or after the hours of trucking, when, therefore, pedestrians may overflow into the roadway.

There remains the necessity of saying, in conclusion, a word with regard to the mixing of classes—a subject previously touched upon, but seeming in this chapter to need recognition anew. There is much, no doubt, to be said for such mixture as a sociological ideal; but that does not mean that houses of all kinds must be indiscriminately thrown together on the same street. Street boundaries do not limit the citizens' interests. Both poor and rich are probably happier in their own environment, among their own kind, where each can live his own life in his own way, without covetousness or odious comparison. The saving clause is that with good city planning these separate districts will not be vast unbroken areas. Their territory will be small and the great highways which cut it up will bring the life of the least important street into close contact with that pulsing through the highway. Residents on the latter will be in the same parish, the same political division, lodge, or union with those on the minor street. So will be gained the healthy open-minded type of society that is desired.[1]

[1] William H. Baldwin, writing as a member of the President's Homes Commission, said in a sub-committee report: "In German cities provision is made for homes of working people in narrow streets running through, and connected with, those portions in which the residences of people of larger means are found, instead of having each kind in a district by itself. Such a plan would have a peculiar advantage in this democratic country where the difference should be not in character but simply in the standard of

Perhaps the chapter cannot be better closed than with these words, both of further suggestion and summary, from Charles Booth:

I wish I could rouse in the minds of speculative builders a sense of the money value that lies in individuality, with its power of attracting the eye, rooting the affections, and arousing pride in house and home. Then would they seek to use, in place of sedulously destroying, every natural feature of beauty, and take thought of others. A slightly greater width of garden on the sunny side, whether front or back, may make all the difference; a single tree left standing can glorify a whole street. Fresh painting and papering within, is not the highest ideal; its charm passes; the other gathers force as the years go by.

It is with that spirit that the platting of tracts for humble homes must be undertaken. There must be the freedom from restraint that was craved in the planning of the high-class minor streets. Not symmetry and exactness, but the best practical housing of the poor, the brightening of their lives, and the fostering of the home-spirit should be the aim.

If we succeed in this, substituting these gifts for dark courts and dreary streets, where there is not sufficient light and air for the health of body or spirit, we may expect that more grandiose town planning projects will grow easily out of the new-born civic spirit.

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living, and would be for the convenience both of employers and employed. Such a system we practically have now in the alley dwellings, in which the contact with the best residences of the city is so close; so that by the conversion of these alleys into minor streets, permitting decent living and encouraging self-respect in those residing upon them, we could establish a healthy social circulation in the body politic."

CHAPTER XII

LOT PLATTING FOR HUMBLE HOMES, AND FACTORY REMOVAL

THE circumstance that in a district devoted to humble homes the street platting—so far as minor streets are concerned—is very largely determined by the lot platting, makes it important for the street platter to form an estimate as to the most desirable lot-size for such a district. In practice this is not a question of square feet of area so much as of width and depth.

We have seen that the adoption of a standard unit of lot-size is very common in cities, and it is generally adhered to with extraordinary fidelity. Yet such a variety of units have been adopted by the different cities as to suggest that no one is surely right and all others wrong. Certainly, unless it be determined whether the houses are to be constructed in continuous rows, or are to be double houses, or will be single detached houses, it would seem to be impossible to fix on a standard that is sure to be satisfactory.

Very illuminative, however, is a statement by John

Ihlder, as assistant secretary of the National Housing Association, that detached houses should have as much as fifteen feet between them, for otherwise better light and ventilation can be obtained by solid rows of shallow houses, two rooms deep. This gives a pretty good basis to work upon. We see at once that the typical, and often praised, small lot of Philadelphia—fourteen by forty-one feet—is not available where detached houses are customary and desirable; that the typical New York lot, twenty-five by a hundred feet, sacrifices width for unnecessary depth under such conditions; and that the typical Chicago lot, twenty-five by a hundred and twenty-five feet, is even worse in this respect. Yet many smaller cities have followed blindly the example which New York or Chicago gives.[1]

A block divisible into twenty-five-foot lots will probably divide as evenly into lots thirty-three and a third feet wide. Then with even seven and a half feet reserved for light and air on each side of such lots, we should have room for a comfortable house. This width, which is not uncommon, is advantageous also because it is not readily halved. But if we are

[1] It should be emphasized, however, that, as stated above, a good deal of variation does exist. Even the phrase "typical New York lot" refers only to the boroughs of Manhattan and the Bronx, the usual unit-width in the other boroughs being twenty feet. Elsewhere, lot widths of thirty feet and of forty feet are both pretty common. The latter tends to be a little too wide for the poor; and when, as a consequence, it is cut in two, the lot which results is too narrow to permit of good housing with detached buildings.

going to cut up our land into lots thirty-three and a third feet wide, instead of into lots twenty-five feet wide, we have either to charge more for them or make them shallower. The latter course is preferable, where the comfort of a deep lot must mean, to those who buy or rent it, the sacrifice of other and more essential comforts. No more land will be absorbed for the lots than in the twenty-five by one-hundred-foot platting if we make the wider lot only seventy-five feet deep. This depth is fairly satisfactory, for it permits the construction of a house two rooms deep, set ten feet back from the street, and still leaves a margin of thirty-five or forty feet, to be encroached upon by a third room, or a porch, or to be used for a back garden. The necessity of more frequent streets, however, will still mean from an economic standpoint some further curtailment of lot-depth, unless we can equalize matters by making the frequent streets very narrow. The question, then, is whether more land is best in street or in lot, for those whose means are slender. It is not an easy question to answer.

On the one hand, we have the theory that the community at large must provide, in public property, some of the advantages which private property can provide where lots are large. On the other hand, we have the certainty that broad streets cost the community more than do deep lots, and that the father's

dooryard is a much safer playground for little children than is the busy highway. In the tending of flowers and vegetables there is wholesomer diversion and exercise than in patrolling the garish street; the doorstep is a better place for visiting than is the corner; and in the garden there are even opportunities of a financial nature which are surprising. If the life of the highway be not too distant, and in platting streets for workers it must never be far away, the home can be made very inviting when placed on a minor street and given a little garden.

It is to be remembered that the individual home—of which the garden is a true part—is the civic as well as the social ideal.

It should be recognized at the outset, [says Lawrence Veiller,[1] in a comment which applies to other nations as well as to America,] that the normal method of housing the working population in our American cities is in small houses, each house occupied by a separate family, often with a small bit of land, with privacy for all and with a sense of individuality and opportunity for real domestic life. Under no other method can we expect American institutions to be maintained.

Charles Booth, in his *Life and Labour in London*, summarizes as follows the reports of his London investigators with reference to gardens: "Houses with good gardens at back, seldom empty and hard to get"; "houses blessed with gardens—a wonderful influence"; "houses with porches creeper-covered,

[1] *Housing Reform.*

eagerly tenanted." And John Burns, speaking of the English town planning act, has said: "I trust that the chief benefits of this act will be fewer houses per acre, more space and gardens about the dwellings, more attractive frontages."

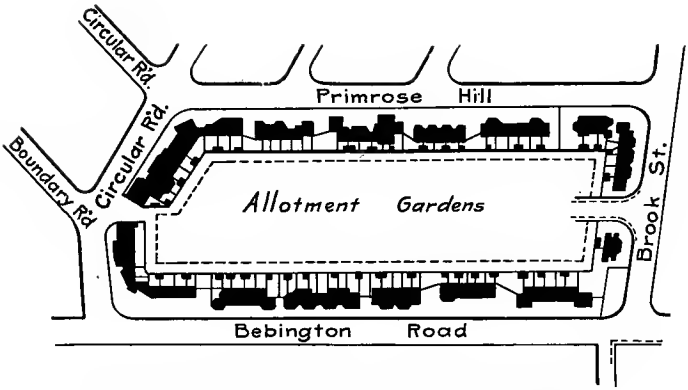
Yet, in spite of the value of these testimonies, we find James Cornes[1] declaring that workmen who live in towns care little for gardens, preferring the relaxations and life of the city; and the theory of city planning favouring a small lot-unit for humble homes. The truth is, in catering to people who can spare little money for luxuries, and none for things they do not want, it is easy for garden enthusiasm to lead the street platter too far. The sixth of an acre lots at Bournville are too large as a standard. Ebenezer Howard, suggesting lots only twenty feet wide, ran them back one hundred and thirty-two feet, which would make sixteen to the acre. But, in fact, to standardize gardens is not much more reasonable—though more excusable—than it would be to standardize houses. Many a well-intentioned philanthropist, convinced of the social, hygienic, and financial value of the garden, and aware that there are employees who are able to work joyously and successfully a considerable garden area, after platting a tract for humble homes with narrow streets and long gardens, has found he made a mistake. In such

[1] *Modern Housing in Town and Country.*

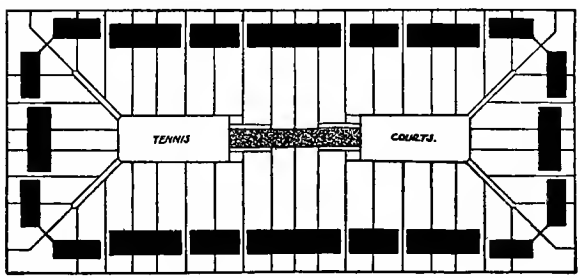
cases the garden-space connected with some of the houses is sure to be worse than wasted; and the occupants of those houses are compelled to do without some things they want, in order to have what the philanthropic tract developer thought they ought to want.

Differences of climate and differences of soil, modifying the responsiveness of the garden, affect the strength of its attraction. Furthermore, there is need of discriminating between the diverse home requirements of different groups of workers. Store clerks, bookkeepers, stenographers, etc., are likely to find in the excuse for exercise that a garden offers just the physical antidote which the exactions of their calling demand. But they do not usually live on the humblest streets. On the other hand, men who do, after hard physical exertion all day, return at night too weary of body to work in a garden. Hence, since it can be seldom foreseen that every worker on a given street will perform a certain kind of labour, arises the folly of asserting that every householder shall or shall not have a considerable garden. Let us substitute "may" for "shall."

Allotment gardens, now so popular in England and Germany, offer one way out of the predicament. By preserving for allotments a strip in the middle of certain blocks, behind the houses, it is possible to make the backyards of those blocks as small as the



ALLOTMENT GARDENS IN THE MIDDLE OF A BLOCK
A section from the plat of Port Sunlight, England.



AN ARRANGEMENT FOR COMMUNITY TENNIS COURTS
Proposed by Raymond Unwin.

usual city-bred worker could desire or find to his advantage. Then the man who wishes more garden than the backyard offers can have it, by means of an allotment garden. And it will be as near his house as if it had not been set off from his backyard. He can have as much as he can pay for, or profitably work, and no one is compelled to pay for space he does not want. To men whose employment is likely to be irregular, such provision may be of especial value. When work fails, and particularly as a man grows older and it becomes harder to obtain a job, the opportunity to cultivate a garden may mean much to him, physically and financially.[1]

The allotment garden has been adopted in various places, especially in English Garden Villages and Garden Suburbs. The form described is to be preferred to that earlier form which put all these gardens by themselves, at a place which consequently was more or less remote from the workmen's homes.[2]

[1] The English Parliamentary Land Enquiry Committee, reporting on this matter in 1914, just before the war, said: "Whereas in Belgium only twenty-three per cent. of occupied persons are employed in agriculture, no less than fifty-six and one-half per cent. of the total population are living in the country districts. This means that about one-third of the urban workers are rural dwellers. The Antwerp docker, on slack days, instead of hanging about the docks, spends the day in his garden. He may not earn so much as if he were at the docks, but he is infinitely better off than if he were doing nothing, not only financially, but physically, morally, and psychologically—for nothing demoralizes a man sooner than unemployment."

[2] There has been lately issued from the Garden City of Letchworth, England, by the representatives of three hundred householders, a report on the question of private and allotment gardens, which is of interest, even

When the private back-garden is reduced as suggested, it is especially desirable to establish not only a front building-line, but also a back one. Certainly this will be true wherever shallow lots have not allotment gardens, or other reserved public space, behind them. The front building-line is useful not only in keeping people directly off the street, though it be ever so quiet; but in increasing the light and air beyond that which the narrow street alone could give, and in providing for an economical future widening of the street should that be necessary. That is to say, we ought now to be free, with minimum traffic needs, because establishing a building-line, to gain front-gardens on space that might otherwise have had to be thrown into dusty street—at Homewood, Long Island, for instance, the City and Suburban Homes Company of New York requires a setback for its houses of fifteen feet.[1]

This matter of determining the location of the

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though the figures may apply only locally: For the private garden of the wage earner, this report declares, "a fixed amount of four hundred [square] yards is too large; it is best to vary it from two hundred yards to six hundred. The best way is to make all gardens about two hundred and fifty yards, and have additional pieces to let to those who want more, or to be used as a drying ground. . . . This is easily done if a path runs along parallel to the houses, between the compulsory area and the optional, but all must be fenced in."

[1] Compare the American method which—either by summary legislation, by the establishment of front, back, and side building-lines, or by other requirements—sets a limit on the proportion of *lot* that may be occupied by the building, with the English method which limits the number of houses that may be erected *per acre*.

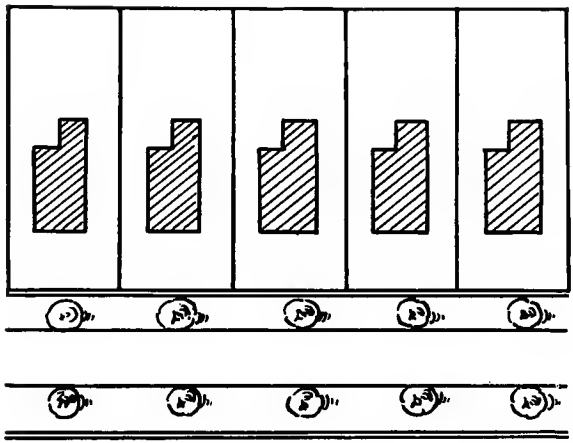


FIGURE I

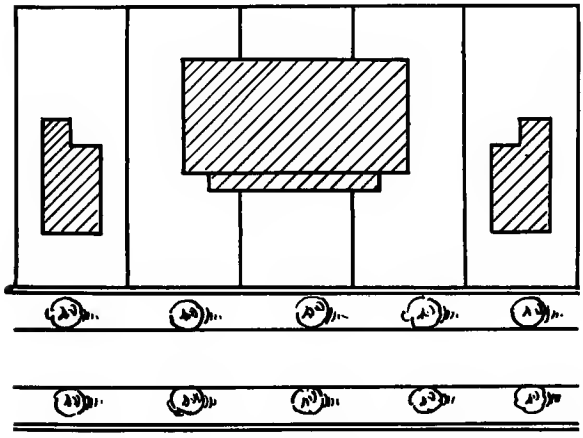


FIGURE II

THE PLACING OF THE HOUSE ON THE LOT.

house on the lot presents several interesting features. There has been a great deal of standardization in it, because—perhaps not unnaturally—we have taken the lot rather than the block as our unit in the placing of the house. In the comprehensive planning of a considerable area, however, there is no reason why the block should not be treated as the unit. Grosvenor Atterbury who, as architect of Forest Hills Gardens, has given the subject much thought, well described the situation in an article in *Scribner's Magazine*.[1] He said of the usual arrangement:

> The restrictions on each lot are of course alike, and it is not unjust to American buyers of small lots to assume that each lot will be used to the limit of its restrictions. The first purchaser to build places his house as near the street as the restrictions permit, for fear his neighbours may cut off some of the asphalt view from his parlour windows. Being the first in the field—a literal simile often enough—and deciding to put his kitchen on the north side and as near his neighbour's lot-line as possible, every succeeding builder must follow suit. The result—a familiar sight in countless miles of our suburban streets—is a rather neat example of "liberty, equality, and fraternity" as "she" is practised—an arrangement assuring an absolutely equal and neighbourly sharing of all the disadvantages of individual planning, whereby each owner is secure against any suspicion that his neighbour has gotten the best of him, for the simple reason that they have all made equally poor use of their lots.

But if the block be treated as the unit, it can be assumed that not every owner will wish to live as

[1] July, 1912.

close as possible to the sidewalk; that some would like a garden space at the front, some at the side, and only some at the back; that many "would enjoy looking past, instead of into, their neighbour's walls and windows," and would take pleasure—though possibly unconsciously—in an architectural composition which creates a street picture, instead of in absolutely dead monotony. This picture can be created by setting some houses forward on their lots and some back, by making groups and arranging terraces and courts—a device of which the Garden Cities and Suburbs give many interesting examples.

From the standpoint of design, such action may do a great deal for a suburban street—even in relatively high-class sections—where the street width is often out of proportion to the height of the houses and the long row of these small repeated units is wearisome and even aggravating, because of their inadequacy. In a region of humble homes, where the house-unit is a small, perhaps one-story, detached cottage, it is often impossible for it to be commensurate in scale with the proportions of the street. [Camillo Sitte, in analyzing the beauty of mediæval towns, has called attention to how largely it is due to the way the buildings were grouped in street pictures.]

Even with extreme standardization, something can be done if we have the good sense to modify our restrictions at the corners where minor streets inter-

sect broad main highways. Suppose, at such points, we permit the front building-line to be markedly advanced, while requiring a wide setback throughout the rest of the block. The corner houses will receive sufficient light and air from the wider street, and the valuable frontage of the main street will be made available. While as to appearance, if the architect takes advantage of the opportunity thus afforded, he not only gives to the minor street an interesting accent, but provides a frame to the street picture and creates a sense of enclosure, doing away with the monotony and the tiresomely scattered aspect which is so common on suburban streets.

Returning to the problems which especially concern the small householder, we are confronted by the danger that, as available land area per capita decreases, the cottage will merge into the tenement. In making shallow lots and narrow streets, we do something to put off that evil day, and to offer some physical discouragement to tenement building. Nor is this, happily, quite all that can be done. The grouping of cottages will further ward it off, or we may take a hint from college quadrangles and cathedral closes. In this case some of the reserved land in the rear may be absorbed and the houses built in continuous rows around three sides of a small court or yard, of which the fourth side is the street. By this means a small front-garden space will serve

all the families in all the houses that look out upon it; it will give at least a semi-privacy, a place for visiting and a pleasant outlook, and may be made to add to the picturesqueness of the street.

When the tenement can be no longer prevented, the city must step in and say that it can be erected on no truly minor street—as no high building should be[1]; that it shall not exceed in height the width of the widest street on which it stands; that it shall cover no more than seventy-five per cent. of a corner lot and sixty per cent. of an interior lot[2]—every room opening upon the street, or upon a yard of depth sufficient to insure adequate ventilation, or upon a court of which the length and especially the minimum width, increasing with the building's height, shall be such as to give good ventilation. There will be other restrictions, of course, but of less direct concern to the present subject. Our best hope must still be that the shallow lot, the lessened cost of developing tracts for humble homes, owing to narrow and inexpensive streets, and the improved transportation facilities, which a well thought out system of main highways can afford, will make tenements unnecessary, save in occasional instances, and therefore unprofitable.

[1] A Baltimore committee has recommended that no tenement be permitted on a street less than forty feet in breadth.

[2] A comparatively good standard which has been reached in some of the recent American housing codes.

WARDING OFF THE TENEMENT

One-family houses built in continuous rows around three sides of a court, or common yard.

THE TENEMENT AT ITS BEST

Ornamental planting in the large courtyard of a German tenement. In some courts a portion is enclosed to serve as a children's playground.

If there must be tenements, we can further ameliorate conditions by supplementing negative restrictions. Taking a hint from the cottage plan for fighting tenements, we can build them also around three sides of a court, then giving to the court the touch of beauty and the simple practical service of a sandpile for the children and of benches for the parents and the old folks.

Where the tenement does not originate through the need of obtaining a high return from the land, because of the capital represented by the land's excessive value or because of the height of the property's carrying charges, it will in most cases owe its existence to the wish, or need, of a great many people to crowd into a small space. The most familiar cause for this is the concentration of factories in sections having but limited residence territory in their neighbourhood.

It follows, therefore, that the removal of factories to outlying regions may be one of the most effective agencies for staving off the tenement. The outlying site which we will select for the industrial district will naturally be level, adjacent to railroads and, if possible, to a navigable waterway. High-class residences, therefore, will not seek it.

From the city planning standpoint, removal is commended also by its withdrawal of objectionable smoke and noise, and by the possibility of increasing

factory efficiency. The latter feature must be developed, for though it is desirable to relieve congested living conditions, the manufacturer may not be expected to move his plant into the suburbs simply because he is sorry for the crowded poor. To make it worth his while, then, to locate in the suburbs, there is offered a double stimulus: the promotion of industry and the lessening of housing congestion.

In order that industrial efficiency may be promoted when factories are located in the outskirts of a town, there must be provided superior transportation facilities by rail and vehicle, and if possible by water,[1] the land must be cut into blocks of conveniently large size for buildings, and the manufacturer must be assured that the efficiency of his labour, its steadiness and contentment, will be increased through a greater healthfulness of environment, an improved home influence and the enlarged opportunities for outdoor exercise. Happily, these are matters which city planning can largely control. It can, also, count on the precious aid which will be lent to it by longer hours of brighter daylight, and by the lower ground values and ground rents that permit a horizontal extension of plants. At Letchworth Garden City, England, for example, manufacturers have been able to secure on ninety-nine-year lease, at $75 annually,

[1] For desirable street provision see page 160.

an amount of land that in some manufacturing districts of London would have cost, it is said, $15,000 a year. The urban advantages of proximity to market —an advantage which the advent of the motor truck has somewhat lessened—and to a large supply of labour are thus partially offset, while good planning can, as suggested, still further weaken them. In German cities the elaborate development of distinct factory districts is recognized as a very important part of city planning.

In securing a removal of factories to the outskirts, town planning has the opportunity—as already indicated—of putting them where they will do least injury to the community. That is to say, in the arbitrary creation of a factory district, there must be consideration not only of transportation opportunities—a feature which it is comparatively easy to control—and of general healthfulness of locality; but also of the proposed position in its relation to the existing city. The factories should not be put where the prevailing wind will carry their smoke into the city, where their location checks the natural growth of high-class residence districts, or where the heavy teaming incident to their operation is compelled to make use of expensively developed avenues. Finally, in large towns more than one industrial district should be planned, lest—even with suburban location—residential congestion result. The subject is touched

upon without elaboration, as a related, though not an essential, part of this book's discussion.

It is significant, then, in considering the opportunity for improved housing facilities which the removal of factories affords, that the present city planning movement has been preceded, as well as accompanied, by not a little thoughtful platting of limited areas, done in a comprehensive way by the manufacturers themselves, when they have established their plants on the outskirts of cities. Of their own initiative, they have sought by such platting to gain for their employees, as well as for themselves, the advantages which town planning ought to give. For example, Leclaire, Ill., the town built by the N. O. Nelson Manufacturing Co., is characterized by "winding cinder roads, bordered with spreading shade trees." In Echota, the town of the Niagara Development Co. at Niagara Falls, the modest homes are set twenty feet back from the street-line, there are shade trees on both sides of the streets, and the roadways are macadamized to a width of only twenty-five feet. The Cornell Co., at Coldspring, N. Y., has platted land into lots about fifty by eighty feet, has put trees between the houses as well as along the street, and hedges make the front boundaries of the gardens. At Gwinn, built for a mining town of the Cleveland-Cliffs Iron Co., in Michigan, main streets are eighty feet wide, containing two sixteen-foot

Attractive and Inexpensive Streets of the Krupp Villages, near Essen, Germany

roadways divided by a strip of planting. The three main streets are radials from the railroad station; minor streets are narrower, and each cottage has its garden. In the tract which the Plymouth Cordage Co. has developed, at Plymouth, Mass., the park and athletic grounds adjoin the factory—and so one might go on, mentioning Wilmerding, Hopedale, and scores of other places, and securing useful hints or interesting examples from each.

In Europe, the most famous developments of this kind are the Krupp villages, near Essen, Germany. Their suggestions are often of great value. In the Chocolat Menier village, near Paris, house walls are built flush with the street; but each pair of houses is so placed as to be opposite gardens. The gardens are long narrow strips, averaging three hundred square meters, and are furnished with twelve fruit trees and are well cultivated. In England, Port Sunlight and Bournville, built respectively for the employees of the Lever soap and Cadbury chocolate works, may be said to have blazed the way for the Garden Cities and Garden Suburbs.

But examples drawn from such developments must be examined closely before adoption, for very often—notably at Port Sunlight—altruism has gone farther than strict business acumen would justify. Many times, too, the manufacturer, gaining through indirect benefits results that are denied to the simple land-

owner, who does not employ the labour thereby rendered more efficient, can afford to plan more generously and to provide more amenities than could he. Often, also, the employing company retains ownership of the houses, while the town planner should seek to encourage individual home ownership. His, in fact, is the difficult task of planning a tract development that will pay a fair return on the capital, while yet keeping the rental and sale value of the dwellings within the workman's reach.

Yet all such experiments have this significance: They show the existence of a demand, both on the part of capital and labour, for the planning of attractive residence districts for factory employees on the outskirts of cities. No doubt, also, many a useful hint may be drawn from them as to practical planning measures. One is reminded, at least, of Ruskin's comment:

> Neither sound art, policy, nor religion can exist in England until—neglecting, if that must be, your own pleasure gardens and pleasure chambers—you resolve that the streets which are the habitation of the poor, and the fields which are the playgrounds of their children, shall be again restored to the rule of the spirits, whosoever they are in earth and heaven, that ordain, and reward with constant and conscious felicity, all that is decent and orderly, beautiful and pure.

From America—from the president of the Board of Trade of a little manufacturing city of the Middle

ATTRACTIVE AND INEXPENSIVE STREETS OF THE KRUPP VILLAGES, NEAR ESSEN, GERMANY

West[1]—there comes a practical echo of this poetic appeal:

A city [he says in his annual report to the business men] has no moral right to encourage additional growth until it can conscientiously assume responsibility for the welfare of the people who look to the factory for a livelihood and to the community for conditions that promote health and happiness. . . . Sound preparation for future growth and development is more important than the rapid acquisition of new population that cannot be properly absorbed.

[1] Eben Rodgers, Alton, Ill., 1914.

CHAPTER XIII

PUBLIC RESERVATIONS OTHER THAN THE STREETS

THE statement was made, in discussing the platting of minor streets for humble homes, that for such a section a system is desirable which will give large public holdings and small private lots, within certain limitations. It was added that the large public holdings need not be wholly in the form of streets. If we limit our definition of streets to traffic ways—the original and proper meaning of the term—we shall find that other public reservations include not only playgrounds, small and various open spaces, large parks, and the grounds for public buildings; but also parkways, and certain thoroughfares of exceptional width. These latter will be those to which extra width is given, not to meet the demands of ordinary street traffic, but that they may serve as strips of park-like value.

Perhaps a word of explanation is needed for having withheld consideration of such streets until the present chapter—striking features as they are of the city plan. It is found in the fact that a chief value of

these thoroughfares is their hygienic and social contribution to the city's life. They have the advantage, indeed, over any equivalent area of park, that their aesthetic attraction may be at the very doors of the largest possible number of people; that for the well-to-do they may bring the charm of the park into the line of daily travel, and that for the poor, who have neither money nor time to visit a distant park, they make several of its benefits immediately available. Thus in significance such thoroughfares are more nearly akin to the park than to the street.[1]

The mere enumeration of the various kinds of public reservations which may be found in cities, aside from streets in a restricted sense, is enough to reveal how large and complex a problem is injected into town platting by their means. That the width and

[1] Without referring here to such well-known examples as the Champs-Élysées of Paris and the Ring Strasse of Vienna, it is interesting to quote expert testimony regarding the social ministry of a street of this type that is unknown to fame. The city engineer of Liverpool, J. A. Brodie, referring to a street in Liverpool, which was given a width some years ago of 126 feet and which is about half a mile long, says it "is used to an enormous extent as a public walk at all times of the day, but especially in the evenings and on Sundays and holidays, whilst the central walk, which is lined with trees on each side and provided with seats, *is more used in proportion to its area by the children of the neighbourhood than the public parks*, to which it forms the main approach—though the latter have greater attractions in the matter of ornamental ponds with wild fowl, pleasure gardens with flowers and beautiful trees." He adds: "After careful observation, I know of no expenditure of public money which has on the whole given greater pleasure and has been more profitably enjoyed"; and says: Its use for these social and recreative purposes "in no way interferes with or reduces its effectiveness as a section of a main arterial road leading radially from the centre to the outlying districts beyond."

arrangement of streets must be frequently influenced by their presence is evident, and that these reservations cannot be ideally located after street locations are fixed—not, at least, without much wasteful undoing—is obvious on reflection. It is, then, because the street, the playground, the park of whatever kind, and preferably also the public-building site, are factors to be coincidently considered in all town planning which is done in a large way, that some measure of consideration must be given to them in a volume ostensibly devoted to streets alone.

Nelson P. Lewis goes so far as to say[1]: "Instead of adapting the park system to the street system, the former should to a considerable extent control the latter. In other words, one of the first subjects which should receive serious consideration in the preliminary study of a city plan is that of available park sites." Probably, however, without giving precedence to park system or to street system, it were better to say that the two are interdependent. They are best planned together, as products of a study of the town, or town extension, site.

In making this study, one is likely to find, for example, "waste" areas that are "the despair of the engineer and the sorrow of the real estate dealer." The early reservation of such areas for park purposes

[1] Paper read at the second National Conference on City Planning, Rochester, N. Y., May, 1910.

A Development That Was Economical as Well as Beautiful

Where a Street Would be Expensive But a Park Would be Cheap

is almost sure to have the negative value of saving an enormous amount of money in the later development of the city. Even if they have been considerably encroached upon, economy may still demand the giving up of ill-advised and costly attempts to make them into conventional streets and building sites. Imagine these areas as precipitous hillsides, deep ravines, the banks of a little winding river or the shore of a shallow lake, and experience shows that the choice is usually between a park or a slum, between a section of distinctive beauty and value or a region of degradation.

Fortunately, where topography is irregular, those portions which are least adapted for business or residence are best adapted for parks. They are the features which are naturally picturesque; and because they are not well fitted for building, they can be cheaply had. Thus, too, there is the probability that if they be not taken for parks they will be dotted with shacks and rubbish heaps, bearing the marks of the scorn that is felt for them. It has been well said[1]:

> The little rivers will become pestilence bearers and open sewers. The fragments of ponds remaining unfilled will be nuisances to all their surrounding neighbourhoods. The steep and rocky hillsides will present everlasting problems of street construction. The drainage of the lowlands will be ever troublesome. A logical, instead of whimsical or accidental,

[1] Henry A. Barker in the special City Planning number of *Charities and The Commons*, Feb. 1, 1908.

development would make a city most attractive in those parts where otherwise it would be most shockingly ugly, ragged, and ill-arranged.[1]

It is true, of course, that some cities are built or extended over plains, where one acre is pretty much like any other and all are well adapted for streets and building lots. But even there it is economically desirable that the planning of the park features proceed coincidently with the planning of the streets. In such a region parks and playgrounds and elaborately parked streets, to say nothing of public-building sites, are at least as necessary to the community as if the site were not so uniform. As soon as it is platted and transportation lines are contemplated, values jump.

If reservations are not secured at farm value, the community—even though the town plan prescribe the maximum number of houses per acre—has to pay a heavy penalty for delay. And though it be willing to pay high prices, it may not then be able to

[1] An interesting illustration of this point may be found in Kansas City. In the development of the park system, nearly a million dollars was expended in securing Penn Valley Park and removing the several hundred little structures which the tract contained. When the results of the work were apparent, a neighbourhood movement was voluntarily started in the south-western part of the city to safeguard a similarly rugged piece of land. As a result of the movement, most of the ground was given outright. Roanoke Park was then built, and a broken tract in the midst of one of the most prominent residence sections of the city—a region in danger of occupation by cheap houses and small industries—was transformed into a park that has not merely enhanced the attractiveness of the residence section around it, but that promises to give permanence to it.

locate its parks, playgrounds, allotments, and other reservations in an ideal way. A park may have to be placed where it has no adequate approach, so that streets that lead to it have to be widened and whole neighbourhoods changed; a site which has been cut into lots and partially built upon may have to be condemned for a playground; or a schoolhouse put where no sufficient schoolyard can be added. It is for these reasons that the "pay-as-you-go" policy, which some cities of the West especially have adhered to so proudly, in the refusal to issue bonds for permanent purchases, may really prove to be, however creditable the motive, a dog-in-the-manger policy. Posterity might often be glad to pay today's prices for the land that it will need, and which then perhaps it cannot get at any price.

Further, it is because streets and other reservations are not independent of one another, but have reciprocal relations, that they must be planned together. The park system is a portion of the framework of the city as truly as is the street system; streets bound, determining shape and size, small open spaces; and, conversely, the location of parks may be a determining factor in considering the width and direction of streets. The size of houselots may depend on the proximity of public reservations; parks, if bordered by curving streets, would be often more attractive than if squared off by straight ones; hillside streets

may widen, happily, into outlook points—treated formally or informally. Boulevards and parkways have a traffic value; while the small gores and other left-over spaces of an irregular street system have park significance. In no town planning scheme can the streets and other reservations be separately considered with the best effect.

A question, which will very naturally at once suggest itself, is this: What proportion of the total area should be put into parks, playgrounds, and public reservations other than the streets? Statisticians have tried to answer, but with as little success as if one asked how many trees should be planted on a fifty-acre tract subdivided into blocks. So much depends on the kind of trees available, the use that the land is to be put to, and other considerations. But F. L. Olmsted and Arnold W. Brunner, collaborating in a city study,[1] quoted a widely accepted ideal when they said that every family should be "within easy walking distance of the park which is to supply its needs." In quoting this, and explaining that easy walking distance meant a quarter-mile limit, they calculated that such provision "would involve setting apart from five to ten per cent. of the total city area." They added the comment: "From twenty-five to forty or fifty per cent. is set apart for streets, without hesitation." And so good an authority on real estate

[1] *City Plan for Rochester.*

as William E. Harmon, of New York, has written, in referring to a bill requiring that in the State of Washington small parks and playgrounds should be included in all future land subdivisions—a very significant bill, by the way—that, while it is "highly important, from the point of view of true economics, that no undue burden be placed upon practical work in the field of realty development, or home building, on a large scale, for in the end this burden must be borne by the buyer, yet, if the areas of land segregated are properly distributed, so that the adjacent lots have either a front or rear exposure upon the open space, the added value to such lots will compensate for the land given up to public use."[1] Again, he says:[2]

> Could we have seen ahead, as we can now look back, we would immediately have begun the segregation of lands for park purposes in all our subdivisions, and would not only have served the community better, but would have received a return in dollars and cents sufficient to amply repay for every foot of ground so utilized.

The effect of park proximity upon real estate values has been studied in various communities by various authorities.[3] It hardly is pertinent to this discussion beyond the point of showing that in this respect the

[1] See *The Survey*, Feb. 26, 1910, for demonstration of this.

[2] In paper read at the convention of the American Civic Association, Nov., 1909.

[3] A convenient reference is to an investigation made by an officially appointed committee of citizens of Madison, Wis. The Report, dated March 11, 1909, has been published in pamphlet form by directors of the Madison Park and Pleasure Drive Association.

town planner can be generous without extravagance, especially if the planning of the streets and these other reservations is done simultaneously. Nor need there be repeated here the familiar arguments in favour of playgrounds, athletic fields, and parks of all kinds. We may assume that they are good things for a community to have[1]—so good that, in spite of their cost, they increase, rather than otherwise, the salability of house-lots, provided they are intelligently located and developed.

We have also to realize that recreation, meaning re-creation, is a term of indefinite breadth; and that in a community made up of many different kinds of people there will be need of providing many different forms of it. Even in the platting of a subdivision, if it be of considerable extent we should not confine ourselves to a single type of recreative provision. Though we contemplate the housing of only one class of people on the estate, they will be of varying ages and of varying social needs and capacities.

[1] "I have spoken of the utilization of public reservations, as if they were to be expected to yield only health and enjoyment and improved powers of perception; but I should deal with the subject very imperfectly if I did not point out that the right utilization of public reservations is a strong agency for promoting public morality and a high standard of family life. . . . The appropriate pleasures of forest reservations or country parks are all cheering, refining, and cleansing; they are soothing and uplifting; they separate city men and women from the squalor, tumult, and transitoriness of the human ant-hill, and bring them face to face with things calm, lovely, grand, and enduring."—Charles W. Eliot, *President Emeritus, Harvard University.*

But the matter which especially concerns the present inquiry is the location of "recreative" facilities as respects the streets and consequently as respects the homes.

We may take first the small open space. This is of many varieties and serves divers ends. Historically, it traces back, probably, to the typical courts of the "near East"—to the garden courts of Greece and the temple courts of Egypt. In cities, it most commonly appeared at first as a market square, a space chiselled out of the intricate network of narrow streets and made big enough to hold many booths. When the market was not in session, it still proved its community usefulness. New cities were built, and old cities rebuilt, under modern conditions, but the open space was retained irrespective of market use. It was now made very open and very spacious; it gained an air of magnificence that old squares did not have, it conveniently sorted traffic—when the volume was not too heavy, and it afforded an opportunity to study the architecture of abutting buildings. But it was discovered, after a while, that somehow the charm and picturesqueness of the old square had not clung to the new. Then we found that the secret of the former's peculiar attraction was the sense it gave of enclosure. The mediæval square was nearly all wall, the streets stealing into it around a corner. It lay at the side of the main street, rather than across

it;[1] and so at times had a quiet, semi-private air. The more modern square was nearly all street, and was designed to be busy. In the old way of planning, one stumbled upon the open space as a surprise. In the later way, its presence was known afar off; for a great distance it was the dominating feature of the converging streets. Thus is the open space one of the most conspicuous of the rocks upon which have split, in irreconcilable difference, the two schools of town planning—the formal, as represented especially by the French; and the romantic, as represented especially by the Germans.

But there is room, and need, for both kinds of open spaces. In good city planning of today we may expect to find them both. Whether they are paved plazas in the business district or gardens in the residence sections, makes little difference here, since only their location and outline plan concerns this discussion.

As to the former, there may be a word of caution in regard to the possibility of a too free use of open spaces in the business district. Not only would they occupy in such location exceedingly valuable building sites, but as a rendezvous for loafers they are likely to lose much of the charm they naturally have. Moreover, business abhors a vacuum. As offering

[1] Note, for example, the open spaces of old Brussels, as shown in the frontispiece.

sites for high buildings, opportunities for parking automobiles, space for the transfer of large numbers of street car passengers, convenient places for public meetings, and as introducing variety and interest to the business district and a setting for important structures, they do have distinct merits. These advantages can be as effectively provided if the open spaces be just off, instead of directly on, the most important business streets. A "civic centre" plaza, for example, might easily be so located as to be an impediment to the commercial efficiency of the modern town where business is at such high pressure. Probably the ideal location is between the radial lines of development, near enough to the centre to be in proximity to business, but not so located as to prove a check to it.

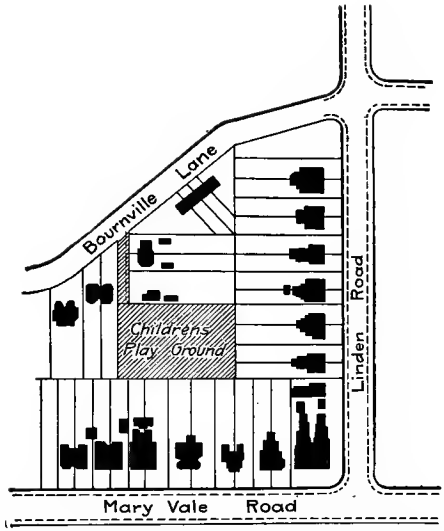
As to the outline of these open spaces, Mr. Mawson enunciates the following interesting general rule in his *Civic Art:* "Under ordinary circumstances the length of a rectangular open space should be double its width, and the longer diameter of an oval one twice the length of the shorter." But this, as he hastens to say, is a broad generalization, to be treated more as a groundwork, for adaptation, than as a rule to be pedantically followed.

Aside from the "squares"—if we may use the familiar generic name, though it has little geometrical accuracy—there are the small left-over spaces of the

irregular street system, of much potentiality for the beauty or the ugliness they may add to the public way. Usually of no value for building purposes, their reservation happily involves no sacrifice commensurate with the possibilities they bring. Then there is the small space created for the deliberate purpose of enhancing the value of abutting lots. It may be the fenced garden which London makes familiar; it may be an outlook point to widen vistas or to increase the number of the lots from which a view may be had.[1]

There are, also, to be sure, abundant examples of a city block, taken out of the market and stricken from the tax lists in order that it may form a green oasis in the midst of city streets; and there is many an example of good building-land having precious street frontage which has been transformed into a playground. But it may be doubted whether such developments are more than a confession of inadequate early planning—costly efforts to provide what a wiser street platting could have given more efficiently, more naturally, and more cheaply. Sometimes, as has been indicated, the square will pay for itself in the value it adds to abutting property; but even so there is a sense of waste in that its net addition to value is negligible in amount. As to the playground, it is almost always better without more

[1] See page 226.



LOCATING THE PLAYGROUND INSIDE THE BLOCK
A section of the street platting at Bournville, Eng. Note that the special entrance to the playground is from Bournville Lane.

A HILLSIDE STREET WIDENED INTO AN OUTLOOK POINT
A view at Aix-la-Chappelle.

street frontage than will suffice for an adequate entrance.

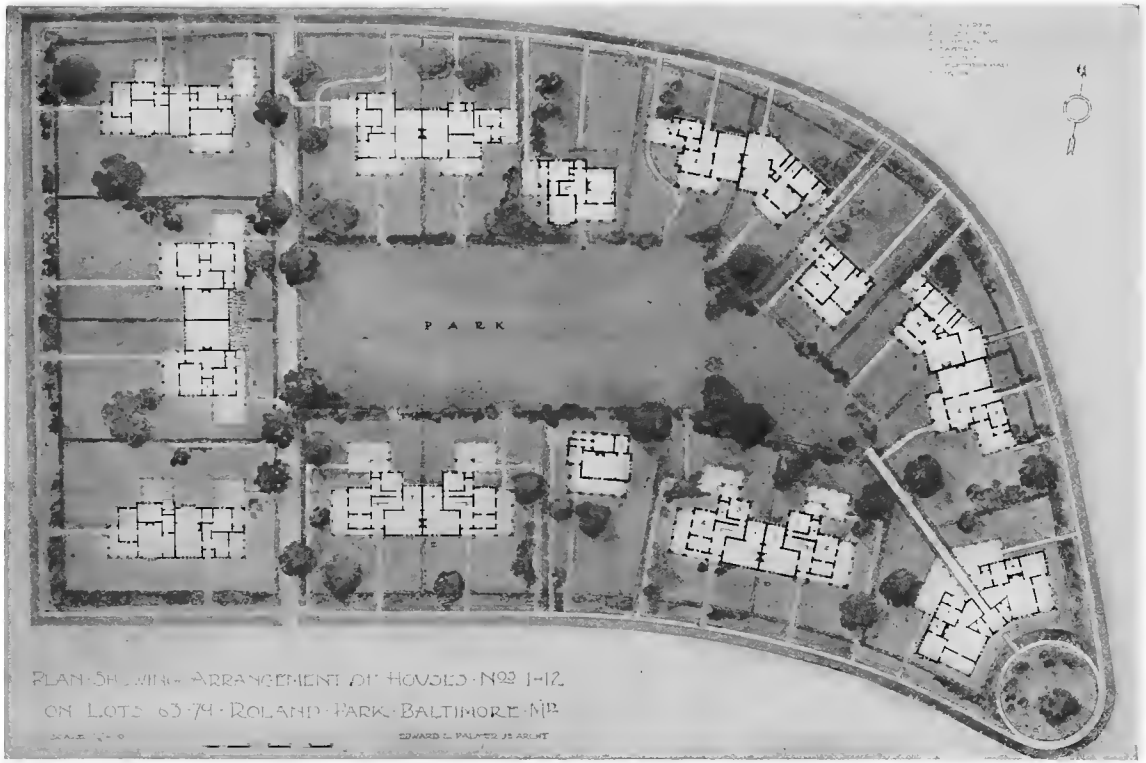
The location of playgrounds inside the block was suggested in the preceding chapter. By a reduction in the length of gardens, that is not sufficient to reduce their practical usefulness, it often is possible to save out enough land to make a serviceable neighbourhood park or playground. That is to say, if there be added into one, central, common mass the unimportant subtractions made from all the backyards, there may be gained a middle area of sufficient extent to be, in a region where it is necessary for the community to furnish the recreative facilities, of real value to the people who live on the lots which enclose it.

Some other aspects of such action further commend it. In such a section, an area of this kind is almost ideally located for a playground for small children. Not only are the children kept off the street, but in their play they are beyond the gaze of passing strangers and idlers. They are perfectly safe, and are within constant sight and call of the mothers who, in the humble homes, are more likely during the day to be at the back of the house than in the front rooms. The space is not large enough to be used as an athletic field by men and older boys, and hence is not likely to become a nuisance. And when the little children are through with it, how good a place it may offer

through the long summer evenings for tired workers to sit out-of-doors in neighbourly intercourse![1]

The placing of the playground here makes possible, also, the platting of longer blocks without the lengthening of house-lots—as we saw was the case in thus locating allotment gardens. The advantage of the longer block is that in a large tract it means the building of fewer streets—*i.e.*, a saving in the costs of development and of public maintenance, where the traffic makes no demand for more generous provision

[1] In this connection, it may be well to quote the following from the Report of the New Haven Civic Improvement Commission (Cass Gilbert and F. L. Olmsted, 1910): "Consider for a moment the waste of land in deep lots for city dwellings, taking a comparatively open standard of urban development such as has prevailed in New Haven in the past. A given tract of land half a mile square, provided with streets occupying a third of the total area, will subdivide in 619 lots of the [New Haven] standard size of 50 x 150 feet. In such a district, when the lots are all occupied, there will be no playgrounds for the children except the streets and the backyards; there will be no parks or squares or other open ground whatever. If, on the same tract with the same area in streets, the same number of houses should be erected on lots of 50 x 125 feet in size, there would be left over 17.7 acres for purposes of public recreation. This would be more than enough, if well arranged, to assure for all time that every boy and young man, who will ever live in that district, shall have opportunity and inducement near his own home to play baseball and all the other vigorous outdoor games that make for a sound body, a clean mind and a healthy nervous system; to provide space that could be set apart for a swimming pool to be put in operation whenever the neighbourhood or the city might feel disposed to pay for constructing it and supplying the water; to provide that the little children could have a shallow pool of their own, with a clean sandy beach and bottom where they could wade and play with toy boats and make sand pies and forts as well as if they were to be taken to the ocean beach itself; and to assure that for all time the dwellers in that district would have only to walk two or three blocks or so to find a pleasant open spot with shady paths and benches for summer use. No sane man can doubt the advantage of such a method of subdivision."



An Inside Park in High-class Residence Property

and where any such saving means much to the householders. At the same time, the arrangement retains the possibility of the tract's subdivision into smaller blocks at a later period, should conditions justify such action. Finally, back-land costs practically nothing, while land with street frontage would have a value that very probably would make sufficient playgrounds in such regions prohibitively expensive.

Of course there will not be need of a playground inside of every block built up with humble homes. Some may have allotment gardens, some may have small parks, or places for the entertainment of adults —as bowling greens, quoit grounds, etc. It will be necessary, consequently, to provide a footpath entrance, so that persons who do not live in the block may be able to reach the pleasure ground. But this need take only five feet of frontage, and perhaps one of the house-lots can be sold subject to the granting of such a concession. To the examples of this kind of platting offered in England, to which reference has been made, there may be added—as typifying much recent subdivision work—that of Forest Hills Gardens in the United States.

Athletic grounds for young men are a real need in all industrial communities. They should be accessible from the shop and from the home, and ought to be treated as an essential feature in the planning of industrial sections on the outskirts of cities. When

practicable, it is better to give them factory proximity than home surroundings, if there must be choice.

As to public parks and gardens, we must recognize the truth that no public provision takes the place of the home-garden. But the large parks can give some things which not half a dozen home-gardens of the city are able to give, such as long, soothing views; the tranquillity of meadows; the peace of woods—nerve antidotes of tremendous value in the stress and strain of urban life. Or they may preserve bits of scenery, which may be rightfully considered the proper heritage of all who choose a given city as a residence. Even at best, there are many homes whose occupants would have no gardens of any kind if there were no parks. Then, again, there may be in them a wealth of bloom, or an exotic collection of such rarity, value, and interest as few private gardens could afford. If we expect operatives who have tedious work for long hours to be satisfied to live out of the congested portion of the city, we must grant them compensation for the loss of the attractions of the crowded street by providing the recreation, amusement, and education that parks can give. The dedication of lands for park purposes in any residence section of the city almost never fails to make nearby lands more marketable.[1]

[1] It may be observed that if a community is sufficiently supplied with parks for other purposes, a pleasant outlook can sometimes be reserved for

To the advantages of the broadly parked street, for the poor as well as for the rich, there was reference at the beginning of the chapter. Another convenient illustration is to be found at Frankfort-on-Main. In the German manner, that city proposed to erect some new tenements. It was decided to place them near the Guenthersburg Allée, which with its centre parking is 240 feet wide, in order that it might be easy for the occupants of the houses to reach "places where they could enjoy abundant light and fresh air, and either exercise or rest."

There are various ways of developing these very wide streets. The well known Unter den Linden, in Berlin, has a central promenade forty-two feet wide, tree-bordered on either side. The Stübel Allée, Dresden, has a garden through the centre, and on either side of that a promenade with a double row of trees. Outside each promenade is the car-track, the traffic road, and then the sidewalk. This Allée's total width is 138½ feet. Other streets, as Rhein Strasse and Wilhelm Strasse in Wiesbaden, for example, have a bridle path as well as a broad promenade for pedestrians. On the Champs-Elysées, Paris, where the tide of travel is so mighty that pedestrians would

it without the requirement of actual public ownership. For example, a certain shore of the Aussen Alster at Hamburg was originally wooded. The city required the owners to cut down the trees, so that the view might be enjoyed from the Harvestehuder Weg. The cleared land was thereupon laid out in gardens, a law prohibiting the erection of houses that would spoil the view from the street.

find it difficult to reach the centre of the thoroughfare, the promenades—here very broad gravelled ways which are planted with trees—are at the sides.

It is clear that such streets as these should lead to something. They should have an objective worthy of their splendour, termini in keeping with their character, and such as will furnish or attract the kind of travel that can appreciate them. In the remodelling of Continental cities, however, the demolition of encircling walls has offered so good an opportunity for building girdle streets, to which great width can be given at little cost, that the benefits of such streets, plus the chance to get them cheaply, have been thought to justify their creation without adequate termini. But as a city planning theory, for use in the building of new towns or the platting of town extensions, a construction of radial, rather than of circumferential, parks and parkways is, generally speaking, to be preferred. H. V. Lanchester, of London, has put the argument for the former briefly and well in saying:

> Where special circumstances have not determined the plan, it is clear that a series of parks placed radially is the more reasonable method. For one thing, they do not define the city area and exercise a restrictive influence on the space within them. For another, they lead from the more densely populated areas out into the open country, thus encouraging a general exodus towards it. . . . This is a much more economical method than the ringstrasse, as the land would extend into the open unimproved country where land could be obtained at agricultural values.

Possibilities of a City Promenade as Illustrated by the New Walk, Leicester, England

But in the case of park areas, a radial scheme, if carrying the park well into town, would be considerably more costly than the reservation of a tract on the outskirts. Hence the latter location is usual for large parks. Yet a combination still is possible, for if it be granted that radial parkways ought to have worthy objective, what goal could be more appropriate than a park? When parklike streets join park to park, or park to business district, they go far to coalesce park units into a park system, and so to knit the city's pleasure grounds and beauty spots, as they should be knitted, into the street plan —a lovely figure woven into the streets as warp and woof to form the perfect pattern of the town.

There is another group of parked streets, to which reference must be made. Less ample in scale and less elaborately developed than the parkways, they yet serve a more aesthetic end than do the main traffic thoroughfares which are, or are likely to become, routes for rapid transit. These are streets which carry a double roadway divided by comparatively narrow centre parking, besides carrying grass margins between the sidewalks and the curb. In Germany such streets, though costly, are sometimes put through the poorer quarters as well as through the richer. As a result, tall tenements line them where the people are not well-to-do. A more appropriate, and from the civic standpoint a healthier, building

along their margins is that of the costly individual homes with which in America they are associated.

The development given to the centre parking is varied. The looped vines and gay flowerbeds of Germany may be set over against the cement bordered grass plats which nearer home are sometimes suggestive of monster graves through the centre of the street. But if the street rises, and the *tapis vert* is not too often and conspicuously broken by crossings, this arrangement has much to commend it. More often, low growing shrubs and bushes—as roses—are planted in the turf. If these are arranged in appropriately placed groups, rather than scattered promiscuously, they may do much to make a lovely street. Finally, trees are used in various ways—low conifers, grouped to give the effect of shrub planting that will be green the year round; flowering trees, used with shrubs or in an orderly row; old trees, kept as single specimens for their beauty, and occasionally conventional shade trees.

On such streets each roadway can be quite narrow —say, eighteen feet; for on each the travel is in a single direction, and there is only the need that the moving vehicle shall be able to pass one waiting at the curb. The centre parking should not be less wide than is a roadway. Allowing for walks and side parking, eighty feet, then, between lot frontages, may be considered close to the minimum for these

CENTER PARKING PLANTED WITH FLOWERING TREES
Oxford Street in Rochester, N. Y., with magnolias in bloom.

narrower parked streets that are not main traffic highways.

A third group of parklike streets is represented by those which, without commercial purpose, skirt a waterfront. Now and then passenger steamers may touch at the shore; but the essential purpose of the street is to furnish an attractive promenade rather than to serve the needs of navigation. The Thames Embankment, London, and the Rhein Anlagen of Coblentz, Bonn, etc., are types of this kind of street. No general rule can be laid down for their width, though it is desirable that there be space for seats. Their significance as regards this volume is, (1), the example which they offer of that use of natural opportunities in the street planning which, at the minimum of cost, gives the maximum of service; (2), their exemplification of the park-usefulness of certain streets.

As aesthetic considerations are of special value on streets of parklike character, their purpose being rather to add to the beauty and stateliness of the town than to accommodate traffic—which, indeed, is sometimes restricted upon them—it may be well to emphasize again the need of proportioning length to breadth, and of avoiding loss of perspective and monotony of aspect by arranging breaks or accents to rest the eye. It was suggested in the discussion of main traffic streets that these might well come at intervals of approximately three-quarters of a mile. Sometimes

half a mile will be better, the conspicuousness of the break, the width of the street, and its gradient being of course factors of much influence.[1]

A slight change of direction is often the most available means of securing the break in parkways and boulevards, where the shortening of distance and directness of connection are not primary needs and where it may not be easy to secure an architectural or sculptural accent. For such change the curve is usually to be preferred, and it ought to be a curve of long radius, the point of transition from straight line to curved having definite mark. Another device is the broadening into an open space, as has been suggested. Where curves are used a serpentine line is to be avoided, if stateliness of effect is desired. But sometimes the purpose is picturesqueness rather than stateliness, and in such cases a parkway can be ser-

[1] Thomas H. Mawson has collected in his *Civic Art* some interesting illustrations of the provision of such breaks. He says: "In the design for Lord Street, Southport, the Campanile, and in Dunfermline, the four towers flanking either side of the road through Pittencrieff Park, were intended to supply the necessary break, whilst on the grand boulevard, which was proposed for the connection of Dunfermline with the new naval base at Rosyth Bay, the end was to be marked by pylon-like towers. Owing to its somewhat steep gradient, which would foreshorten the perspective, a greater proportion of length to width than is usual could here be allowed. In laying out new cities, as well as in remodelling old ones, cases must often occur where it is advisable to construct boulevards for a distance considerably in excess of due proportions, and where none of the aids to proportion proposed at Southport or Dunfermline are possible; innumerable devices have been resorted to to meet this difficulty. The first and most usual is the *ronda* or circus, of which the Place de l'Etoile, Place de la Nation, and Place d'Italie in Paris are notable examples."

pentine. The tree planting then should be informal, for obviously a regular spacing of the trees on a serpentine road would defeat its object. Nor should serpentine roads be broad ones.[1]

We come now to sites for public buildings. The reservation of these at the time when streets are platted and parks located, is a more forehanded measure than American towns seem generally ready for—though it is an accepted part of some European city planning. No doubt the average "practical" person is inclined to dismiss such a project as too great a venture into the speculative field to warrant municipal action. But really it is pretty safe speculation. Under a town planning scheme, a tract of agricultural land is laid out into streets, with certain areas reserved for parks and playgrounds of one kind or another. The population that is to occupy the tract is foreseen—its limits fairly well set by the character of the platting, and perhaps indeed set absolutely by a law limiting the number of houses per acre. That in a growing city the population will by degrees come up to, or come very close to, the established limit, there is no reason to doubt. The final number of residents may be assumed, then, as a known quantity in determining what provision to make.

[1] Further details with reference to the construction and control of parkways, and of other broadly parked streets, may be found in the report of Olmsted Brothers on *A Proposed Parkway System for Essex County, New Jersey*, (1915), and in Chapter XVI of the author's *Modern Civic Art*.

The school authorities know just how many children must be provided for in any given population; exactly the size of the building that must be erected to accommodate those children properly, and precisely the schoolyard area which a building of that sort ought to have. In other words, given the platting of the tract, the school area that should be provided can be definitely foreseen; and this being so, why is it not the part of wisdom to reserve that area in the place most desirable for such use before values have advanced? As with regard to the schools, so with reference to fire-houses, police stations, branch libraries, etc.

If it be objected that a long time may elapse before the influx of population will make public structures necessary, the reply is that no buildings need be erected until they are required. The only investment is in the land, and by securing that at the time when streets are platted the investment is made on a safe basis and does not represent a large sum. Further, experience suggests that the ultimate saving in not having to buy lots at high values after the population has come, and then having to enlarge the lots at still higher prices when the population has grown, will much more than balance the interest on the investment—even assuming that the land stood idle in the meantime.

The action precisely corresponds to the reservation of lands for parks; it is even more conservative than

building sewers and laying water mains which in size anticipate future demands, for in their case the whole expense must be undertaken at the start. It has the further advantage that it makes possible not only the most efficient setting of the public buildings, but also the most economical, and the most effective architecturally. The school, for instance, may adjoin the playground, and so without detriment have its own yard reduced in size. The library may face a park, that will insure a setting for its building and quiet for its readers. The fire-house may be placed at a forking of streets, to the saving of precious minutes. It may be possible, using a small open space as nucleus, or a grand avenue as their setting, to group the public buildings and so to establish a local civic centre.

There has been a mistaken tendency, which now is passing rapidly, to associate a city's parks and parkways with the more well-to-do portion of the community. If in this discussion it has seemed that the needs of the people of smaller means, and the service which the city planner may render to them and to the sections in which they live, has had especial emphasis, an excuse may be found in the numerical predominance of the wage-earners in modern cities. It has been estimated[1] that, taking one city and town

[1] Prof. Eberstadt, in an address delivered at Wiesbaden to visiting representatives of the National Housing Reform Council of England.

with another, ninety-two per cent. of city residents are represented by workmen and their families and only eight per cent. by the professional and wealthier class. Just where the line is drawn—the point upon which the accuracy and significance of the figures wholly depend—is not stated; but at least they indicate that the town of today, unlike the ancient city, is a community in which a great majority of the people are economically below the standard, once represented in overwhelming numbers by the city's burghers, merchants, and craftsmen. Town planning finds its only motive and justification in the betterment of social conditions—conditions of living and working; and the final test of its merit must be the degree to which it does this for the masses of city dwellers.

CHAPTER XIV

THE DEVELOPMENT OF RESIDENTIAL STREETS

TO secure economy, picturesqueness, healthfulness, and the maximum of convenience in the streets of neighbourhoods that are strictly residential, and to satisfy the widely divergent tastes of those who dwell there—so far as those tastes may be safely humoured—has been the aim of the platting advocated in the preceding discussions. But fully to secure these ends, more is needed than varied regulations as to the use of the lot and laxity of requirement as to the streets' precise location and alignment. There must be considerable freedom also as to the development of the streets. Only in this way can each be fitted adequately to its needs; only thus can standardization be prevented from casting its costly and deadening blight upon them.

A study of development is concerned with the apportionment of the street's width into roadway, planting strip, and sidewalk, and the treatment of each of these sections. Let us consider first the roadway.

It may be remembered that Mr. Unwin was quoted as remarking that many a minor residence street has a smaller amount of wheel traffic than that which is comfortably accommodated on the thirteen- to twenty-foot carriage drives that serve such mansions as Chatsworth and Blenheim. J. Ernest Jarratt, an official of Southport, England, has seconded this judgment when saying, in a study of Southport's possibilities, "Purely residential streets, which can scarcely conceivably become arterial thoroughfares, might partake more of the nature of dignified carriage drives." And an American engineer, John W. Alvord, has reiterated it again, in so serious a document as a report on "The Street Paving Problem of Chicago," which he rendered to the paving committee of the Chicago Commercial Club.[1] He put the suggestion in this way: "In the ideally paved city the unfrequented residence streets," carrying a traffic ranging "from nothing to five tons per day," would have "not more than eighteen to twenty-four feet between curbs."

It should be noted, with reference to these figures, that a roadway twenty-four feet wide gives space for carriages to stop at each curb without blocking traffic. For a vehicle would still have room to get past in the centre of the street. Such a roadway is thus sufficient even for streets which have a

[1] 1904.

A New Type of Minor Residence Street in a High-class Section

This is a public street (in Rochester, N. Y.) but it is short, indirect, and so located that it will never be a thoroughfare. Note its inexpensive construction, that one sidewalk serves, that it makes no inharmonious break in the garden-like setting of the homes, and wastes no ground in needless street space.

good deal of travel. An ordinary carriage can be turned on a roadway of this width; and while the automobile requires more space if backing is to be avoided, the frequency of private driveways—which have so increased with the automobile—offers such numerous and convenient Ys, that narrow roads have ceased to present much difficulty to motorists.

Mr. Alvord's report suggested, however, that often it would be worth while, when reducing the pavement to the minimum width, to arrange in the centre of each block a wider space in which vehicles could turn. Incidentally, such a change in alignment would introduce a pleasant variety, where straight lines are not particularly desirable; and it would facilitate an interesting placing of houses, that would be as attractive in the vista of street and lawn opened to those who dwelt in them as the exterior architectural opportunity would be alluring to the designer. In Hampstead Garden Suburb, the company having secured a special act of Parliament permitting the construction of roads only twenty feet wide (providing they did not exceed 500 feet in length and that the distance between the houses on the two sides was not less than fifty feet) such a street is given a turning place at the end. This might be done more often; and there may be reflection that in these days of the automobile there is no hardship, and hardly a perceptible waste of time, in going around the block to

turn. It may be noted, further, that if the curbs at street corners be curved on a twelve-foot radius, which is by no means a long or unusual one, there will be provided for turning purposes at the right-angled intersection of roadways that are only eighteen feet wide, a circular space having a diameter of upwards of thirty-five feet. A trip to the corner in the motor might, then, be all that is necessary in order to turn it on a narrow road, if one did not wish to back. The various advantages of the narrowed road would surely make this worth while.

As far as the traffic is concerned, therefore, it appears that on strictly minor residence streets a roadway need almost never be more than twenty-four feet in width, and can often be considerably less. In fact, in certain common types of standardized platting there are many streets which can have very few houses fronting on them.[1] In such cases strictly local traffic is at a minimum and only rarely will a vehicle have to stand at the curb. On these streets roadways not more than eighteen feet wide will usually, therefore, be sufficient. When such streets are an incident of functional platting, that has made other provision for the through traffic, eighteen feet will certainly be enough. If the roadway be thus narrow and have a substantial, smooth pavement it generally will not be necessary to put any space into

[1] See illustration opposite page 22.

By Courtesy of Roland Park Co., Baltimore

STREET WITH A TURN AT THE END

THE GRASS GUTTER

gutter. The distance between curbs is narrowed, to be sure, but the whole of it is available roadway.

On those occasions where consideration of the possibilities of a near future may make advisable a provision of wider road-space than the present light travel needs, and where there still is wish to keep down the cost of development, it sometimes may be possible to utilize a little space on each side as a grass gutter. This will be more attractive than cobbles, brick, or concrete. But to be successful, the street must not have much slope, and the traffic must be of a kind that will be too considerate to trespass on the grass edge. Given these conditions, a slight depression in the grass plat, which for this purpose is made wider than the normal gutter, will very well, and very pleasingly, carry the storm water to the sewer inlet.

In the case of the broad residential streets which are too formally built up for such construction as this, and which already have a traffic importance prohibiting the narrowness of roadway that has been considered, it still is possible, of course, to adjust the pavement width to the actual traffic requirement. This will be done, just as in the less important streets, by leaving grass margins that can be converted into pavements when the need arises. For instance, the Bureau of Surveys of Philadelphia, in discussing the development of streets that are eighty feet wide and on which six lines of travel may event-

ually have to be accommodated, says,[1] after suggesting fifty-two feet as the proper width for a roadway for six lines of travel, including a double-track street railway:

> A roadway fifty-two feet wide is rarely needed n a street at the time of its original paving and it is usually years before such width is necessary for traffic purposes. A width of thirty-six feet would, in a great majority of such streets, be ample to carry all traffic, including double-track street railway, for a long period of time, and, except for some special reason, the roadway should be improved of this width, with provisions for future widening. In the case of an ultimate roadway width of fifty-two feet, this would temporarily increase the planting width eight feet on either side, and trees should be set back far enough to avoid disturbing them by future widening. The economy would consist in the difference in the cost of constructing and maintaining sixteen feet of grass plat for an indefinite period as against the construction and maintenance of sixteen feet of unnecessary and unattractive pavement.

Since street width is usually more than roadway and gutter width, we have yet to ask ourselves regarding sidewalks and their margins. As narrow streets were superseded by broad highways, the contracted walk that had been crowded between curb and wall, gave way to a wide sidewalk space. In American cities at least, this was early paved to a breadth of ten to twelve feet, or more. Now this in its turn is giving way, in high-class residence districts, to grass-bordered and comparatively narrow granolithic or

[1] Report for the year ending December 31, 1914.

cement walks. The change may be considered indicative of an accepted judgment based on the economy and superior attractiveness of the narrow walk with margins.

The paved part of the walk thus constructed is usually, and most acceptably on minor streets, five or six feet in width. The margins vary greatly. If the street be fifty feet or sixty feet wide they are perhaps most pleasantly of a breadth that brings the total distance from curb to lot-line up to one-half the width of the roadway, with the walk placed about a foot from the property line. The proportions of sides and centre space thus become 1:2:1. On a fifty-foot street, we thus have a twenty-five foot roadway, and six-foot margins for grass between the paved walk and the curb; on a sixty-foot street, we have a thirty-foot roadway and eight-foot margins. Less roadway and more margin would of course look better.

When a minor residence street is more than sixty feet wide, it ought to receive special treatment, either by centre parking or by such emphasis of the side parking as to change the proportions. If, however, the street is narrow—say, thirty feet or less between the property lines—and carries a roadway and double sidewalks, it is best not to anticipate an aesthetic contribution by the margin. A roadway of eighteen feet and the five-foot paved walks (both close to

minimum proportions), would leave the margins too narrow for trees or for good care. In the case of streets as narrow as this, some setback should be required of the houses, and the trees would then be placed best on the property line.

The margin between paved walk and curb may have a development as varied as its width. It may be earth, gravel, or turf—the latter most pleasing when given care. Very often trees are planted in the margins; but it were best not to attempt them there with any uniformity if the margins be less than six feet wide. The grass borders are sometimes further planted with flowers and shrubs, and in Germany vines are not infrequently looped from tree to tree.[1] Thus the margin may be of considerable width, and may serve as an ornamental feature. In fact, its value in this respect is often deemed such as to justify a generous broadening of the minor street.[2]

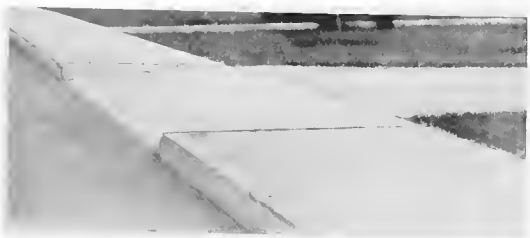
[1] The practice of planting shrubs in the side parking grew up in the days of the clattering, easy-going horse-drawn vehicle. With the coming of the swift and silent bicycle and automobile, it has been realized that their planting adds to the danger from street traffic—especially as regards children—unless the planting be kept very low and open.

[2] Occasionally one finds such a walk laid next to the curb, with the margin of grass transposed so as to come between the walk and lot. This is so poor an arrangement, however, that it is quite rare. There is an aesthetic loss which is obvious to any one who compares the two kinds of development; but aside from that consideration, the location of a narrow walk directly next to the curb leaves the pedestrian with no protecting barrier from spattering mud and dust, and when—as so often in American cities—the front gardens are unfenced, the arrrangement seems to subtract from public property in order to add to private—the very effect which usually explains the adoption of the plan. Other objections are that fire hydrants, lamp

A Grass Border Planted with Shrubs

A Contrast in Walk Location

On this street (in Toronto, Canada) the houses on either side stand back about an equal distance from the curb. On the one side the grass margin is between walk and curb; on the other between walk and houselots. As a result the street is very unsymmetrical, but the striking contrast is valuable for illustration purposes.



A Private Driveway Breaks the Level of the Walk, when Walk is Next to the Curb

A Walk at Higher Level than the Road

For all the pleasantness of these arrangements, however, we may well ask ourselves, considering how greatly private property is to contribute to the beauty of the street, considering the advantage of economy in the public work, and the diversity of country to be developed, whether there is any reason why there should invariably be two sidewalks. We may even ask whether, when the roadway is adequately drained and so paved as to be not less dry than a walk, there may not be places where a separate walk might be dispensed with altogether.

It is significant that in the high-class villa colony of Grünewald, Berlin, and in some of the fashionable suburbs of Dresden and other cities, there are many streets that have no paved sidewalks. In the new Garden Cities and Garden Suburbs, such as Hampstead, they are very frequently omitted. In one of the attractive sections of a high-priced residence district of Toronto the author has observed that certain streets have a sidewalk on only one side, though there are houses on both sides; and there is a pleasant and considerable portion of Northampton, Mass.—to cite one of the smaller American cities—in which the streets are developed in this way. In

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posts, hitching posts, telegraph poles, etc., which normally would be in the margin, now obstruct the walk—seriously if it be narrow; and that private driveways, unable to rise abruptly from the level of the gutter to that of the sidewalk, have to be carried across the walk, partly at least, in a depression.

many city squares and small parks, traversed by a much heavier pedestrian travel than one would find on a minor residence street, the walks are not nearly so well drained or substantially constructed as is even a macadam or gravel roadway.

Have we not unconsciously standardized the form of the street as well as its width; have we not followed blindly the example of the business streets and leading avenues when requiring two paved and equal sidewalks? If the roadway space which must be reserved for the occasional, but infrequent, vehicle will serve the purposes of sidewalks, we may not only, in its use by pedestrians, save some street width—thereby adding something to front gardens—and save some cost for construction, and a constant care, but we shall gain thereby a more attractive roadway, with garden borders and well-nourished trees.

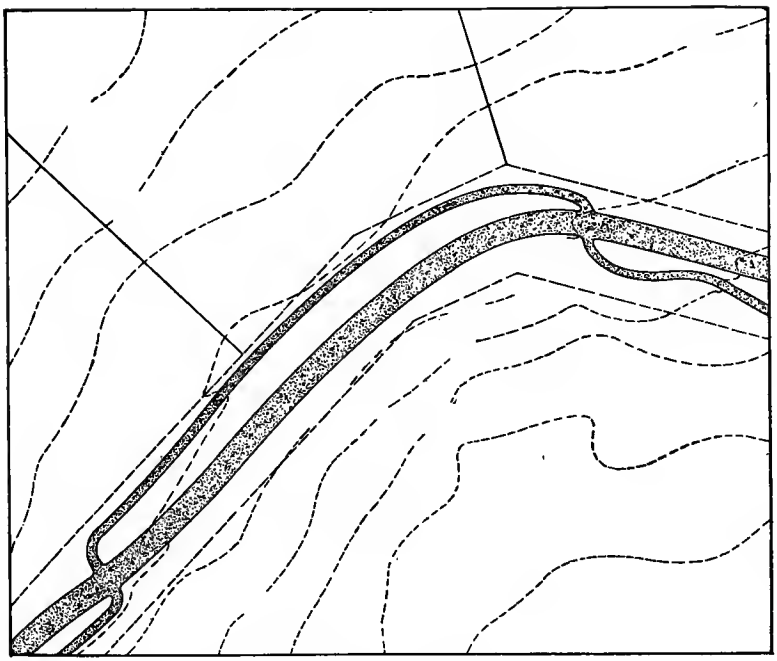
Where we do have walks, we have learned, or are learning, that we need not always be as careful with regard to grades as in the platting of the roadways. On irregular ground, for instance, if the street be a cut, we may reduce our cross-section by letting the walk take a higher level than the roadway, and so seemingly bring the house-lots nearer to street grade. In this economical procedure, we find that on a minor street we are actually adding to the street's pleasing informality. Thus, it may be said that there is a slowly growing tendency to depart from the

A Sidewalk on One Side Only

The residents as well served, the street more attractive and less expensive.

Where There is Little Walking One Sidewalk may be Enough

An unusual development for a long street.



SIDEWALK INFORMALITY

Note how the walk changes from one side to the other of the roadway, and varies in distance from it. (Section from the plat of Treeholme Park, a high-class residence district, Chappaqua, N. Y., Charles Downing Lay, landscape architect.)

theory that walks and roadway always go together—a theory easy to explain if we consider the sidewalk's historical origin: how at first it was simply a space laid off from the road so that, with the increase of traffic through narrow streets, the pedestrian might be safe.

But we need to break away from custom more than we have. In so doing, we would discover, no doubt, many an occasion when a street might be dispensed with altogether and a footpath made instead. Let us imagine, for example, that in platting a certain hillside for high-class residential development we found it advisable to have two parallel streets, A and B, along the face of the hill at different levels. The bulk of the travel is on the line of these streets, but as the houses are detached and the region stands apart from main traffic channels, the volume of travel is at best very little. The usual method of platting would require cross streets connecting A and B at intervals of possibly four hundred and fifty feet—the Liverpool standard. These connections would be steep. We should have both an unsatisfactory and costly provision for exceedingly little traffic, for we may even fancy that the long gardens on the upper side of A run back to meet the long gardens on the lower side of B, so that no houses front on the cross streets. If we put our connecting cross streets twice as far apart, pedestrians would complain, more or less justly, of the length of the trip from A to B.

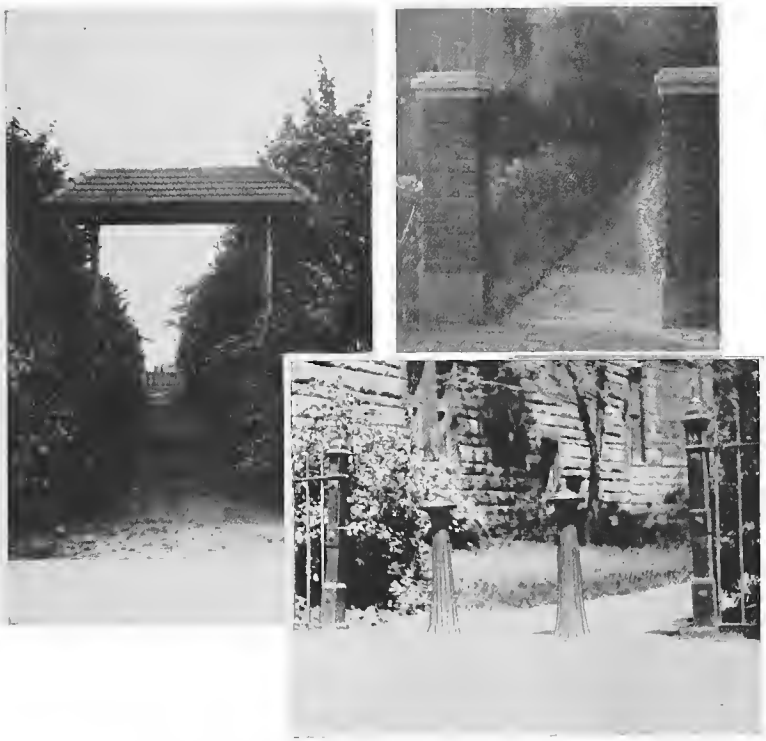
Suppose, then, that every other cross street in this particular development be narrowed to a footpath. Would not the arrangement serve the convenience of the people exactly as well? For consider: If a person on street A desires to reach a house on street B and would be taken out of his way if sent the distance of an extra block before finding a connection, it is clear that the house he wants on B is in the corresponding block of that street. The chances, therefore, are very many that he plans to walk there. If so, the footpath is all he needs. But if he is driving, the additional block will surely not fatigue him, or take enough extra time, gasoline, horseflesh, or electricity to justify the building of a street.

The condition imagined is a very simple one. In developing real areas the opportunity would arise in many ways. And how delightful a feature of city and town development these footpaths between the gardens of a residence district might become! One gets a hint of them in the way some streets are carried across the promenades in Frankfort-on-Main, and in the cross cuts that may be found in Cambridge, Mass. Even the paths that cross Boston Common, in the midst of a business section where there is great vehicular traffic, give in exaggerated form a suggestion of the convenience of the footpath. The path itself may be found in some of the newer and better

By courtesy of Roland Park Co., Baltimore

THE ECONOMY OF AN ELEVATED SIDEWALK

The value of an elevated sidewalk in reducing the cost of street construction and in making available lots which are high above the street level.



How Footpath Entrances Might be Marked

subdivisions—as in the Country Club district of Kansas City, to name but one.

Sometimes there might be an ornamental open gateway to mark the entrance to the public path; but most often, doubtless, it would be distinguished simply by the stone, iron, or concrete posts that are the familiar barrier to vehicles. The style of these might be standardized, and they might bear the city's arms to indicate that the way is public. The paths will give a restful, rural charm to a neighbourhood, along with their complete convenience, their economy and their practicability. With reference to the latter quality, their usefulness is especially marked in rough country, when—if there are only pedestrians to consider—steps may often be made use of, to a heightening of picturesqueness, a shortening of distance, and the avoidance of disagreeably steep inclines.

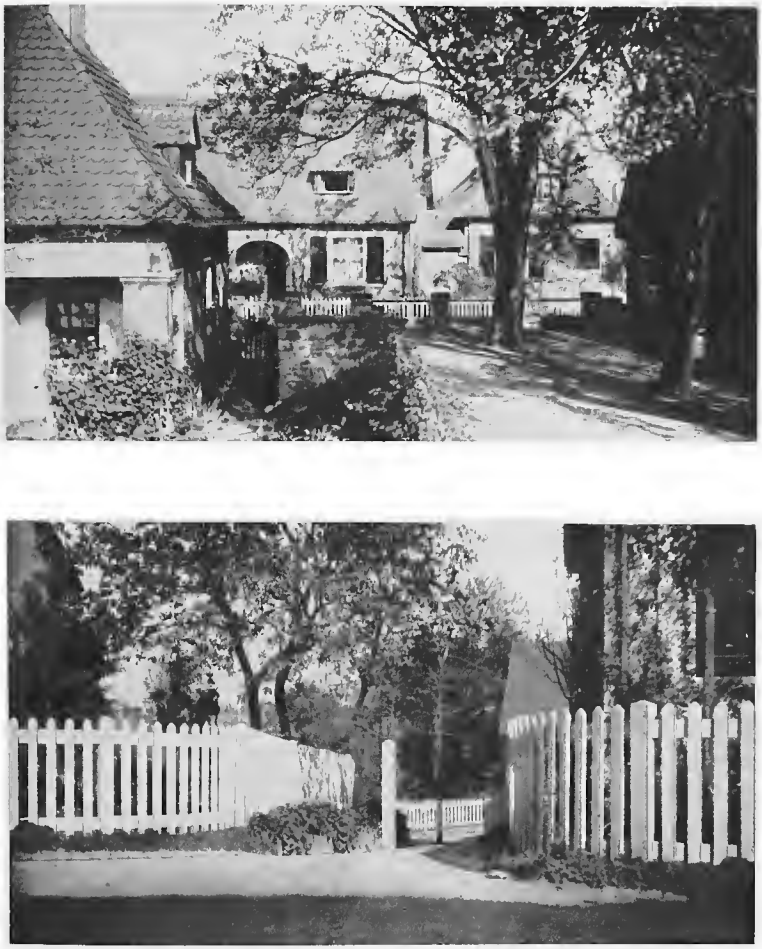
If we imagine houses fronting on a street that had been narrowed to a footpath, as they well might when the distance is not so great as to make such platting inadvisable, there should be a service road at the rear. This, of course, would be narrow and inexpensively developed, so that the footpath in front, plus half of the service road that would be back of the tier of lots on each side of the footpath, would still represent a substantial saving—though only the economic aspects of the question be considered. The service roads would be needed in case of fire, sickness, build-

ing operations, or for the delivery of heavy articles—as household goods and coal. They would also serve to carry some of the public utilities, for which footpaths might not allow sufficient space. But the service roads, at worst, would not be conspicuous.

By these means, then, might we not create, very simply and practically, a *rus in urbe* of a most serviceable kind—even a Garden City for the well-to-do and middle class whom, when all is said and done, the city still contains in generous number? Among villas with considerable grounds on sites of picturesque and irregular topography, the people surely would thus be served as well, at lower cost, and the region rendered more parklike and attractive.[1]

In the development of residential neighbourhoods, whether for the rich or for the poor, we usually need, in short, to get away from the stereotyped and formal. Our main traffic lines have freed us from the rules,

[1] *Municipal Journal and Engineer*, January 19, 1910, gave the following account of a town in Southern California having somewhat such a street plan: "Perhaps the most striking difference between this and ordinary residence villages is the construction of certain streets without any roadways whatever, the space which would ordinarily be so occupied containing merely a wide sidewalk, between which and the houses extend wide lawns. This relieves the houses of the dust and noise of wheel traffic and affords the children a perfectly safe playground. Such vehicles as are necessary for delivering household provisions use twenty-foot alleys which alternate with the roadless streets, passing in the rear of the houses and connecting with a commercial street which parallels the waterfront. The roadless street is forty feet wide from building-line to building-line, and the sidewalk, which passes through the middle of it, is twelve feet wide. . . . The plan has been adopted for about thirty blocks, extending for a distance of almost two miles along the ocean-front."



ECONOMY OF THE FOOTPATH WHEN THE GROUND SLOPES ABRUPTLY

Two views from Krupp Villages near Essen. From the terrace in the upper picture steps descend to the level of the street

restrictions, and system which traffic imposes; and the regulation determining the space which must be left open between the fronts of the opposite houses has given us liberty to leave as much of this space in private, and as little in public, ownership as may be most convenient. We can have a sidewalk or omit a sidewalk, just as is best fitted to the conditions of the particular street; we can have a footway instead of a street if we prefer, or a road without a footway if that be better. If we have a walk, there may or may not be its like on the other side of the roadway, it may or may not follow the grade of the road; the margins that border it may be narrow or broad, they may be planted with grass and adorned with flowers and shrubs, or left in earth, or covered with gravel; and the street itself may vary from the location and direction which an exactness of measured platting would suggest. Our purpose is not a regular scheme, but comfort, peace, and beauty, and the sense of the freedom of home.

Lest this seem to countenance a *laissez-faire* procedure, let there again be reminder that there is assumed a central authority charged with the task of deciding these matters from the standpoint of community welfare. It is not proposed that every tract developer shall do as he pleases. The creation of a town planning procedure should commend itself to large owners of real estate, if for no other reason

than that through this method alone may they hope for freedom from the bondage of uniform rules in tract development.

Before leaving the residence district, there must be recognition of the occasional demand for that retired and quiet formalism and stateliness which neither picturesqueness nor a flamboyant avenue could satisfy. To meet this need which is worthy and genuine, even though it be limited, two types of development have been designed. Each purposes to give to groups of costly houses a dignified and imposing setting.

One is to be found in the creation of semi-private "places," usually about a block in length, and often having their entrances marked by imposing gateways —Vandeventer Place, St. Louis, is a well-known example. They resemble short sections of avenue in the great space between the houses on either side and they may even outdo it in the elaborateness of the street adornment. On the other hand, they are unlike avenues in the peace and seclusion of their aloofness and their consequently narrow roadways. A street of this kind may, indeed, offer connection between important parallel traffic routes that cross its ends at right angles, but it is not itself in the direct line of travel and often is closed to general traffic. With all its spaciousness and pretension, its traffic significance is that of a "minor residence street."

ENTRANCE TO VANDEVENTER PLACE, ST. LOUIS

The gates at the sides are for pedestrians and the center entrance is the driveway. Inside the gateway the drive divides, the fountain being at the end of a broad strip of center parking with narrow carriage drives on either side. Note the exclusiveness and privacy of the arrangement.

The second form of development is that of the quiet tree-planted square, or other open space, around which the houses stand in orderly rows—retired from streams of travel and impressively set off. Great landlords have placed on the map of London many examples of this arrangement; Penn adopted it in his plan for Philadelphia, and there are many scattered examples.

Either development requires a level site, and, in proportion to the whole population of the city, the number of persons who will seek homes on plats thus developed is comparatively small. For the schemes require the withdrawal from market of an amount of land which is relatively large, as regards the total development; and this means that the marketed portions have to be sold at prices so high as to cover, between them, the cost of the land withheld. In addition to this cost, there is usually a heavy expenditure for landscape work, sometimes for architectural construction, and annually for upkeep. And not only are the home-plats located in either of these developments expensive, but the effectiveness of the plans requires that sales be made under unusually stringent restrictions. The result is that the residential place or square, exceedingly attractive as is its contribution to the diversification of city street systems, cannot be considered as a general or normal type. Indeed, one of its claims to charm is its

unusualness. Economically, it is warranted only by its provision of something for which lot buyers—or house renters—may justifiably pay extra, this something being pleasantness of outlook, quiet, and exclusiveness. In a wilderness of brick and stone, as in London, such oases may be very welcome—as they have proved to be; on the edge of a body of water, where a square built up on three sides only—the fourth open to lake or sea or river—may provide pleasing views from three times as many abutting lots as in a normal development, the device may be clearly advantageous—considered simply from the economic standpoint[1]; in a pleasantly open city, such as Los Angeles or Detroit, where the semi-private place has been wearisomely repeated, it must seem, on the contrary, not only overdone but forced.

[1] See, however, the discussion on page 194.

City Planning Legislation

CHAPTER XV

CENTRALIZED CONTROL

A LOT of idealism, much theory, and much argument must precede the enactment of the legislation that is to make dreams come true. Thus legislation represents the last step in the process.

This law-making stage of the international town planning movement was entered upon only a few years ago, in so far as it responds to modern theories and to present-day necessities. The enactments have taken various forms in various countries, even in various States; and in the legislation's rapidly growing bulk, its variation, its swift progression, it presents the subject's most baffling phase so far as the writing of the record goes. Before the ink with which an act has been described is dry, another law is passed.

One can view the town planning movement as a battle. The troops have long been gathering, stores of ammunition are at hand, the artillery has been brought into action, and at last the order to charge

has come. Every new law is like the capture of a trench or hill. From our vantage point, we see the long battle line. Here the army advances sharply; there it loses a gain it had made—the courts declaring an act unconstitutional; yonder it is thrown back, in a bill's defeat. The line is never still. Advancing, retiring, wavering, the record of where it is at the moment will soon be ancient history. But some taken hilltops will be held; some general movement can be detected. We may at least see the trend of the battle, and observe under what flags and pennants the advances have been gained.

As to the goals, they also are varied. It will be remembered that there early appeared the necessity of establishing some method of central control over the town planning work of any community which undertook physical development in a rational way. This, therefore, must be one of the primary purposes. Without such control, the city planning would not be comprehensive. In the intensive interest of the individual and neighbourhood, the interest of the community would too certainly be lost sight of. That is a condition we see today on every side—land subdivisions platted without any regard for their significance as parts of a general scheme.

In the interior of cities, we saw, when considering the location of main traffic streets, that the lack of a centralized control—to offer the community point of

view and to make practicable a comprehensive plan —was responsible for traffic congestion, transportation delays, and general inefficiency. Only a System of traffic ways, not unrelated traffic streets, can cope with the problems of the modern city. Later on, it became clear that if there is to be permitted the abandonment of that very rigid control which standardization provides, and if there is to be substituted latitude in planning, we must exercise some sort of central control over that liberty lest it degenerate into license. Without control and continuity of purpose, site planning and estate development would never become phases of true city planning, and our cities might better return to the methods of standardization.

To some extent, no doubt, adherence to standardization, in spite of all its waste and maladjustment, has been due to the unconscious recognition that there must be control. Up to the middle of the nineteenth century, says a recent writer, speaking of the American city,[1] most towns depended for prosperity on their surrounding agricultural regions, so that really we were a nation of farmers. The industrial revolution turned towns into huge manufacturing centres, but each city in spirit and methods "is still only an overgrown farmers' village," in which it has been persistently assumed that the city

[1] Clyde Lyndon King, Ph.D., in *Lower Living Costs in Cities.*

resident can care for himself independently of community action. Dr. King adds:

> The twentieth century city will be both democratic and efficient when a city philosophy supplants a country philosophy; when the city is planned for economic and social efficiency; when foresight supplants change; when collective action aids individual effort; and when governmental activity is conducted in the interests of the city's workers.

Hence, it is no surprise, in the study of city planning, to discover that wherever it has been undertaken there has developed an effort to provide a method of centralized control. In reviewing the various schemes, one cannot, to be sure, avoid the impression that both in Europe and America the effort is still at the experimental stage. Undoubtedly this is true; very probably, indeed, the perfect machinery for the planning and building of cities has not yet been worked out.[1] But because it would have to be nicely adjusted to local administrative procedure, and because this procedure is various, it is altogether unlikely that any one scheme will ever be devised which could be suitable for every

[1] The National Conference on City Planning in America has given serious consideration to legislative problems. At the Third Annual Conference (Philadelphia, 1911), the Committee on Legal and Administrative Methods, Andrew Wright Crawford, Chairman, presented a discussion of the principles which in its judgment might well be incorporated in a series of acts to be uniformly adopted by the several States, to the great simplification of intelligent city planning procedure. Subsequently, the suggested bills themselves were presented by the committee. Its report, explaining the principles of these acts, is given in the Appendix, together with the drafts of the suggested acts.

case. Hence there is need here only to touch on the plans, that their tendency and general principles may be observed.

The official circular which was sent out with the English "Housing, Town Planning, etc., Act, 1909," describes that act's purpose as

> to ensure, by means of schemes which may be prepared either by local authorities or landowners, that, in future, land in the vicinity of towns shall be developed in such a way as to secure proper sanitary conditions, amenity, and convenience.

The circular added that

> hitherto the conflicting interests of different owners, and the absence of any power in the local authority to guide and control development according to the circumstances and requirements of particular cases, has resulted to a considerable extent in the development of estates, whether large or small, with a sole regard to the immediate interests of the particular estate and without regard to the amenity and convenience of neighbouring lands.

There was no wish, authorities explained, to harass individuals, hamper enterprise, or to go against the interest of any individual owner except in so far as the greater interests of the community made this necessary.

Under this English act, the (national) Local Government Board is the arbiter. It may authorize the council of any borough or district to prepare a town planning scheme

with reference to any land within or in the neighbourhood of this area, if the authority satisfy the Board that there is a *prima facie* case for making such a scheme; or may authorize a local authority (*i.e.*, a council) to adopt, with or without any modifications, any such scheme proposed by all or any of the owners.

The scheme, whether initiated by councils or landowners, must be approved by the Local Government Board before it can take effect, and the approval can only follow Parliamentary hearings, or the opportunity therefor and for objection. The scheme subsequently may be varied or revoked by the Local Government Board, if sufficient cause be shown; and should local authorities fail to prepare schemes, or to adopt schemes that ought to be adopted, they can be ordered to act, or the Board itself can effectively adopt a scheme. The significant thing is that the plan is made locally, perhaps even by the landowners, and that it then must be passed upon by a central and official body representing the interests of the community.

The practical procedure under the act is interesting. After the selection of the district to be planned, the first step is the preparation of what is known as Map No. 1. This map, which merely designates the area to be planned, is filed with the Local Government Board and copies of it are sent to all the owners affected, together with notice that a conference will be held with them. Map No. 2 is then made, and shows:

(*a*), Land in local authority's area. (*b*), Land in area of any other local authority. (*c*), Land already built upon. (*d*), Land not likely to be used for building purposes. (*e*), Positions of any buildings erected or in the course of erection, on the land. (*f*), Lines and widths of proposed principal roads, and their connection with the existing roads. (*g*), Sewers, gas, water, and electric mains. (*h*), Roads or ways to be diverted or closed. (*i*), Areas for open spaces or special purposes.

A map must also be prepared to show the relation of the selected area to its surroundings, and then, if the preparation of a scheme be approved, a map is prepared giving the plan in all its details. At all stages, the co-operation of landowners and officials is sought; but when at last the final plan receives the approval of the Local Government Board, it has the full force of law, and the character of the area is fixed for many years unless very good cause for change is shown.[1]

Regarding the German method, which in some respects is more like the American, Frederick C. Howe describes it briefly and clearly in these words:[2]

As a preliminary step to any planning project, cities enlarge their boundaries and take in the surrounding villages and suburban territory. . . . Ordinances are then passed by the town council providing either for a comprehensive plan for the

[1] A Government report made at the close of 1913, gave a list of one hundred and seventy-five local authorities that were then at one stage or another of the town planning procedure; two had received final approval, and sixty-six were well advanced. Rapid further progress was made during the early months of 1914, prior to the breaking of the war.

[2] *European Cities at Work.*

entire city or for the planning of certain suburban areas for residential or business purposes. Competitions are frequently held, to which town planning experts are invited. The city prepares maps, statistics of growth, transportation, and other data, and submits them to the competitors the same as to a private builder. Such competitions have been held by Berlin, Munich, and Düsseldorf. . . . They are not necessarily confined to the planning of an entire city; they are frequently limited to a suburban area, the competitors making suggestions as to the best means for utilizing natural advantages.

Germany has, however, State laws which designate the points that are to be covered by town planning projects and which emphasize the factor of central control. The following extracts from the town planning sections of the General Building Law of Saxony are significant from this point of view[1]:

(*a*), The position of the blocks of building, as well as of the lines of streets and the building-lines, must be adapted to the configuration of the land, and must be such that an adequate supply of sunshine in the rooms occupied is secured.

(*b*), The dimensions of the various blocks of building must be such as to allow of the proper utilization of the ground for building.

(*c*), The width of streets and footpaths is decided by the requirements of local traffic, and must be suitably graduated in accordance with the nature of the streets, as main streets, by-streets, or streets used only for dwellings. In the case of streets of detached or semi-detached buildings, where there is no proper through traffic, the part of the road used for vehicles need not exceed a width of twenty-six feet. In the case of streets for which through traffic may be expected eventually, especially tram-lines, and a widening of the street must be

[1] Quoted from *The Improvement of the Dwellings and Surroundings of the People: The Example of Germany*, by T. C. Horsfall.

anticipated, there must be front gardens of suitable depth on both sides. Private roads, which give access to the backs of buildings for several blocks, must not have a less width than nineteen and a half feet. . . .

(*d*), Gradients in the streets must be distributed as evenly as possible; heavy gradients, deep cuttings and embankments, as well as inordinately long straight lines of streets, must be avoided as much as possible.

(*e*), In determining the directions of streets care must be taken to provide short and convenient connections between streets and with the chief centres of traffic.

(*f*), Open spaces and public shrubberies must be so arranged in respect of size, position, and number, as to be useful in relation both to convenience of traffic and to general welfare. Sites for churches and school buildings, as well as public playgrounds and recreation grounds, must be provided in sufficient number.

(*g*), In deciding what shall be the kind of building allowed, and as to whether factories and workshops shall be allowed, the existing character of the district, or part of a district, and its needs must be taken into account.

. . . . . .

The building plan, or building-line plan, when it has been once decided on, is authoritative in relation to all buildings in the district to which it applies. But the owner of land which the plan shows to be intended for use for public traffic, may use it till he has to surrender it to the community, for purposes other than building, and may enclose it with a suitable fence. . . .

A plat of land, not yet built on, which is shown by the plan to be intended for use as a street or square, cannot be used for building purposes, except that eaves, balconies, and other projections of buildings may be allowed to overhang it. The erection of temporary buildings is, however, permissible, but the owner must remove them, and any fences which he may have put up after the fixing of the building plan, at his own

expense, so soon as the land is needed for use as a street or public square.

Coming to America, town planning legislation that closely follows the English act is to be found in New Brunswick, in various provinces of Canada, and in Nova Scotia. The latter law, passed in 1915, as this is being written, is much more drastic than the English act, going so far as to make it compulsory for every city or town to appoint a Local Planning Board which, within three years after the passage of the act, must prepare a set of town planning by-laws for adoption in its area, unless it chooses to adopt a set of "model by-laws," which the Commissioner of Public Works of Nova Scotia may prepare. These by-laws are to fix building-lines on existing streets, are to deal with the reservation of land for new main thoroughfares, and with the limitation of the number of houses to the acre. They are also to provide for variations in the width of streets, so as to give landowners an opportunity to lay out narrow streets of short length where through traffic does not have to be provided for.

In the United States, having broadly accepted the theory that it is to the interest of a community that the street platting be done from a community standpoint, rather than from that of the individual, two theories have developed as to the best method of securing such a viewpoint. One is that the work

can best be done by a local commission, usually made up in part of responsible officials; the other is that it is likely to be done most wisely by outsiders, who are free from local prejudice, preconception, and interest, and who are able to see the problem with fresh eyes.

Experience has revealed, however, that it is not so hard in America to get a fairly good city plan put upon paper as it is to secure faithful adherence to the plan through the long course of years which must elapse before it can be transferred from paper to fact. This desirable adherence, one must hasten to add, is to the true spirit of the plan rather than to its letter. There will almost surely be need of modifications in it now and then. The best planner cannot foresee every contingency. He does not pretend to infallibility. The virtue of city planning lies not in its certainty of meeting all future needs, but in the assurance that it will wisely meet a good many of them. Even with a plan, there will have to be adjustment and readjustment, remodeling and moulding to fit it for new conditions. To make sure that this shall be done with far-seeing vision and with the interests of the whole community at heart is what complicates the problem. It usually, for instance, would not be safe to leave the control of street platting wholly in the hands of a body of which the complete membership was constantly changing.

Much, and interestingly varied, legislation has been enacted to meet this situation.

Since the cities and towns of the United States enjoy comparatively little "home rule," and since the general course has been to establish plan commissions—local or other—the legislation authorizing such commissions, designating their composition and defining their duties, has had to be mainly by the States. The author, in elsewhere discussing this legislation with some particularity,[1] has noted its possession of four characteristics:

(1), With a marked unanimity the laws ask planning commissioners to serve, as park commissioners so commonly do, without remuneration. The theory of such requirement has been aptly expressed in these words:

> The kind of control which shall be really statesmanlike and of the highest value must be either paid for at a very high figure or be obtained for nothing; and probably the latter method is best.

(2), There is very frequently a requirement that the existing administrative bureaus of a city shall have *ex-officio* representation on the planning commission. Sometimes this applies also to the legislative agencies. Such provision tends to prevent an obstruction due to jealousy, takes care of overlapping, and

[1] In a chapter on City Planning Legislation, contributed to the volume on city planning of the National Municipal League series —a symposium discussion by a group of experts and students.

makes available what is sometimes really expert knowledge.

(3), There is some tendency to give to planning commissions, as originally to art commissions, powers that are only advisory.

(4), When larger powers are given, commissioners usually are granted authority, by implication if not explicitly, to retain experts. Two other characteristics which might have been noted are that the members of the plan commission, like those of the park commission, are usually few in number—rarely exceeding nine; and that the members who are not *ex-officio* are appointed.

Robert H. Whitten, Secretary to the Committee on the City Plan of the New York Board of Estimate and Apportionment, who has prepared a careful report on "The Constitution and Powers of a City Planning Authority," says, with reference to the duties of these commissions:

> The creation of a comprehensive tentative plan involves first of all a careful study of future growth and requirements. In order to plan for the present and for the future, a picture is needed of what the city will or should look like in twenty-five, fifty, or a hundred years, when it has several times its present population.[1]

[1] Dr. Whitten adds the caution: "The city plan office should realize at the start that its one big job is the development of the comprehensive plan; that it will not usually be in a position to make a unique contribution to the solution of particular problems until it has this comprehensive picture of the city. It should, therefore, guard against frittering its time

Very few of the laws need have specific reference here. One which was passed by Connecticut in 1907 is of interest because on the strength of it credit has generally been given to Connecticut for having established the first Plan Commission, officially so designated, in the United States. This was created for Hartford, the capital city. The lateness of the date is interesting, as is the fact that this "first" commission is largely *ex-officio*. Its members are: The mayor, the president of the board of street commissioners, the president of the board of park commissioners, the city engineer, a member of the board of aldermen, a member of the common council—the two latter appointed by their respective boards—and two citizens, neither of whom shall hold any other municipal office, and who are appointed by the mayor. The Commission serves without pay, but it is empowered to employ experts, as it has done, and its expenses are paid. The law requires that "all questions concerning the location of any public building, esplanade, boulevard, parkway, street, highway, square, or park shall be referred to the Commission by the common council, "for consideration and report before final action is taken on such location." Various other matters "may" be referred to it.

away on numberless apparently urgent and immediate problems, and thus lose the opportunity of ever becoming the real, controlling force in shaping the future city."

If temporary commissions may count, various States—as New York, with the street plan commission authorized for New York City in 1807, and Maryland, with the Burnt District Commission created for Baltimore after the fire of 1904—might contest Connecticut's claim. But the Hartford commission became a section of the city government, and is still acting.

Massachusetts in 1913 passed an act *requiring* all its cities and towns that had more than 10,000 population, to create planning boards; and directed that these boards, after studying the resources, possibilities, and needs of the respective cities, should make plans that would look especially to "the proper housing" of the people. This legislation is of interest because, for the first time in this country, it made town planning compulsory for a large number of communities, irrespective of local sentiment, and because for the first time what may be called the human emphasis was expressly enjoined in the words of the act.

New York in 1913 enacted legislation which is interesting because of its authorization of plan commissions not only in cities and towns but in villages—an example already followed by New Jersey and California. Ohio's contribution to the subject has included a revision of the State Constitution, in 1912, which gave to the cities such power to manage their own

affairs that they can make charter provision for a plan commission. In Cleveland this authority was promptly made use of, with a mandatory clause.

Pennsylvania, in creating in 1911 city planning "departments" for its second class cities, ordered that there be nine members, who *may or may not* be residents of the city, but are to be appointed by the mayor. Two years later, the same year that Massachusetts made town planning compulsory, Pennsylvania required the creation of a department of city planning by each city of the third class—of which the State then had twenty-three.

A number of cities in the United States have been able to appoint commissions without special State authority. These are more often temporary, and are not generally an organic part of the administration. In such cases, as sometimes where there are official commissions, the usual course has been to call in, from outside, one or more professional city planners to study the community's needs and to give advice.

These city planners, trained sometimes in one profession and sometimes in another,[1] are men who

[1] Specific professional courses in city planning have now begun to appear in American, English, and German universities. The first regular "chair" in the United States was established at the University of Illinois, under the title Civic Design, in 1913; but previous to that time Harvard had offered courses in its School of Landscape Architecture, and lectures on the subject were already given, more or less regularly, at Columbia, the University of Michigan, and occasionally in other institutions. These have since spread widely.

have specialized on the physical development of cities and towns. They have schooled themselves to see quickly, and to think in big terms, and they are men of imagination with strong practical sympathies. Taking up each problem conscientiously and with fresh interest, they undoubtedly perform for the cities that retain them a service of incalculable value. They offer, in conveniently concentrated form, the central viewpoint; they take, beyond the cavil of petty politics or local interests, the community standpoint; they bring to the particular problem of the particular town a broad, fresh outlook and a knowledge of the experience of other communities. The impetus which they thus give to the city's wise development and bolder public spirit is greater than can be measured; but the reports they make and the pictures they draw have not been as yet, in any large and literal sense, city plans.

The true city plan must be worked out very slowly, on the ground, through a course of many years. It is almost sure to be bettered, at one stage or another, however it is first made, by the suggestion and criticism of outside experts; and it is certain to need, to insure its gradual unfolding in visible reality, a strong, permanent, central control—partly represented by law and partly by the authority of officials. That the making of this city plan, and the subsequent control of it, is no matter to be lightly

delegated to any group of untrained individuals, or conveniently existing official body which has other engrossing duties to perform, is a point that needs to be strongly emphasized.

CHAPTER XVI

CONTROL BEYOND CITY BOUNDARIES

EXTENSIVE as has now become the city planning legislation which is designed to provide a method of centralized control, it is fair to say that American cities and towns were not wholly unconscious of the need of such control prior to the recent town planning interest. It has been already suggested that perhaps a potent cause for the adoption of standardization in street planning was the perception of this need. There was generally, we may suppose, an uneasy feeling that even a stereotyped street pattern, for all its faults, was less dangerous than a planning which was uncontrolled. But standardization itself calls for a certain measure of control. If we are to have an effectually standardized street plan, there must be vested somewhere an authority to require adherence to it.

Hence, American towns and cities had long made it a practice to require landowners to file maps of their subdivisions and to secure the approval of the plans by the city engineer, by the city council, or by some

other designated body—in Boston, for example, by the Board of Street Commissioners. The trouble with this arrangement was—and is, for it is still widely operative—that the very act of requiring an approval of plans suggested that they need not always be exactly standardized; and then that an approval of land division projects which is given by officials or boards who are deeply interested in other things, and sometimes subjected to powerful pressure, is too likely to be perfunctory, rather than based on careful study. A further weakness of the arrangement has been the city's difficulty in exercising control beyond the city limits.

When town planning began to be seriously considered, as a means of controlling the city's future, the latter weakness in particular was seen to be vital. It was quickly appreciated that in planning for a city's future, the arbitrarily established and invisible line of the city's present boundaries ought not to limit the scope of the schemes. Often the city is built not only up to, but beyond, that shifting line which is here today and perhaps a mile farther out tomorrow. To confine a city plan that looked to the future within that line, permitting any kind of subdivision beyond it, would be worse than to cut the coat of a growing boy from a measure already snug and cramping. To be sure, the property owner beyond the boundary does not receive city service

or pay city taxes, but it is the approach of the city which raises the value of his land and often it is the belief that the city will ultimately engulf him which makes his land so salable.

Naturally, the need of control beyond the city limits has been felt in other countries as well as in the United States. England has taken care of it in the town planning act by applying the provisions of that act to "any land which is in course of development, or *appears likely to be used for building purposes.*" The Nova Scotia act applies the law to "any land" which may be selected.

In Germany, three methods, in the main, are in vogue. One consists in a broad extension of city boundaries — a method largely followed in the United States. A second consists in enormous purchases of land by the municipality. Influential motives for the adoption of the latter policy have been found in the desire to prevent an injurious inflation of prices and in the wish that the community, rather than individuals, shall have the benefit of such accretion of values as is a legitimate result of community action. But an important and inevitable result is the city's acquisition by this means of absolute control over land projects.

Probably few Americans realize the extent to which German cities have acquired the ownership of building land. At the beginning of 1914, Frank-

fort was reported to own half of all the land within its far-spread limits, and to have invested upwards of $50,000,000 within a few years for the purchase of real estate; Ulm was said to own 80% of all the city's area; and Berlin to own, outside the city limits, two and a half times as much land as all that was within the city! The purchase of large tracts for subdivision was an accepted municipal policy in Germany.

The third widely accepted method has been the use of what is known as the Lex Adickes.[1] This law provides for the pooling of all the land within a selected area, irrespective of the number of its different owners, and then its redistribution in good building sites by an expert commission appointed for the purpose.[2] The operation of the law can be proposed either by the municipality or by a majority of the landowners and the details of its provisions are extremely interesting.

The General Building Law of Saxony, for example, from which extracts were given in the pre ding chapter, supplements its other city planning regulations by giving to the Building Police[3] this valuable

[1] Named for Dr. Franz Adickes who, as oberburgermeister of Frankfort, presented in 1893 the bill which, with comparatively slight modifications, became law nine years later. It was extended to Cologne and Posen in 1911, to Wiesbaden in 1912, and to the whole of Prussia in 1913.

[2] In America adjacent landowners, retaining a landscape architect or city planner in whom they have confidence, have sometimes made use of this method voluntarily.

[3] Originally the Building Police were charged only with securing stability of construction and protection against fire.

right to expropriate lands and redistribute them. Section 54 reads[1]:

If the proper use, for building purposes, of land which is within the scope of a building plan is prevented, or is made very difficult, by the position, form, or size of the plats of land or parts of the plats of land, then for the purpose of obtaining convenient sites for buildings, a repartition of the area can be made, even against the will of the owners, by an alteration of the boundaries of the plats, or by redistribution, in case the new arrangement is in the public interest, and a request to that effect is made to the Building Police Authority either, (*a*), by the Town Council, or, (*b*), by more than half of the interested owners of land who together own more than half the land in question.

Section 58, in further elaboration, reads:

The plats of ground belonging to all the owners concerned are to be thrown together, and the public roads which the new building plan makes unnecessary, are to be included. From this mass the land shown by the building plan to be intended for the future public roads must first be separated, and the building land which remains must then be distributed in such a way that each owner of a plat or plats of land shall have a share of the total value corresponding to the share which he had in the whole amount of land before redistribution. The community must have land for public roads assigned to it to replace the roads which were absorbed. In fixing the values on which the redistribution plan is based, and which are to be fixed with the help of experts, all material and legal conditions must be taken duly into account. For each of the plats of land suitable for building purposes one or more plats of land, as far as possible in the same place, must be given. Plats of land with buildings on them, as a rule, subject to rectification

[1] The translation is taken from T. C. Horsfall's *The Improvement of the Dwellings and Surroundings of the People: The Example of Germany.*

of their boundaries, are to be restored to the persons who have hitherto owned them. . . . Unavoidable differences of value between the earlier plats and those received to replace them can be settled in money.

In the United States, the commonest method has been, as stated, to push the city limits out so far as to embrace a surrounding belt of partly agricultural land. Various cities then adopt what is called "the city map," and require that new streets be platted in accordance with it.

Theoretically, this is an admirable procedure; but it involves large expense for police and fire protection, lighting, etc., and practical difficulty has been found in enforcing adherence to the map. Landowners are too likely to lay out private streets and sell lots to unsuspecting purchasers who discover, too late, that the street cannot be publicly accepted because of non-conformity with the map. To obviate such a condition, some municipalities prohibit the laying of water mains or sewers in non-conforming streets, and Philadelphia authorities have refused to give lines and grades to builders on such streets. But the constitutionality of these acts is somewhat in doubt, at this time.

As a result, the recent wave of city planning legislation in America has included some interesting enactments to extend central control beyond city boundaries. The definite legislation for this purpose

seems to have commenced with Wisconsin, which in 1909 enacted a law giving to city councils control over the platting of lands lying beyond the city boundaries, but within one and one-half miles of them. Michigan extended the limit to two miles; Ohio in 1910 to three miles, a distance subsequently adopted by Pennsylvania; and the Province of Ontario, Canada, in 1912, made the municipal control five miles.

Meanwhile, there gradually dawned the realization that any arbitrary line within reasonable distance might soon be rendered inadequate, in at least some directions, by the automobile and inter-urban trolley. Consequently, New Brunswick, the Canadian Provinces of Alberta and Saskatchewan, New York State, and Ohio by an act of 1915, have left indefinite the exact extent of jurisdiction. The New York law, for instance, of 1913, authorizing cities and villages to create planning commissions, provides that they may map, besides lands within the corporate limits, "any land outside the limits of said city or village so near, or so related thereto, that in the opinion of said planning commission it should be so mapped." The Ohio act uses the phrase, "any land outside the municipality which, in the opinion of the commission, bears relation to the planning of the municipality." In both cases, it will be noted, the city plan commission is to be the judge of how far it needs to exert its will.

Perhaps before this is printed, other States will have bestowed a like power. A metropolitan control over the planning of satellite cities and towns; and the creation of County planning commissions, that may include several communities having distinct administrations, are projects that are already under discussion. These efforts represent, however, a co-operative community planning rather than strictly "city planning"—though perhaps the latter phrase still is justified by the city's domination of the effort.

CHAPTER XVII

EXCESS CONDEMNATION

AFTER the legal provision of centralized control, as a step toward efficient city planning, and the extension of this control beyond city boundaries, very practical problems are the means of financing costly improvements and the safeguarding of the appearance of new thoroughfares, parks, and parkways, by regulating the use of the abutting property. These two ends have been sought in many cases through what is known as the method of excess condemnation. The device originated in Europe; but cities of the United States have been lately turning to it with a great deal of interest.

The phrase "right of excess condemnation" is commonly understood to mean a city's right—inherent or bestowed—(1), to condemn for a given improvement more land than that which it will actually and directly use in a proposed improvement; and, (2), to resell, or otherwise use as it sees fit, this excess land. The method has been used in South America as well as in Europe, and there are familiar

tales of great public improvements carried out by its means at a minimum of net expenditure, and occasionally at even an ultimate financial profit.

For example, the cost of opening Garrick Street, in London, is reported to have been reduced 72% by the resale of surplus property; the saving in the case of Queen Victoria Street is said to have been 53%, and in that of King's Way 87%. In the opening of Northumberland Avenue, there was made a clear profit of $600,000. In America, a large profit has been recently realized by Montreal, through using this method of financing a street opening.[1]

It is important to add, however, that the financial outcome is not always as satisfactory as in the cited cases. In Belgium the method seems generally to have worked well; in Paris, to have proved more often unsuccessful, or at least not worth while; in England, the results have varied considerably.[2]

In addition to the alluring possibility of recoup-

[1] The King's Way improvement, London, is a mile long and a hundred feet wide. Under the act, the strip taken was three hundred feet wide, leaving salable lots a hundred feet deep on either side of the street. The gross cost was about $30,000,000, and a saving of 87% therefore meant a recoupment of more than $26,000,000. A factor in the amount of the recoupment in this instance was the city's ability to secure ground rents and freeholds pending the expiration of existing leases. This permitted a gradual extinction of trade interests. Lack of this authority, compelling a city to buy out "good will" and trade interests, often at very high prices, explains some of the failures that have accompanied use of the excess condemnation method.

[2] Interesting data on this subject may be found in Chapter IV. of *Carrying Out the City Plan*, by Flavel Shurtleff.

ment, or profit, the procedure of excess condemnation has been strongly advocated because by its means the city can acquire a control over the manner of developing lands abutting on an improvement, and because it means, or may mean, the acquisition at a minimum cost of sites that may be very desirable for public buildings.

Though these advantages have proved convincing to foreign lawmakers and have satisfied judges in countries where cities have larger powers than in the United States, there has here been serious doubt as to whether a speculative reduction of cost constitutes a "public use" with such clearness as safely to carry the right of eminent domain—by means of which, alone, a city can condemn property.[1] Much more evident to Americans, and in their view more important, have been, (a), the injustice which might occasionally result from the lack of such a privilege —this coming about through leaving a landowner

[1] "In the exercise of the power of eminent domain, the State may take private property, but only for a 'public use' and only upon payment of just compensation. No man can, in this country, be required to surrender his property, even for full value, unless the use for which it is taken is public. . . . No judge grounded in the principles of American jurisprudence would countenance the argument that mere pecuniary advantage to a municipality could, without other pretext, justify the taking of private property against the will of the owner. It is quite another question, however, whether the condemnation of more land than is directly involved may not be justified as an incident of a public improvement, when it could not be defended as an independent speculation."—Hon. Walter L. Fisher in the chapter on "Legal Aspects of the Plan of Chicago," printed as an Appendix to *Plan of Chicago*, prepared under the direction of the Commercial Club, by D. H. Burnham and E. H. Bennett.

with unusable and unsalable remnants; (b), the possible avoidance of economic waste if a city had the right to take the whole of a property instead of only the portion it would directly use; (c), the tendency of small left-over pieces of property to deteriorate in appearance to an extent that may affect the whole improvement; and, (d), the simplification, by means of excess takings, of the legal process of acquiring the land for parkways and then developing it. This is because a fair valuation for the land to be acquired for such purposes can be usually ascertained at less cost for lawyers, expert witnesses, etc., than can a satisfactory appraisement of damages and benefits. As a result of the first three of these considerations, a limited power of excess condemnation, applicable only to remnants, has been granted in the United States more freely than have the general powers.

Probably the earliest recognition of the principle dates in the United States to two acts of 1867, both of which apply to remnants. One was the act creating the Fairmount Park Commission of Philadelphia. The other provided for the widening of Oliver Street in Boston. After this, nearly forty years passed before the idea reappeared in American legislation, so far as the author has been able to ascertain. Then, in 1904, it was recognized in statutes of Ohio and of Massachusetts, and in the Maryland act which gave city planning powers to the temporary

Burnt District Commission of Baltimore after the fire of that year.

The Massachusetts authority was specifically limited to the acquisition of remnants which, from their size and shape, would be unavailable for the erection of suitable and appropriate buildings. The Ohio act gave the right to resell with restrictions designed to "protect public buildings and their environs, and to preserve the view, appearance, light, air, and usefulness of public grounds occupied by public buildings, and esplanades and parkways leading thereto."

Maryland in 1905 enacted a law which gave to Baltimore the right to acquire certain land "for the purpose of re-selling such land, with reservations in the deeds of such resale as to the future use of such lands, so as to protect," etc. In 1908 the privilege was extended, to permit the inclusion of land for any public or municipal purpose; and in 1910 the mayor and council of Baltimore were authorized to delegate to the commission on city plan the powers connected with excess condemnation.

In 1906 Virginia passed a bill permitting the acquisition of property "when the use of the land proposed to be taken would impair the beauty, usefulness or efficiency" of the projected improvement; and in 1907 the Connecticut legislature, in creating the Hartford commission on city plan, gave to it the

right of excess condemnation, with priv lege to resell "with or without reservations" property not needed for an improvement—a privilege which the Connecticut legislature extended to other places in 1913.

In 1911, the people of Massachusetts adopted an amendment to the State constitution, of which the purpose is to permit cities and towns to exercise the right of excess condemnation over more than remnants. The amendment required, however, that the excess lands thus taken shall be "no more in extent than would be sufficient for suitable building lots on both sides of such highway or street." In 1912, Wisconsin and Ohio also incorporated the permission in constitutional amendments, and in 1913 the people of the State of New York amended their constitution for this purpose. The wording of the New York amendment closely follows that of Massachusetts, limiting the excess takings to an amount "sufficient to form suitable building sites"; but in reality this restriction amounts to little, as very seldom would there be desire to acquire more.

It would seem from this summary of recent legislation[1] that many American towns are now, and that more soon may be, in a position to avail themselves of a method of street widening which has had satisfactory test and which has been the means of ac-

[1] No mention has here been made regarding several enactments of which the courts have disapproved.

complishing extraordinary improvements in the congested quarters of other countries.

But the plan has four limitations: First, there is its dependence for practicability on a quick overturn which will promptly reimburse the municipality for monies expended. This unfits it usually for adoption in outlying regions where the resale of the abutting property at suddenly enhanced prices might prove a very long process. Second, it requires for execution, even under conditions that are exceedingly favourable, a large outlay or credit. Third, there is the fear that the power might be abused, the authorities opening unnecessary streets and buying in the city's name abutting lands at prices which perhaps could not be realized in a resale. It is a question, however, whether a possibility of abuse is a reasonable objection. Fourth, we must realize that it is not easy for a city, handicapped by law in its wrecking, building, and leasing operations, and not always able to command a large floating capital, to secure the profit which it is one of the purposes of the right of excess condemnation to put within its reach.[1]

[1] This difficulty, and a possible way out of it, are illustrated by a recent incident in Paris: For many years, there had been thought of extending the Boulevard Haussmann to make connection with the Grande Boulevard. Prices of the property that would have to be taken rose to great heights. To offset the consequent cost, a law was enacted, April, 1912, giving the city the right to expropriate the whole of properties touched by a proposed new street or street extension—the right, in short, of excess condemnation. But it was found that under the rule of "public compatability" (as it is

A further fact which should not be overlooked, is that from a financial standpoint European cities have regarded with some envy the simplicity and certainty

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called), the city still lacked authority to count on any profit not actually secured. The suggestion was then made, and approved by the Prefect of the Seine, that the work of extending the Boulevard Haussmann be given to a contractor upon the regular "sale by tender" basis. That is to say, the city would advertise that it desired to have the boulevard extended to the Grande Boulevard; and that it would use its powers of expropriation on behalf of any "concessionaire" who would undertake to pay the city the arbitrated value of the land, tear down the buildings, and provide a thoroughfare; the contractor being allowed then to resell the lands not required for the thoroughfare and make such profit as he could. The contractor, said the Prefect of the Seine, would very likely construct new buildings and discount a profit which the city, acting for itself, could not consider. He could probably obtain better terms in the eviction of tenants, for he could make a formal promise to reinstate tenants after a short time reasonably close to their former location. A merchant whose business was largely dependent upon certain regular customers might experience a severe loss through a slight change in his location. The specifications for the work stipulated that should its cost exceed the estimated 50,000,000 francs, the city and the contractor should share the extra expense in the proportion of 40 per cent. by the city and 60 per cent. by the contractor. It seemed necessary to make this stipulation as a partial protection for the contractor, and as an inducement to entertain the undertaking, for in a project carried out upon this basis in the Marbœuf quarter the contractor had found the cost of the work onerous on account of the tendency of the arbitration board to be generous with property owners and evicted tenants, the arbitrators having realized that the city treasury could not suffer, the expense falling upon the contractor. Further specifications protected the city against non-fulfillment of the contract and against delays; and gave to the city all objects of historical or artistic value which might be found in the demolition of the structures. On the other hand, the city agreed to use its power of excess condemnation on behalf of the concessionaire, at his expense, and to evict tenants and maintain order.

It seems not improbable that on some such agreement as this a contractor, or group of capitalists, might often be willing to undertake a considerable municipal improvement without cost to the city—a result which, in the end, would be the same as if, by the exercise of its right of excess condemnation, the city had been able to recoup expenses through the sale of the excess lands at enhanced values.

of the common American custom of assessing benefits.[1] That method assures to the city a prompt recoupment, in part at least, for an expenditure which results in the enhancement of property values, while at the same time eliminating the possibility of loss or the danger of abuse.

Mr. Shurtleff,[2] in a discussion of the relative merits of excess condemnation and special assessment, says:

> The absorption by the public of the increase of property values directly resulting from an improvement made at public expense, at least up to an amount equal to the cost of the improvement, may be more or less successfully accomplished by special assessments. The control over property adjacent to a public improvement, just in so far as that control is needed to enable the public to get the full use and enjoyment of the public property, may be obtained without acquiring title by the purchase or condemnation of easements. The combination of the two is believed by the more conservative thinkers on the subject to afford all the power that is necessary without the dangers of excess condemnation.

On the other hand, it is significant that a model act, conferring upon cities the right of excess condemnation, has been included in the suggestive legislation submitted to the National Conference on City Planning by its Committee on Legislation. Mr.

[1] This system, while very widespread in America, is not universal. At this writing, special assessments are ineffective or non-existent in, for example, Boston, Philadelphia, and cities of Ohio.

[2] *Carrying Out the City Plan.*

Shurtleff himself adds, to his opinion quoted above, the conclusion:

But the use of excess taking to protect the value, both economic and aesthetic, of a business thoroughfare, park, or parkway is sometimes essential to the full success of a great improvement. Only by its use in some cases can the full advantage of an improved thoroughfare be secured by providing abutting lots of size and shape adapted for suitable structures. Only by selling surplus land under restrictions can the city most effectively control the fringe along the widened thoroughfare.

CHAPTER XVIII

VARIOUS METHODS OF STREET WIDENING

THROUGHOUT the discussion of rational street planning it has been apparent that cities need a considerable number of relatively broad streets, and that such streets are relatively expensive. Because of the latter fact, the community is not as likely to receive them as a gift. The landowner, even if he be no devotee of standardization, is more prone, if he dedicates any street, to give one which is of moderate width. Whether in adherence to a scientifically made plan, or in response to the imperative demands of a growing traffic, the time is very likely to come when the city will have to give to old streets a greater width than they originally had, and in the newer sections to plan streets that are broader than the landowner would have contemplated.

In either case, it is desirable to carry on the operation at the least practicable cost to the community. The only methods which we have thus far considered are those of excess condemnation—a measure which

most American cities can use only to limited extent, when at all; and the establishment of front building-lines, placed at such distance from the street that no "improvements" will present an obstacle to the widening of the thoroughfare.[1] Both these methods are of value; but in the longer built-up portion of cities the latter has not been often followed, nor is it common on business streets. There has been, therefore, much casting about for some other plan of street widening that would lessen costs and be generally applicable.

As indicated, the wide street problem is twofold. It consists in platting new wide streets; and in widening existing narrow streets. The latter is the problem especially of the built-up portions of the town, and it is the one for which there has been the least preparation. Yet, of the two operations, it is the more difficult; each single case is more apparently urgent, and the values involved are larger than in the case of outlying property. Let us consider it first.

While old-world cities have naturally had more experience with this phase of the problem than have American, much of their experience has little perti-

[1] In regard to building restrictions, it is here necessary to discriminate between a personal covenant and the covenant that goes with the land. If a building-line were established only by agreement with the purchaser, he might quickly transfer the property to another buyer without exacting a like agreement, and so perhaps thwart the purpose of making it possible to widen the street at some later date without having to destroy or alter buildings.

nence in a country where towns and cities operate under laws that are as fundamentally different, from those which determine municipal action in Europe, as is the attitude of the two peoples toward their municipal governments. That fact is well illustrated, indeed, by the difference of viewpoint regarding "excess condemnation."

One plan, however, which has had successful trial both in Europe and America—*e.g.*, in Hamburg, Paris, and Philadelphia,—may be illustrated by the Philadelphia use of it: It was desired some years ago to widen Chestnut, Walnut, and Arch streets, in Philadelphia—the three streets of the city that were most congested by business traffic. To have made the improvement by the "excess condemnation" method would not only have required an outlay or credit of almost fabulous proportions, but, during the years which the work must have required, it would have paralyzed the business of the city. Accordingly, there was passed an ordinance—in 1884 for Chestnut Street, and in 1894 for Walnut Street, the dates being important as showing that it has now had opportunity to stand the test of time and of many actions—authorizing the Department of Surveys "to revise the city plan" so as to widen the street in question to a certain specified width—as, for example, seventy-two feet for Arch Street. The second section of these ordinances reads: "After

the confirmation and establishment of said lines, it shall not be lawful for any owner or builder to erect any new building, or to rebuild or alter the front, or add to the height of any building now erected, without making it recede so as to conform to the line established." The most valuable business property affected by these ordinances was that on Chestnut Street between Eighth and Sixteenth, within which distance about one hundred and sixty properties have up to this time been changed, and in the process set back. In actions brought for damages, the city contended that no damage was occasioned when a property still had a depth of a hundred feet or more, after the widening had taken place, with frontage not only on a widened street but also on a rear street or alley.[1] As a result, the widening of streets of enormous property values has now been practically

[1] Francis Fisher Kane, an attorney of Philadelphia, describes the case of the new Wanamaker store as one of the most interesting and significant which came up. This property, he writes, "has 250 feet on Chestnut Street and Market Street, and 489 feet on Thirteenth Street and Juniper Street, and is the only Chestnut Street property covering an entire block and having four fronts. Mr. Wanamaker's witnesses claimed that the loss of the strip of ground, 5x250 feet, occasioned a damage amounting to $93,750, which they worked out at the rate of $75.00 a square foot. The city's witnesses testified that no property in the city bore out their theory more clearly than this, and that the market value of such a property with four fronts, 484 feet deep on a 60-foot wide street, was equal in value to a property 489 feet deep on a street 50 feet wide. Notwithstanding witnesses who testified to the contrary, Mr. Gibbons, of the city solicitor's office, won the case, and the jury took the city's view and made no award." It should be added, however, that not all the cases have been equally successful, as some owners were allowed nominal damages.

secured, by this means, at almost no cost to the municipality.[1]

A modification of this method, to fit it for use in regions of smaller property values, has been proposed by Charles A. Ferry, of New Haven. He suggests that when new lines are run for a street, in order that it may be widened, there be a separate award for damages for land and for buildings on the land. The city would then pay for the land and become the owner of it, while allowing the property owner to retain for a time the possession of his building if this projected over the line, on the payment of an annual rental that would be a certain per cent. upon the land damage awarded. If the building were of small value, it might be worth while to move it back or to rebuild the front, at the city's expense; if alterations were made, or a new structure erected, the city would require that it conform to the new line. Thus in time the street would be widened at a nominal cost.

To both of these plans there is the objection that many years are likely to elapse before the improvement is complete, and that in the meantime the street presents a ragged appearance. This appearance is not different, however, from that which the street so familiarly presents in the less desirable process of

[1] Outside of Pennsylvania, this device has sometimes failed to meet the test of constitutionality.

narrowing it, when buildings that had stood back are being brought to the front of the lot. Moreover, the plans offer such economic advantages as to make possible great public improvements which, however necessary, could hardly be compassed by other means; and it is well to remind ourselves that in the long life of a big city—and these plans are applicable only in growing communities—the local discomforts of a dozen years or so are a relatively insignificant matter if they lead to permanent betterment.

But still another method of street widening is available, where there is continuous construction at the street's edge. It has less to recommend it, for it offers no addition of light and air, making concession only to traffic. This consists in carrying the sidewalks beneath the second floor of the buildings by means of arcades, as on the Rue de Rivoli, in Paris. Then the roadway can be widened to what was the whole width of the original street, while the only property absorbed is that which is on the street level, of just the width desired.

It has been suggested that if there were established a definite relation between building height and street width, it could be required that as buildings are raised to greater heights they shall be proportionately set back from the street-line, and so, automatically, streets would be widened as buildings got higher and congestion increased. This plan has weak points,

in that street congestion is not always due to local causes; that even when so caused, a few high buildings, set back to create isolated widenings of the street, would not substantially increase the street's traffic capacity; and that as high buildings ought to be large buildings, it requires lots of considerable original depth. No doubt, of more importance is the city planner's possible diversion of some of the traffic to another street.

Sometimes the occasion for widening a built-up street is the need of admitting more light and air, rather than of providing more space for traffic. In such case, it may be possible to secure the desired result by setting back the upper floors of buildings. With each additional floor above a certain point receiving a further setback, we should have buildings with terraced façades; but we would let sunlight into the street, and the ground floor, where rents are highest, would not be disturbed.

With reference to platting new streets, or even to widening old streets, where values are less high, where buildings are detached, and more or less property is vacant, there are other ways of reducing costs. For one thing, it seems not unfair, as suggested in a previous chapter, to meet some of the expense from the general tax, instead of putting it all on the frontage. The purpose of the improvement is primarily to serve the community as a whole. In these regions it

is not the traffic originating on the street which needs the additional space. Indeed, to some extent the abutting property holders actually suffer annoyance through the increased traffic which added accommodations invite. That they should pay, however, for a little more street width than they would have had to pay for had not that particular street been chosen as a traffic highway, is probably just, for the improvement bestows a speculative value on the property through the possibility that business will follow the enlarged tide of travel. But that a share of the added cost should be borne by the whole community, and perhaps also by posterity—by means of a bond issue—is also fair.[1] It may be remarked, however, that this plan, while lessening the burden for abutting property, does not reduce the gross cost.

There already has been suggestion, in preceding chapters, of another way by which cost can be reduced in sections not closely built. This is by securing an easement over those front gardens which, in the kind of area now under consideration, will be an almost universal accompaniment of such construction as there may be. Perhaps the method cannot be described more clearly than by giving a concrete

[1] This method was legalized in New York State, for instance, in 1911, a law authorizing the Board of Estimate of New York City, in the case of an improvement costing over $50,000, to divide the expense, if it so desires, between the city at large, the borough, and the special assessment district. Successful use has been made of the law.

A City Street in a Transition Stage

example of it. Sixteenth Street in Washington has an apparent width of eighty feet. It is really platted, however, twice that width, from building-line to building-line, and if the time should ever come when business invaded the street and the traffic grew to large proportions, the street could be given its true breadth—seemingly "widened," that is to say, to one hundred and sixty feet—without condemning any property. Meantime, as a fine residence street without heavy traffic, and with no commercial business, Sixteenth Street is lined with houses which have before them lawns and gardens forty feet or more in depth. On either side of the street, the householders are at liberty to fence these gardens, and use them almost as if they were owned in fee simple, save only that no store, shop, or other structure can be built upon the front forty feet of them. On the other hand, the residents are protected from the danger that some grasping individual will thrust a building out to the present sidewalk-line, interrupting the view and breaking the continuity of gardens—a protection that is no slight compensation. And that it may be seen that the law imposes no undue hardship, let it be observed that if an owner desires to put in a store before the city is ready to widen the street, or his neighbours to give up their front gardens, he can do so, provided he does not advance beyond the general building-line. The course he

usually follows is to extend the sidewalk paving in front of his property quite to the building-line, sometimes using the space for outdoor stands, or show cases, to attract trade; and perhaps erecting light awnings over it.

A useful law of Pennsylvania, of which there are occasional examples elsewhere, provides that cities may lay out streets in anticipation of future needs and yet postpone entering upon the land, either for construction or for opening it to the public. Until the city does so enter on the land, the owner has the free use of it.

> He receives payment only when the opening takes place; but if in the interim he shall have erected any structure within the limits of the proposed street, he will receive no compensation therefor when the street is opened. . . . The procedure is to establish a building-line, set back a certain distance from the street-line, paying damages only when the power to prevent the erection of a new building is actually exercised.[1]

Pennsylvania is fortunate again, from a city planning standpoint, in having courts which declare that an owner who erects a structure within the limits of a proposed street, as this is laid down on the official map, cannot receive compensation for damages when the street's actual construction takes place. Legislation to this effect which has been attempted in some other States has been declared unconstitutional.

[1] Frederick Law Olmsted, in *The Survey*, February 4, 1911.

That measures such as those described mean a great cheapening in the cost of street widening operations must be perfectly evident. Yet it is doubtful if any plan is simpler and at the same time more effective than the imposition of a front building-line at a sufficient setback, provided the step be taken early enough. When a street is mainly lined by residences, most abutters will welcome the establishment of a building-line that protects them from inconsiderate neighbours. This is shown by the readiness with which people pay high prices for residence property in neighbourhoods where land companies have imposed such a restriction. At least, it is conceivable that abutters would frequently be willing to waive claims for damages. This fact makes it possible for even a city which has not the right to establish building-lines arbitrarily, to gain that end by inviting abutters to sign such waivers.

Mr. Olmsted has said, in discussing this matter[1]:

> When the actual physical widening of the street takes place, through absorbing the restricted zones on each side of it, the damages for land-taking will be comparatively small, because at that time most of the abutters will want nothing so much as that very widening, if only to bring the sidewalks in contact with the fronts of their buildings. But regardless of its clear financial advantages to the city, in reducing its total payments for street widening and especially in distributing the burden of that cost over a long period without running up a large bonded

[1] Frederick Law Olmsted in his Report to the Pittsburgh Civic Commission, 1911, on "Main Thoroughfares and the Down Town District."

indebtedness and interest charges, the fundamental argument for this method of procedure is that it avoids the absolute dead loss to the whole community resulting from the destruction of valuable buildings.

CHAPTER XIX

THE ZONING OR DISTRICTING SYSTEM

GIVEN a centralized control over any land which the city plan ought to include, given the right of excess condemnation and other powers to facilitate and cheapen the accomplishment of large improvement schemes, and there still remains an authority which city planners covet. This is the privilege of establishing different restrictions in different parts of the same city. It is the opportunity to recognize in law and ordinance the plain truth that all parts of the city are not, and do not want to be, alike, that they have different work to do, different functions to perform, and need different rules for the regulation of their development.

In favour of the granting of this wish are its apparent basis of common sense and the fact that city planners covet the authority, not for their own benefit, but to render more practicable and attainable the plans they have made for the city's betterment. Seemingly opposed to the granting of the wish, as

far as American cities are concerned, is the guarantee of equality by the Federal Constitution.

That guarantee limits the city's police power. Under the police power, a city can enforce such measures as will promote the public welfare, only in so far as equality is not disturbed and the Constitution thereby violated.[1] The guarantee means, then, that any legislative discriminations or classifications must be justified by differences of status, act, or occupation corresponding to the difference in legislation. Practically, it imposes simply the requirement that any difference in the restrictions imposed in different parts of the same city shall be based on reason. If the desired distinctions cannot stand that test, they ought not to be desired. If, having been enacted, they are held not to violate the Constitution, that fact will be evidence that they are reasonable.

It has been for a long time an accepted principle that a city might establish two or more building districts, in order that fireproof construction might be required in one of them. The constitutionality of that act has been steadily upheld. Boston has

[1] "The courts interpret police power as the power to promote that which the public has, through experience and education, learned to believe is necessary for the public welfare; and although the courts might at all times be a little behind the opinion of the City Planning Conferences or of social workers, still, as these opinions spread throughout the community, the courts will gradually realize that the community has learned a new need."—Alfred Bettman, City Solicitor of Cincinnati, at National Conference on City Planning, 1914.

divided itself into several districts upon which are imposed different limits of building height, and a test of this action, carried up to the Supreme Court of the United States, has resulted in its having been declared constitutional.[1] Maryland has placed a special limit upon the height of the buildings within a block of the Washington monument, in Baltimore; Indianapolis by ordinance has taken similar action in regard to the structures on its Monument Place; and in the City of Washington the districting idea has been applied with great rigour for a number of years, as regards the heights of buildings, the distinctive "districts" being arranged by streets rather than by broad areas. St. Louis, amending its charter in 1901, gave to the municipal assembly the right "to prohibit" by ordinance "the erection or establishment or maintenance of any business houses or the carrying on of any business vocation" on property fronting on a boulevard that might be thereafter opened.

In 1909, Los Angeles created by ordinance distinct residential and industrial districts, decreeing that certain kinds of business should be excluded from the former, even though they had been already established in the designated area. This very radical action was subsequently upheld by the Supreme Court of the State. Three years later, the legislature

[1] Welch *vs.* Swasey, 214 U. S. 91, 29 Sup. Ct. 567, 1909.

of Maryland passed an act requiring that all buildings in a given section of Baltimore be detached. In that same year, 1912, Massachusetts amended its general municipal act so as to permit all of its cities and towns except Boston to regulate the height, area, location, and use of buildings in any designated part or parts of their corporation limits. And the Province of Ontario, Canada, gave to cities that had a population of 100,000 or more authority to control the location of apartment and tenement houses and of public garages.

In 1913, there was a wave of districting legislation.[1] New York State authorized the Common Council in the six cities of the second class, on petition of two-thirds of the owners affected, to establish residence districts in which only single or two-family houses may be constructed. Minnesota in that year passed an act empowering Duluth, Minneapolis, and St. Paul to establish residential and industrial districts, on petition of fifty per cent. of the property owners in the affected section. Any kind of business, and even tenements, apartment houses, and hotels may be excluded from the residential district. Wisconsin authorized its eight

[1] A good deal of this data, as well as some of that in other chapters of this section, has been taken from the chapter on "City Planning Legislation" which was contributed by the author to the National Municipal League's volume, *Handbook of City Planning*. (See reference in footnote, page 240).

cities of 25,000 or more population to set aside "exclusive" residential districts. Seattle included the possibility of restricted districts in the building code adopted by it in July, 1913.

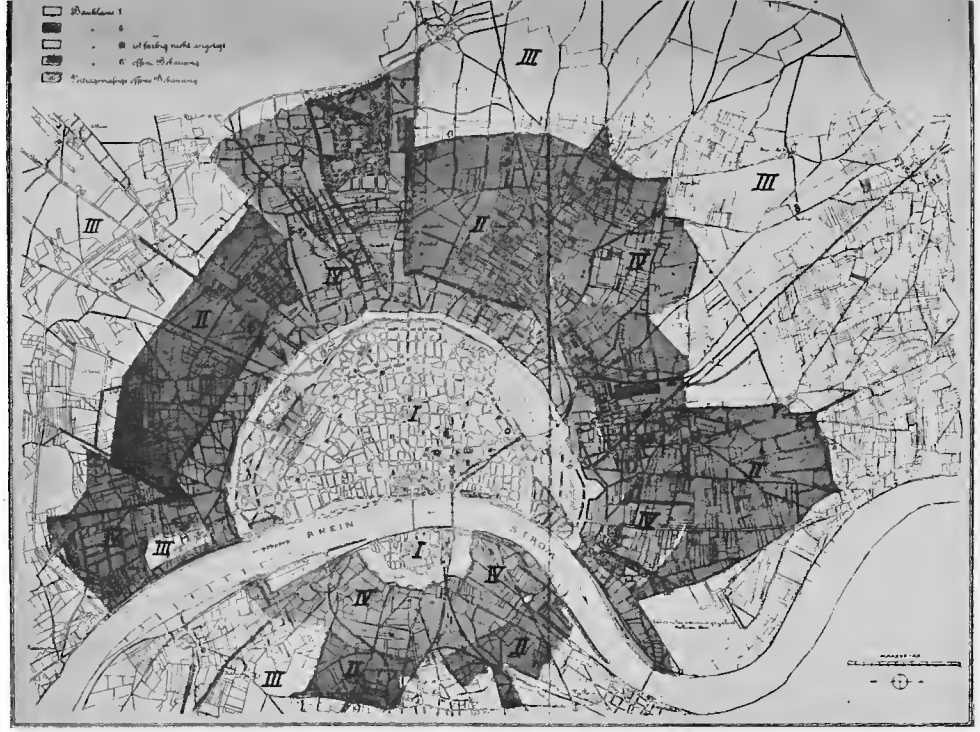
In 1914, the legislature of New York amended the charter of New York City in order to permit the Board of Estimate and Apportionment to "divide the city into districts of such number, shape, and area as it may deem best suited" for a regulation of "the height and bulk of buildings and the area of yards, courts and other open spaces," and it gave to the Board permission to make these regulations different in different districts. The Board was given authority also to "regulate and restrict the location of trades and industries and the location of buildings designed for specific purposes," and to "divide the city into districts of such number, shape, and area as it may deem best suited to carry out" such purpose.

This, the latest, seems to be the most definite districting legislation; and while it is true that new laws are constantly added, and new forward steps continually taken, it has seemed worth while to run over the legislation thus far secured, because it so clearly shows the trend. It seems to give assurance that in America districting has come to stay, that it will grow in thoroughness, and thus that city planners will have this added authority which may be of such

value in facilitating the adaptation of towns and cities to their functions.

The plan of dividing a town into districts, which are differentiated by law and ordinance, has been in operation in Germany much longer than in the United States. It has been there worked out with great elaboration and success. The custom was inaugurated by Napoleon, who imposed on conquered German towns a requirement that manufacturing operations which were dangerous, unhealthy, or offensive should be segregated. With the rapid growth of cities after the Franco-Prussian war, the value of this military orderliness was popularly appreciated. The system spread; it became Prussian law, and later Imperial German law, and was extended to include in its classification more than Napoleon had contemplated.

The system was called a zoning plan. Most of the old towns were walled. Within their walls the erection of buildings of five or six stories was permitted, and then, in the early days, the limit for the belt just outside the walls was made four stories. Beyond that, another belt was created in which residences should be not over two stories high and detached. Thus it really became a zoning system. Moreover, two new elements were introduced into the plan. To districting according to the character of use—the original Napoleonic idea—was now



ZONE PLAN OF COLOGNE AND ITS SUBURBS IN 1901

Illustration of the German zone system. In Zone I, the heart of the town, buildings may have four stories and be 66½ feet high; in Zone II, they must not exceed three stories and a height of 52½ feet, this comprising the suburbs of more urban character; in Zone III, which contains the more rural suburbs, the limit is two stories and a height of 38 feet; and in Zone IV it is two stories and a height of 52½ feet, this district being reserved for "open," or villa, building.

added, (a), districting according to the *intensiveness* of the land's use, and, (b), the idea of gradation, or progression.

With this start, classification became in Germany more and more complex, and more and more varied as between different cities. Zones gave way to districts, but the old name persisted—though in the United States and England, where legislation never has contemplated exact zones, the term "districting" is greatly to be preferred. The German regulations are very long to quote, and as the lack of uniformity would make necessary the quoting of many, it seems best simply to summarize in a paragraph the general system as now developed.

The city cuts its area into sections, irregular in size and outline, conditions of site and of previous development largely determining these matters. The Graded Building Code of Munich, for example, has authorized nine grades of buildings; while the regulations of Düsseldorf recognize nine classes, or sections, and then subdivide some of these three or four times. The city areas are subdivided even more, sections of each class being located in different parts of the city. In Frankfort, the plan is an Inner City and an Outer City, the latter having an Inner Zone and an Outer Zone, each of these being then divided into Residence Section, Mixed Section, and Factory Section. Karlsruhe, instead of creating

"districts," has established sixteen classes of streets. The differentiation by streets rather than by neighbourhoods has so much of good sense to commend it that it promises to become popular both in Germany and the United States.

In Great Britain also the districting idea has been definitely accepted. Under the town planning act schemes are expected to limit the number of buildings which may be erected per acre and to designate the character and possible height of those buildings, without regard to a uniform regulation. The East Birmingham scheme, for instance, has three housing "zones," with, respectively, twelve, fifteen, and eighteen houses to the acre. Sheffield proposes to permit twelve to twenty-four in different districts. Furthermore, the British act provides that limitation shall not entitle the owner of a tract to compensation "when the Local Government Board, having regard to the nature and location of the land affected, consider such limitation to be reasonable for the purpose of securing the amenity of the section."

Frank Backus Williams,[1] who has made a careful study of districting, has said of it[2]: "As a rule, districting does preserve the character of neighbourhoods. This is an advantage in every way. It saves the waste of destruction, reconstruction,

[1] Chairman of the City Planning Committee, City Club, New York.
[2] Paper at the third National Housing Conference, 1913.

and readjustment, inevitably attendant upon a change of character; and by making such a change impossible, steadies values. It prevents that conflict of alien activities which is to their mutual disadvantage. It raises land values in the only way that is possible without injury to any one." "The districting of urban land," he has pointed out on another occasion, "is the putting of that land to its highest and most specialized use. Like division of labour or of industry, it is in line with the tendency of the age." A result of this specialization is, that the seller gets a higher price for his land, the purchaser finds it more useful and profitable, and the city receives more taxes from it.

Fully to appreciate the practical value of districting, one may take in illustration so simple a case as that of building height restriction. If it were necessary to make the restriction uniform for all parts of the city, we should have to accept the height allowed in the most congested district as the standard for every part.

And the device has other city planning advantages, not previously touched upon—*viz.* (1), By its means, bounds may be set to the intensiveness with which land can be developed. Speculative inflation of real estate values, due to "sweating the land," or to the possibility of doing this, is therefore eliminated. The bearing of that fact on the housing

problem becomes apparent in a quotation from a leaflet issued by the Committee on Congestion of Population in New York:

> The high cost of land is the first and inevitable cause of congestion. To pay a net return of eight per cent. on land worth $2 per square foot, with a density of 250 per acre, each family of five must pay, for the use of the land alone, $121.96. . . . Unskilled wage-earners cannot be properly housed on land worth over $1 per square foot.

For this reason, very largely at any rate, Benjamin C. Marsh has described districting as "the most important part of city planning, as far as the future health of the city is concerned." (2), In discouraging the speculative inflation of land values, it enables a city to purchase at reasonable valuation lands that may be needed for streets or for other purposes. (3), The definite determination of the use to be made of the land in any part of the city makes it possible to calculate closely just how wide the streets need to be. Even with main highways it ceases to be necessary to add so very much merely for good measure. Along with this saving, there is, (4), an increase in the effectiveness of the planning. Consider, for example, with what gain in efficiency and economy a section of the city could be developed for manufacture, with reference to transportation by water, rail, and street, if it were known that the area was to be always devoted to that sole purpose.

The restrictions voluntarily imposed by persons who are developing large tracts of land for residence, and which are eagerly accepted by their clients, is as significant as it is well known. An advertisement, for example, observed on a street car, reads—illustrating that dual regulation by quantity and quality (by intensiveness and character) which is the aim of municipal districting: "New high class restricted residence park. . . . No flats, no factories, no saloons."

In fact, the value—both to sellers and purchasers—of special restrictions for special neighbourhoods, has come to be so well understood in the United States that real estate operators often impose them in a very thorough fashion, though usually such restrictions are limited to a period of twenty or twenty-five years, with the right of renewal if the owners do not object. Thus there does exist a method of voluntary districting; but its effectiveness is clearly limited both as to time and place. Moreover, the community cannot always count on the knowledge, public spirit, and skill of the real estate operator in determining restrictions. His chief motive is almost inevitably personal profit. His action is to be considered interesting, then, as unconscious expert testimony to the value of districting, rather than as a possible substitute for community action.

The truth is, we have been needlessly weak or

cowardly in requiring a standardization, not of streets alone, but of the whole town. If, in functional street planning, we now propose to discriminate between different street needs and allow different kinds of streets to meet those needs, we should permit differences of legislation in the regulation of the buildings upon the streets. The real town is a federation of neighbourhoods. To recognize this, is the purpose of districting.

Conclusion

CHAPTER XX

THE TEST OF CITY PLANNING—LIMITATIONS AND BENEFITS

IN drawing this volume to its conclusion, a hundred lines of thought invite consideration. It is as if, in turning one's back on a fascinating city, of which there has been time for only a glimpse, one stood at the station upon an elevated plaza from which led many streets of alluring vista. Some of the roads are broad and straight, some are narrow and devious; but all seem enticingly to beckon, making one loth to leave until their mysteries have been explored. One cannot feel that full justice has been done the city until one knows those streets. Yet time is up, the bell rings, and the whistle blows.

Perhaps the dominating thought must be the bigness of the subject, its interest, its importance, its grip on the urgent things of life. Consideration of the width and arrangement of streets, far from being a by-path of investigation, proves a broad highway. All the currents of life, all the grades of society are intimately affected by the problems it includes.

The joy and pain of urban existence, the comfort or hardship of it, its efficiency or failure are influenced by the wisdom or the thoughtlessness with which streets are platted.

The street, thus studied, gains a new dignity and value. No more can it be despised. We shall not dare to speak in reproach of those whose existence is closely bound to it—as "the children of the street," the "women of the street"—for we find that the fortunes of us all are affected by it. It is more than a passageway, though even as a passageway it is the channel of the common life. It makes the boundary of our homes, it gives us our outlook upon the world. In fact, the streets make the cities what they are, and the cities make the world. When we study how best to plan the streets—not the main highways only, nor only the great show avenues, but the minor streets as well—we have no mean subject. "I fancy," said a student of city progress,[1] "that the civic renaissance which must surely come, which indeed has already appeared in its sporadic beginnings, will never get very far until we have awakened to a realization of the dignity of the street—the common street, where the city's children play, through which the milk wagon drives, where the young men are educated, along which the currents of the city's life flow unceasingly." The street, then, is to be thought of,

[1] Dr. Delos F. Wilcox, before the City Club of Philadelphia, 1910.

not as a line in a drawing, not as a mark on a map; but as a living thing.

This quality of it, which adds so vastly to the interest of the problem, adds also to its difficulty. For it requires that our plans must not be too rigid. Conditions change, people migrate; the lot-unit which well suits a neighbourhood today may be too large, or too small, for the uses which are to characterize that neighbourhood two generations hence.

Flexibilty of plan must be secured mainly through the minor streets. Great highways cannot be readily changed. Their location must be determined by fundamental considerations that can only change slowly, if they change at all. These highways cut the city area into large main blocks; and it is in the subdivision of these by the minor streets that there must lie the flexibility of the plan. As was stated in another chapter, the city planner is not infallible. Though he be an admirable diagnostician, new conditions will create new needs. His main lines can be strong, confident, and firm; but between them there must be the possibility of transformation. There could hardly be graver fault than to adopt a city plan with a sense of finality, fancying that there never will be need of fitting and moulding it to meet changing conditions.

We cannot approach the building of a city, has said Robert H. Whitten, Secretary to the Committee

on City Plan of the New York Board of Estimate and Apportionment, exactly as would an architect who had the designing of a large structure—

> even of one of those great cathedrals, whose construction extends over a century or more. The great difference is this —the city is never completed. No limit can be set to the growth and expansion of the city. No amount of planning can avoid the necessity for a considerable amount of reconstruction and change. . . . The plan must develop and change with the advance of civilization. City planning to be effectual must be sustained and continuous. It is never completed. It requires a permanent authority always looking ahead, always constructive, always alert.

That, no doubt, is the next great lesson which we have to learn—the next long step which the movement is to take, the provision of a continuously directing power. The city planners and plan commissions of the future will not simply prepare the field and sow the plan; they will husband its growing perfection, giving to it expert, watchful care, alike through wet periods and through dry.

Yet the results of city planning unmistakably make for stability. If, for instance, an industrial section grows up, in response to the exceptionally satisfactory provision of transportation and other facilities, that section will not readily move. This will be, in part, because when new facilities are to be added, the temptation and pressure to add them to the same district, where existing plants can at once

make use of them, will be almost irresistible. The permanency of the factory district will fix the location of the employees' housing section, and the location of houses does much to determine the location of stores. Cities grow—but not, in the often quoted phrase, as Topsy grew. The city is the most artificial of creations. Every street is deliberately staked out; its direction, its width, and its subdivisions determined consciously in advance. City growth is directed growth; and the more firmly it is in our power to direct that growth, by comprehensive scheme and central control, the less vacillation there will be in its development.

And stability, no doubt, is a good thing. There is always economic waste in the abandonment of the old for the new. Moreover, a constantly shifting population is not as easily governed, or as well fitted to govern itself, as one which has such permanency of habitation that civic affection and civic pride has a chance to take root. A platting of streets, so wise and well thought-out that there will be little temptation to change it as the years go by, will do more than perhaps most of us realize to bring about good municipal government and contented urban populations.

Considered, then, as an art, the purpose of town planning is, as we have seen, to "do for the city what the architecture does for the home." The architect accepts as fundamental the home's human ser-

vice, and the use of different parts of it for different purposes. He does not put the nursery on the north side where the children will have no sunlight; he does not put the kitchen at the front and the drawing-room next beyond. He does not build in such a way that no change will ever be possible. Continuous healthfulness, convenience, comfort, and beauty are all desired and are all sought by *formulae* that are based on order and common sense and the possibility of moderate changes when, to gain the desired ends, such changes become necessary.

Taking another point of view, a business man, proposing to create a new, or to improve the efficiency of an existing, commercial, or industrial plant—which is the business aspect of city life—sets about it with a plan. He adjusts parts to functions. He does not put his warehouses at the end of the tract away from railroad sidings, as we sometimes do in the hit-or-miss building of cities; he does not scatter interdependent units, as we almost always do when building cities. By order, system, and forethought he seeks to save energy and time. It is so in wise city planning.

Again, the architect in building the home considers, (1), the owner, (2), the tenant, and (3), the community. The town planner may well put his project to the like threefold test. He must ask himself how, first, does it affect landowners, those owners—municipal, corporate, or individual—of large tracts on the outskirts

of towns, whose subdivisions determine the manner of the city's extension and the future welfare of its people. If it be not just to them, and even advantageous to them, progress cannot be anticipated save by a revolutionary social upheaval. Second, how does it affect the individual home owners—"ultimate consumers" in the field of city planning—to whom the lots in the large tracts are sold? It must be just to them and to their advantage, or the subject does not deserve consideration. Third, how does it affect the community?

It is impracticable to go over all the arguments. In the preceding pages the question has been looked at from many points of view. It has seemed that a well thought-out, reasonable system of street platting, undertaken with foresight, must necessarily be to the advantage of all tract owners. No one who owned a tract would think of cutting it up until he had in mind a plan for the whole. If that is the course of common sense with reference to a comparatively limited estate, it must be the proper procedure with reference to the town—a vastly larger and more important estate. The interrelation between lot and tract, and tract and town, is similar.

A point, however, to be noted here, is that a large owner of real estate might be fully persuaded of the advantage of city planning methods, but unless the community had town planning powers—the author-

ity, the central control, and the ability to grant the privileges that can be granted where there are such powers—he might be entirely helpless, as regards the service which he might render to the community or to himself by putting his good ideas with reference to street platting into effect. If, through ownership of a complete tract, he were able to do anything, it would be only in a limited way, and with the danger that his neighbour by an inharmonious development might ruin all he had done.

To the large owner of real estate, therefore, city planning does mean hope. And it is advantageous to him in another way. Instead of leaving him dependent upon his own scant knowledge of the subject, or at the mercy of any conveniently obtainable surveyor or landscape engineer, it makes available for solving his special problems the best experience and thought that the community can engage. This will study, for instance, the most advantageous size and shape possible to be given to the lots into which his tract will be cut; if he has waste lands that he can hardly hope to sell for building purposes, at any rate not without very costly development, it may suggest with authority the utilization of those lands for park purposes. It would insure him against sudden depreciation of values through spite, ignorance, or indifference by owners of adjacent lands, or by the community itself. Even in setting limits to the intensiveness with which

an owner could use his land, it does not necessarily, as we have seen, lessen his net profits. The purpose of city planning, as Lawson Purdy, President of the New York City Department of Taxes and Assessments, has well said, is so to plat the public property that the land which is privately owned may be put to the best usefulness.

With regard to the individual home owner, he is the one for whom, in the last analysis, streets are platted. Unless they make for his convenience and his comfort, unless they give him a good home and facilitate the transaction of his business, they have failed in their purpose. It is important to keep this in mind. Though we should give to him, in our social enthusiasm, churches, parliaments, schools, libraries, baths, and workhouses—as altruism has generously done—and though we should group some of these in a very effective centre, if we forget the facilitation of a wholesome family life and personal efficiency, we shall fail to serve him in the best way. As for town planning's special consideration of childhood, the hope of every country is in its children.

Good street platting will not do everything for the individual or the family, but it can help much. The book has tried to emphasize this relation. Even when considering the subject's financial rather than social aspect, it has dwelt more, it will be observed,

on the economy which city planning means for the individual, than on its saving for the community.

Yet the third question, the effect of the plan upon the community at large, is very pertinent. There are two points of view. The readiest judgment is that, as the community is simply the sum of the individuals who compose it, whatever makes for their betterment makes for the good of the whole. In the largest sense, this is true. Yet there are some things in which the community must take co-operative action, and for which individual welfare and the individual viewpoint are not enough. For instance, it is by no means as certain as some one assumed who said: "When Mr. Smith," as typifying the individual, "possesses in peace his own solid little home, he will attend to the town hall." He may be so snug in his little home, it may so cramp his naturally narrow vision, that he will decline to be interested in a town hall. Lawrence Veiller, Secretary of the National Housing Association in America, has said,[1] that

> the small property owner, with limited resources, . . . is the greatest obstacle to progress. Burdened as he is, limited in his intelligence, his own standard of living low, his knowledge of sanitary science practically *nil*, it is not strange that he should not place the welfare of the community above that of self-interest and should not divorce, in his consideration of public questions, their effect on his own pocket from their value to his neighbours and to posterity.

[1] Article in *Annals of the American Academy of Political and Social Science.*

The small property owner's conservatism, fortunate when in moderation, becomes, when carried to the length of narrowness and selfishness, the bulwark of that false public economy which is responsible for so many of the shortcomings of towns and cities.

Now, a first principle of city planning is consideration for the rights of others. It finds its base in community spirit; it does give the large view; it simplifies co-operation for the common good. This is its great and precious community contribution.

Secondarily, it means also, as has been hinted, economy for the community. J. S. Nettlefold, writing in 1908, declared that a careful compilation seemed to establish it as a fact that in the preceding ten years "not less than £30,000,000, which town planning would have saved, had been expended" for street widening, slum clearances, the provision of open spaces, and such improvements by English towns. He stated that in his own (the Birmingham) committee, 2,105 unsanitary houses had been dealt with during the last five years, a period during which, he thought, Birmingham had done rather less proportionately than other cities. In 1914, the city engineer of Liverpool reported that in the preceding fifty years Liverpool had expended $25,000,000 for "road improvements" which a "reasonable foresight" would have made unnecessary. And New York, a few years ago, in order to clear ten acres of

slums and make in their stead an open space, expended about five and one-quarter million dollars, which was $200,000 more than the cost of Central Park's 840 acres, the latter having been bought with foresight.

Finally, it may be remarked that a well-organized society tends to express itself in an organized, dignified, and individualistic way. The city with a well-developed civic consciousness will ultimately have a formal and dignified civic centre, representative of its official entity. Without town planning, it may be doubted whether a community is well organized; with it, there is no question as to that, and if the premises are correct we may expect a civic centre to develop as an entirely natural part of the plan. It will not be forced, or exotic in character or expression; on the contrary, it will gain its charm and interest through being marked by the individuality of the city—the most precious quality the city has.

With the civic centre, however, this volume, having to do especially with the extension of cities and with the width and arrangement of their streets, is not closely concerned. It is enough to point out that of real city planning the civic centre is a by-product, not the whole thing—as its spectacular appeal once led people to believe. It is a flower, significant, as are various others, of the health of the plant of civic spirit—of its maturity into beauty. And until

beauty is the product, we shall know—as we know in all work—that perfection is still before us. In planning towns, we have to realize that no social order is ideal, no engineering faultless, no efficiency complete until expressed in beauty. So, by the like test, the streets of the city will not be properly arranged until, with their adjustment to purpose, beauty has appeared.

Behind town planning, writes George Cadbury, Jr., in his book on the subject, "there are the deepest and most permanent instincts of mankind. . . . The desire for order, for health, and for beauty." We may have faith, therefore, in its triumph.

Appendix

APPENDIX

CERTAIN PRINCIPLES OF A UNIFORM CITY PLANNING CODE

EXTRACTS FROM THE PRELIMINARY REPORT OF THE COMMITTEE ON LEGAL AND ADMINISTRATIVE METHODS OF THE NATIONAL CONFERENCE ON CITY PLANNING. PRESENTED TO THE CONFERENCE AT PHILADELPHIA, 1911.

BY ANDREW WRIGHT CRAWFORD, OF PHILADELPHIA, CHAIRMAN.

THE Executive Committee of the National Conference on City Planning has suggested, to its Committee on Legal and Administrative Methods, the preparation of a uniform City Planning Code. Sweden, England, and America offer precedents for such a code, but these precedents are decidedly limited. The English town planning act, passed in 1909, under the leadership of John Burns, M.P., is the English precedent, but the Constitutions of our States and of the United States prevent it from being of much assistance to us, although its general objects and principles might be incorporated in an enactment specially framed to meet our needs.

The uniformity of an American code is suggested by the Uniform Negotiable Instruments Law, passed by forty States, and the Acts on Sales and certain other topics now being considered by the legislatures of the several States, to avoid the medley of decisions arising from different interpretations of the common law.

Any code of city planning, with our present knowledge of the subject, can be but tentatively drawn. . . . The subject is difficult because of the varying laws already in existence

throughout the Union. That the laws in each State are entitled to consideration is obvious from any practical point of view. Each State is the sole judge of the functions which are to be delegated to its cities. As the city is but an arm of the State, and therefore a mere agent, it can generally exercise no power or authority which is not specifically or by necessary implication conferred upon it. When there are forty-six different legislatures with varying knowledge of the needs of cities or of their relative importance, of the questions social as well as governmental that they present, it is but to be expected that the charter powers of municipalities throughout the United States will differ even in important respects from the charter powers of other cities of the same class.

SCOPE OF PROPOSED CODE

Before the preparation of even preliminary drafts of acts, it was necessary to determine the conclusion that the committee should come to in regard to the scope of the code. An act that wipes out existing authorities and substitutes a different body will meet the political opposition of all existing authorities and will have much less chance of passage. Should a City Planning Code upset existing authorities or should it be so worded that, with necessary changes, it can readily be made to fit into existing municipal governmental schemes? Should an entirely new body be given authority to plat the streets of a municipality, or should a new board be given authority to supervise the platting of city streets by the body already in existence to make it homogeneous with the schemes of other departments? Should a new scheme *in toto* be devised, taking advantage of all that has been learned and of every suggestion that can be made by different cities, or should a city planning department, to act from the broad point of view of wise policy in city planning, be devised, which shall interfere with existing machinery as little as possible? This Conference is a practical body brought together to get practical results. The best way to get these results is to secure their adoption in principle

without too great concern over details. It has therefore seemed to your Committee the wiser policy, at this stage of the development of city planning, to provide for a new body to be superimposed upon existing authorities, who themselves shall be represented in that body, rather than to attempt to create a complete substitute. For this the Connecticut act that created the Hartford City Plan Commission offers valuable suggestions.

As it appears likely that certain of the provisions of a City Planning Code will be attacked, your Committee deems it advisable to present not one act but several acts which, as time goes by, may be brought together. If an attempt were made now to combine all the provisions that appear desirable in one act, it may well be that one set of its provisions would be held unconstitutional, and that, therefore, the entire code might be held unconstitutional, although other provisions were well within the power of the law-making bodies. The question in such cases is whether the unconstitutionality of the set of provisions so affect the whole act that its remaining provisions cannot be held valid apart from them. For instance, the power of excess condemnation and the power of preliminary platting in undeveloped sections, so as to prevent the erection of buildings within the limits of the streets platted, are each of them subject to objections regarded a generation ago as fatal. Why, then, make the constitutionality of one dependent more or less upon the constitutionality of the other? Why not let each stand or fall on its own merits? Your Committee deems it only reasonable that each provision should be construed by itself, confident though they are that each will be generally upheld. As time goes on, the advantage of codifying these various acts into one uniform city planning act will become more and more obvious.

EXCESS CONDEMNATION

City planning necessarily has to do with transportation in the broadest sense. Transportation covers not only vehicular

methods of transportation from one point to another by means of steam railroads or street transit systems on the surface, above, or below ground, but the method of transportation by the streets themselves. The space occupied by streets includes from about twenty-two per cent. to fifty per cent. of the area of the developed portions of cities. Your Committee presents herewith the legal aspect of street reconstruction and of street platting.

Street reconstruction chiefly concerns the opening of new streets and the widening of old ones in the central or developed portions of cities, and street platting chiefly has to do with the location of streets in undeveloped areas. While in individual cases reconstruction may possibly be done altogether at the expense of the taxpayers, general reconstruction, such as we have been familiar with for years abroad and such as will continue necessarily through all time in every city, can only be undertaken effectively if the city may condemn more land than it wants in order to resell with proper restrictions. It is practically essential that the power of excess condemnation shall sooner or later be upheld, if American cities are to be rebuilt as European cities are being rebuilt.

Excess condemnation was considered by the Conference on City Planning at each of its former sessions and a brief reference here will, therefore, suffice. We would refer to constitutional changes proposed in Massachusetts and New York expressly authorizing such acts of excess condemnation. Whether this is an advisable method is at least questionable. While the constitutional change may be effective in the States concerned, it will not avoid a difficulty possibly presented by the Constitution of the United States. The constitutions of the States providing for excess condemnation will have to be upheld as not unconstitutional under the Constitution of the United States. For my own part, I am inclined to think it likely that a decision by a State court upholding excess condemnation within reasonable limits would in turn be upheld by the Supreme Court of the United States. Up to the present time there has been no case before the Supreme Court of

the nation in which a decision of a State court holding that a condemnation is for a public use has been reversed. If, instead of a decision of a court of competent jurisdiction, a constitutional declaration passed by the people at the polls is presented to the Supreme Court of the United States, I fear an entirely different attitude will be found upon the part of that distinguished tribunal.

STREET PLATTING

The other main problem with regard to the street system concerns chiefly the platting of streets in undeveloped areas. Here it is a pleasure to a loyal son of Pennsylvania to be able to say that his mother State points the way; for, in Pennsylvania, we have an act which provides that the engineering authorities may plat streets and that when the streets are so platted no building shall be erected within the limits thereof or, if erected within such limits, no damages shall be paid the owner when the street is formally opened. By "opening" is meant the acquisition of the public right-of-way. It has been decided in other States that such acts are unconstitutional because they deprive the owner of an important use of his property during the period between platting and opening, without compensation. This act has been upheld in Pennsylvania and it is at least questionable whether it would not now be upheld generally throughout the country as a reasonable exercise of the police power. We believe, however, that it is altogether unnecessary to rely upon the police power, because all rights of owners can readily be provided for through compensation by an act slightly varying from that of Pennsylvania.

The main outline of such an act, as drafted by the Committee, is as follows, the latter parts varying from the Pennsylvania act: The act provides that the proper authority shall have the power to plat streets in undeveloped areas, that thereafter no building shall be erected by the owner within the limits of such streets, or, if erected, that no damages shall

be paid the owner when the formal right-of-way is acquired through proceedings of eminent domain. The platting of the streets does not give nor attempt to give title to the right-of-way, but it does deprive the owner of the use of the ground within the right-of-way for building purposes. The act therefore authorizes and directs that the owner shall be compensated for the deprivation of the use of his property to this extent: when the street is formally opened, he is to receive full compensation, not only for the easement then acquired by the city, but, in addition, for this deprivation between the date of platting and the date of opening. He will, therefore, secure compensation for every element of his ownership. Should the street be platted and thereafter the location of the proposed street be changed, the act provides that the owner shall then have the right to secure compensation for the deprivation of the use of his property within the platted right-of-way during the time between the original platting and the subsequent removal from the plan. By this method he will secure compensation for the right of which he has been deprived for that length of time. It will be observed that the owner has no immediate right of action because of the platting of the street. It is unnecessary in our view of the law that he should have any immediate right to such compensation. Justice Sharswood of the Supreme Court of Pennsylvania stated that when property is taken by the right of eminent domain "the obligation of compensation is not immediate. It is required only that provision should be made for compensation in the future." Hammett *v.* Phil., 65 Pa. 146 (1870).

If this statement by one of the greatest judges of Pennsylvania should not be regarded as law by other States, it will then be necessary in such States to provide for immediate compensation to the owner for the loss of the use of his property to this extent. But we are satisfied that generally this will not be found necessary, except where the State constitution expressly provides for compensation before any taking at all, and in such a State it is respectfully submitted that the constitution should be changed.

Those of you who are familiar with the practical working of the law of condemnation will not fail to observe that this act would create a new element of damages in such proceedings. The fact of creating this additional element will be beneficial, although it may slightly increase the money that goes out of the city treasury. If the Board of Surveyors knows that should it plat a street and thereafter find it advisable to change its location, then the property owner will be entitled to damages for his inability to build upon the platted area meanwhile, the Board will consider its action carefully before it originally plats the street. This is an advantage because the careful study will far more than compensate for the slight additional payment to the owner.

Closely akin to this matter is the power to widen streets gradually by providing that, as houses fronting thereon are altered they must be set back to a new building-line. For instance, the widening of Chestnut Street from fifty to sixty feet has been proceeding since 1883, and you may see four buildings between Thirteenth and Broad Streets on the old line. The city has now reached the point where it can order these buildings, that remain, back to the new line, without overburdening the public funds. An act to give this power generally has been prepared.

PLATTING OF PUBLIC RESERVATIONS

The next act of Assembly which the Committee has prepared is that concerning the platting of areas in undeveloped sections of the city, which areas are intended for parks, playgrounds or public buildings of various kinds. It is just as important to systematic and wise city planning that reservations should be platted as sites for future parks, playgrounds, school-houses, fire-houses, libraries, etc., as it is that the streets should be located in advance. But the ground should be reserved generally, instead of specifically, so that future developments may determine the precise use to be made of the particular area. The act provides for the platting of the

areas intended for such purposes and also provides that no building shall be erected on such areas, by the individual owner, and if erected that no damages shall be given for them. The same provision is inserted providing for compensation to the owner for the loss of the use of his property for building purposes between the date of the platting and the date of actual condemnation, and, likewise, there is the same provision for compensation to the owner should the platted location be changed.

THE DISTRICTING OF CITIES

The act of Assembly prepared by the Committee on this point follows the Boston precedent. It concerns the restriction of buildings in outlying areas to heights that shall not be greater than the width of the street upon which they front.

DRAFTS OF SUGGESTED ACTS

An act entitled " An act for the government of cities; creating and regulating a City Planning Department, giving it jurisdiction, extending it over the city and for three miles beyond the city limits, and regulating the laying out of plans of lots within the limits of the city."

Section 1. Be it enacted, etc., That an additional executive department in the government of cities is hereby created, to be known as the Department of City Planning, which shall be in charge of a City Planning Commission, consisting of nine persons, to be appointed by the mayor, to serve during his term in office and until their successors are duly appointed and qualified, and who may or may not be residents of the city. An appointment to fill a casual vacancy shall be only for the unexpired portion of the term. Three shall be a quorum. They may make and alter rules and regulations for their own organization and procedure, consistent with the ordinances of the city and the laws of the commonwealth. They shall serve without compensation, and make, annually, to the mayor, a report of their transactions and recommendations. They may employ engineers and other persons, whose salaries and wages, and other necessary expenses of the Commission, shall be provided for, in the discretion of councils, by the proper appropriations and ordinances.

Sec. 2. The clerks of council shall, upon introduction, furnish to the City Planning Commission, for its consideration, a copy of all ordinances and bills relating to the location of any public building of the city, and to the location, extension, widening, enlargement, ornamentation and parking of any street, boulevard, parkway, park, playground or other public

grounds, and to the vacation of any street, or other alteration of the city plan of streets and highways, and to the location of any bridge, tunnel or subway, or of any surface, underground or elevated railway. The said Commission may make a report or suggestion in relation thereto, if it deems a report necessary or advisable, for the consideration of councils. All such reports when delivered to the clerk of councils shall be for the information of the public as well as of councils, and the Commission shall furnish to any newspaper of the city, on request, for publication, a copy of any such report.

Sec. 3. The City Planning Commission may make, or cause to be made, and lay before councils, and in its discretion cause to be published, a map or maps of the city, or any portion or portions thereof, including territory extending three miles beyond the city limits, showing the streets and highways and other natural or artificial features; and also locations proposed by it for any new public buildings, civic centre, street, parkway, boulevard, park, playground, or any other public ground or public improvement; or any widening, extension or relocation of the same, or any change in the city plan, by it deemed advisable. And it may make recommendations to councils, from time to time, concerning any such matters and things aforesaid for action by councils thereon; and, in so doing, have regard for the present conditions and future needs and growth of the city, and the distribution and relative location of all the principal and other streets and railways, waterways and all other means of public travel and business communications, as well as the distribution and relative location of all public buildings, public grounds and open spaces devoted to public use, and the planning and laying out for urban uses of private grounds brought into the market from time to time.

Sec. 4. The City Planning Commission may make recommendations to any public authorities, or any corporations or individuals, in said cities, with reference to the location of any buildings, structures, or works to be erected or constructed by them.

Sec. 5. All plans, plats, or re-plats of lands laid out in building lots, and the streets, alleys or other portions of the same intended to be dedicated to public use, or for the use of purchasers or owners of lots fronting thereon or adjacent thereto, and located within the city limits, shall be submitted to the City Planning Commission and approved by it before they shall be recorded. And it shall be unlawful to receive or record such plan in any public office unless the same shall bear thereon, by endorsement or otherwise, the approval of the City Planning Commission. The disapproval of any such plan by the City Planning Commission shall be deemed a refusal of the proposed dedication shown thereon. The approval of the Commission shall be deemed an acceptance of the proposed dedication; but shall not impose any duty upon the city concerning the maintenance or improvement of any such dedicated parts, until the proper authorities of the city shall have made actual appropriation of the same by entry, use or improvement; and owners and purchasers shall be deemed to have notice of the published plans, maps, and reports of the Commission affecting such property within its jurisdiction.

An act relative to taking of remnants of land in certain cases by right of eminent domain.

Section 1. Any city in the State, so far as the territory within its limits is concerned, may take in fee by right of eminent domain the whole of any estate, part of which is actually acquired for the laying out, alteration or location by it of any public highway, square, open space, park, parkway or playground, if the remnant left after taking such part would, from its size, shape or location, be unsuited for the erection of suitable and appropriate buildings, or for such other use, as, under the circumstances, it would otherwise be reasonably suited to; and if public convenience and necessity require such taking; provided, that the ordinance of the city providing for such taking of said remnant, shall state that such remnant was unsuited as aforesaid for some one or more of the reasons

aforesaid, and that public convenience and necessity does require such taking.

Sec. 2. The provisions of law, at present in force in this State, with regard to the taking of property by eminent domain, and of notice, hearing and compensation in such cases, shall apply to and be in force with regard to the taking of remnants, as aforesaid.

Sec. 3. Said remnant, so acquired, may, either in connection with other remnants or otherwise, be resold by said city, with such restrictions in the deeds of resale as may be necessary and proper to protect said public highway, square, open space, park, parkway, or playground, their environs, the preservation of the view, appearance, light, air, health or usefulness thereof, whenever the State or city shall by statute or ordinance so provide.

An act authorizing cities to acquire land, within or without their limits, for public parks, parkways and playgrounds; to acquire neighbouring property within two hundred feet of property so taken and to resell the same with restrictions; requiring that the proceeds be used for the purchase of private property for parks, parkways and playgrounds; and providing for compensation for private property taken.

Section 1. It shall be lawful for, and the right is hereby conferred upon, the cities of this commonwealth to purchase, acquire, enter upon, take, use and appropriate in fee simple, private property, for the purpose of making, enlarging, extending and maintaining public parks, parkways, and playgrounds within or without the corporate limits of such cities, whenever the councils thereof shall by ordinance or joint resolution determine thereon; provided, that where such private property is outside of the city, it may be annexed thereto by ordinance of said city.

Sec. 2. It shall be lawful for, and the right is hereby conferred upon, cities of this commonwealth to purchase, acquire,

enter upon, take, use, and appropriate neighbouring private property, within two hundred feet of the boundary lines of such property so taken, used and appropriated for public parks, parkways, and playgrounds, in order to protect the same by the resale of such neighbouring property with restrictions, whenever the councils thereof shall, by ordinance or joint resolution, determine thereon; provided, that in the said ordinance or joint resolution, the councils thereof shall declare that the control of such neighbouring property, within two hundred feet of the boundary lines of such public parks, parkways, or playgrounds, is reasonably necessary, in order to protect such public parks, parkways, or playgrounds, their environs, the preservation of the view, appearance, light, air, health or usefulness thereof.

Sec. 3. It shall be lawful for, and the right is hereby conferred upon, the cities of this commonwealth to resell such neighbouring property, with such restrictions in the deeds of resale in regard to the use thereof as will fully insure the protection of such public parks, parkways and playgrounds, their environs, the preservation of the view, appearance, light, air, health and usefulness thereof, whenever the councils thereof shall, by ordinance or joint resolution, determine thereon.

Sec. 4. The taking, using and appropriating, by the right of eminent domain, as herein provided, of private property for the purpose of making, enlarging, extending and maintaining public parks, parkways and playgrounds, and of neighbouring property, within two hundred feet of the boundary lines of such public parks, parkways and playgrounds, in order to protect such public parks, parkways and playgrounds, their environs, the preservation of the view, appearance, light, air, health, and usefulness thereof, by reselling such neighbouring property, with such restrictions in the deeds of resale as will protect such property, so taken for the aforesaid purpose, is hereby declared to be taking, using and appropriating of such private property for public use.

Sec. 5. The proceeds arising from the resale of any such property so taken, shall be deposited in the treasury of said cities, and be subject to appropriation by the councils of said city, for the purchase and acquisition of private property for public parks, parkways and playgrounds, and for no other purpose.

Sec. 6. Said property may be acquired by gift, purchase or eminent domain. If acquired by eminent domain, the provisions of law at present in force in this State, with regard to the taking of property by eminent domain, and of notice, hearing and compensation in such cases, shall apply to and be in force with regard to such taking.

An act to create metropolitan districts of cities of the first and second classes and the areas within twenty-five miles of the limits thereof, to provide for the appointment of Metropolitan Planning Commissions for such districts, to prescribe their powers and duties, and to provide for their expenses.

Section 1. Be it enacted, etc., That, in order to secure co-ordinated comprehensive plans for systems of roads and thoroughfares, street railway systems, smoke prevention, of parks and parkways, of water supply, of sewerage and sewage disposal, of collection and disposal of garbage, of playgrounds, civic centres, and other improvements as hereinafter provided, for cities of the first and second class and the areas within twenty-five miles of the limits thereof, and in order to prevent waste by the unnecessary duplication of such public utilities, the areas including cities of the first and second class and that within twenty-five miles of the limits of said cities shall be denominated the Metropolitan Districts of cities. When any political unit less than a county is partly within and partly without the twenty-five-mile limit, the whole of such political unit shall be regarded as within the Metropolitan District. The term "political unit" as used in this act shall include cities of the first, second and third classes, townships

of the first and second classes, boroughs and poor districts, but no others. Where two or more cities of the first or second class are within twenty-five miles of each other, they shall be embraced in the same district, and the district shall consist of the areas of all political units within twenty-five miles of the limits of any of the several cities of the first and second class within said district.

Sec. 2. There shall be an executive department created for every Metropolitan District to be known as the Department of Metropolitan Planning of District, which shall be in charge of a Metropolitan Planning Commission.

Sec. 3. The Metropolitan Planning Commission shall be composed of the mayors, the directors of the Departments of Public Works and the chief engineers of the cities of the first and second class within the district; the mayors of cities of the third class; one member from each of three of the Township Commissions of Townships of the first class within the district; one member from each of three of the townships of the second class, within the district; the chief burgess of three of the boroughs within the district; and three others who may or may not be residents of the district or State, and who may or may not hold other public office whether for profit or otherwise. The said three presidents of Commissions of Townships of the first class and of townships of the second class, the said chief burgesses, and the said three citizens shall be selected by the Governor. All members shall be appointed by the Governor, to serve during his term of office and until their successors are duly appointed and qualified, except in the case of *ex-officio* members, who shall serve during their respective terms of office. All members by virtue of their office shall be *ex-officio* members. An appointment to fill a casual vacancy shall be for the unexpired portion of the term. Ten shall constitute a quorum. The Metropolitan Planning Commission shall make and alter all rules and regulations for its own organization and procedure consistent with the laws of the commonwealth. From its own members it shall choose a President and Vice-President. Each member

shall serve without compensation. The commission shall make annually to the mayors of cities and to the head of each of the other political governmental bodies within the Metropolitan District, a report of its transactions and recommendations. The commission shall employ a secretary, engineers and other experts and persons, whose salaries and wages, as well as all other necessary expenses of the commission and members thereof, shall be provided for as hereafter set forth.

Sec. 4. The Metropolitan Planning Commission shall make or cause to be made and laid before the respective governmental authorities of the district, and in its discretion cause to be published, a map or maps of the entire district or any portion or portions thereof showing any or all systems of roads and thoroughfares, street railway systems, smoke prevention, of parks, parkways and playgrounds, of water supply, of sewerage and sewage disposal, of collection and disposal of garbage, of civic centres, or of other natural and artificial physical features of the district; and of locations proposed by it for any new or enlarged thoroughfares, street railway system, parks, parkways, playgrounds, water supply systems, sewers, sewage disposal plants, garbage disposal plants and civic centres, or any other public improvement that will affect the character of the district as a whole, or more than one political unit within the district; or any widening, extension or relocation of the same, or any change in the existing city, township or borough plans, by it deemed advisable. And it may make recommendations to the respective governmental authorities, from time to time, concerning any such matters or things aforesaid for action by the respective legislative, administrative or governmental bodies thereon; and, in so doing, have regard for the present conditions and future needs and growth of the district, and the distribution and relative location of all the principal and other streets and railways, waterways and all other means of public travel and business communication, as well as the distribution and relative location of all public buildings, public grounds and open spaces devoted to public use, and the planning and laying

out for urban uses of private grounds brought into the market from time to time.

Sec. 5. Any governmental unit within any Metropolitan District may request the Metropolitan Planning Commission of that district to prepare plans concerning any of the subjects set forth in section 4 of this act, whereupon it shall be the duty of the commission to prepare such plans with dispatch.

Sec. 6. The Metropolitan Planning Commission may make recommendations to any public authorities, or any corporation or individual, in said districts with reference to the location of any buildings and structures, to be constructed by them.

Sec. 7. The plans so made and laid before the respective governmental authorities by the Metropolitan District Planning Commission shall be considered by such respective authorities and followed in so far as shall be determined by each authority.

Sec. 8. All expenses of such commissions shall be divided among the respective governmental units within such district according to the population thereof at the last preceding decennial census of the United States, and, when certified by the president and secretary of said commission, shall be a charge on the treasury of each governmental unit of the district and its immediate payment shall be at once provided for by it; otherwise the commission shall have power to secure immediate payment by suits of mandamus.

An act to empower cities to create from one to four districts within their limits and to regulate the heights of buildings to be thereafter constructed within each district.

Section 1. Be it enacted, etc., That, in order to protect the health of the citizens of this commonwealth and to promote the safety of public and private property, the power is hereby conferred upon every city by ordinance to create within its limits from one to four districts for the purpose of adopting regulations concerning the heights of buildings in each district.

Sec. 2. Every city is hereby empowered by ordinance to regulate the heights of buildings within such districts; provided, that no building over two hundred and fifty feet high shall be permitted to be hereafter constructed within any city.

Sec. 3. In prescribing the regulations for any district the city may fix either an absolute limit of height for the whole or a part of a building based upon the width of the street or streets, upon which it abuts, or some other system, and the city may provide for one system in one or more districts and a different system in others, but the system prescribed by any district must be uniformly applied throughout that district.

Sec. 4. The said regulations may further provide for a greater elevation of buildings which recede a certain distance from the building-line of the street.

Sec. 5. The said regulations within each district may be made to apply to the alteration of existing buildings as well as to the construction of new buildings.

Sec. 6. No permit for the erection or alteration of any building contrary to the terms of such regulations shall be issued.

An act to authorize the platting by cities of civic centres or parts thereof.

Section 1. Be it enacted, etc., That, in order to further the creation of civic centres, every municipality may plat upon its general plan land proposed to be acquired for parks or playgrounds, and such property abutting on such parks or playgrounds, or on the streets surrounding them, as it may propose to acquire for the erection of municipal buildings of all kinds.

Sec. 2. Every municipality may also plat upon its general plan ground abutting on any park or playground or on the streets surrounding such parks or playgrounds proposed to be acquired by any duly authorized State or county agency, of which due notice is given by the proposed State or county agency to said municipality.

Sec. 3. After the general plan or any part thereof has been duly platted in pursuance of authority of the councils of such municipality, it shall not afterwards be altered without the consent of councils. No person shall hereafter be entitled to recover any damages for any buildings and improvements of any kind or any interest therein which shall or may be placed or constructed upon or within the lines of the park or playground or property abutting thereon or on the streets surrounding such park or playground, after the same shall have been so platted.

An act relating to the platting of reservations without specifying their proposed use.

Section 1. It shall be lawful for, and the right is hereby conferred upon, each city of this State, to plat upon its official city plan, land or any interest therein for any lawful public use, and it shall not be necessary to designate, specify or determine the particular public use to which said land or interest therein is to be put; but such intended public use may be so stated.

Sec. 2. Said land or interest therein may be used after purchase or proceedings of eminent domain, from time to time, for any public use or uses; and may at any time be designated and appropriated to any specific public use, or uses, whether or not such use is that stated in the platting, if in fact there was such a statement.

Sec. 3. The proceedings in eminent domain shall be the same as in other such proceedings.

An act relative to the establishment of building-lines.

Section 1. The word highway, used in this act, means any public highway, esplanade, boulevard, parkway, square or street, or any part or side, or part of the side, of any of the same.

Sec. 2. Any city in this State may provide, with regard to

any building-line to be established on any highway therein, that thereafter no building or other structure shall be re-erected, re-constructed, or substantially repaired, and that no new building or other structure or part thereof shall be erected within said lines.

Sec. 3. This act shall not be construed so as to limit or abridge any right heretofore conferred or had by any city in this State to establish building-lines or take property or any interest therein by eminent domain.

Sec. 4. Said building-line shall be established in such cases, in the same manner in all respects as in the case of other building-lines; and the owner of land affected thereby shall have the same rights to notice, hearing and compensation as in such cases.

Sec. 5. When the owner re-erects, re-constructs or substantially repairs his building, he shall then be entitled to damages which shall be assessed and paid in the manner provided by law, for proceedings in eminent domain.

Requirements in the Program of the Düsseldorf Competition

REQUIREMENTS IN THE PROGRAM OF THE DÜSSELDORF COMPETITION

The terms of the Düsseldorf town planning competition, instituted in 1911, and which has been highly regarded by city planners everywhere, included the following requirements—interesting here because endorsing on German authority so many of the points which this book has endeavored to make:

(1), The principal commercial streets from the town into the country are to be considered the groundwork of the plan. A future supplementing of this main network with new streets is to be assumed.

The main streets must be wide enough for tramways. . . .

(2), Boulevards and promenades, that must be as free from through traffic as possible, must be provided for between the open spaces. . . .

(3), Proposals must be made for the division of the town into residential and industrial centres, whereby a revised distribution of the town divisions in the several classes and zones of buildings becomes possible. In arranging the industrial centres, good railway communication should be considered. . . .

The separation of the industrial from the residential quarters by park and woodland should be aimed at.

Residential quarters, with dwellings suitable for the various classes of the inhabitants (detached houses, terrace houses, small and large blocks of dwellings), as well as plans for open and enclosed places, to be provided for, in addition to existing

buildings, to such an extent as to meet the requirements of the increasing population until the year 1930.

By regulating the width of streets and depth of building blocks, wholesome conditions of living are produced. At the same time the ground should be apportioned carefully, and nothing allowed to go by chance. Low buildings are to be recommended; moreover, the detached house will not greatly concern the lower classes. Suggestions may also be indicated for new suburbs in the larger district of the built-up town, easily accessible by tram.

Etc.

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